OFFICE OF FAIR TRADING

Competition in markets with commission rates

Prepared for the OFT by DotEcon Ltd

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CONTENTS

This report is based on information from published reports and papers gathered by DotEcon up to and including the end of July 2006. All references to 'current', 'recent' etc relate to the same timeframe. This report also includes information provided to DotEcon by third parties (up to and including the end of September 2006). DotEcon has not independently audited or verified the factual accuracy of any of this information.

The use of the word 'market' within these annexes does not in any instance refer to a market as defined for competition law purposes, and should instead be read as in its generic form.

1 EXECUTIVE SUMMARY

Background

1.1 This report presents the results of research commissioned by the OFT into the use of commission rates, aimed at examining the circumstances under which consumers might be better served by a different charging structure. The research combined a theoretical review of the effect of the structure of intermediary charges and a series of case studies of sectors where commission rates are employed, in order to provide:

- a greater understanding of the rationale for commission rates, their potential effect on competition and the impact they can have on consumer welfare under different circumstances especially where a trade off may exist between the effect on competition and other potential benefits

- broad indicators of when commission rates have a potential beneficial or detrimental effect on consumer welfare, and

- help in identifying areas for further investigation/research by the OFT.

1.2 As part of our research, we developed a conceptual framework for assessing the relationship between commission rates and competition. Starting from an operational definition of commission rates, we considered the likely rationale for their use, assessed how competition is affected by and affects that use, and examined the scope for any problems given the use of commission rates. In addition, we undertook case studies in five sectors where commission rates are currently employed. These included residential sales estate agency, financial advisory services, stockbrokerage, on-line auctions, and temporary and contract employment agency. In particular, we sought to understand the key features of these sectors, competition within them and how commission rates are employed within the sectors.

Key findings

1.3 Both our conceptual analysis and our review of the five sectors in which commission rates are commonly used suggest that there is no reason to expect competition concerns to be qualitatively different in markets with commission rates compared with 'normal' markets. Provided that customers are able to make well-informed choices about the agent they wish to use, competition should be expected to result in commission arrangements that best serve the interest of the agent's customers, though – as is common in two-sided markets – the benefits from doing so may be rather unevenly distributed. The distribution of benefits can be expected broadly to reflect whether the transactions that the agent facilitates take place in a buyers' or a sellers' market. Similarly, there is no reason to expect that commission rates as such might be used in order to restrict or distort competition.

1.4 If markets in which commission rates are being used are more likely to raise issues than 'normal' markets, this is likely to be because agents receiving commission are often used because of their superior skills and knowledge, which in turn implies that in such markets there is more scope for problems related to incomplete information and bounded rationality. This is particularly the case where the function of the agent is not simply to provide a platform and facilitate the execution of transactions, but where a substantial proportion of the agent's services consists of providing advice and helping customers to select an appropriate product or trading partner. This is reflected in our case studies, where issues have been raised mainly with regard to financial advisory services, and to a lesser extent with regard to estate agency services. These concerns are not so much about the price paid for these services, but about the quality of services, and specifically the quality of advice, received from the agents.

1.5 These problems are not necessarily related to restricted or distorted competition, but can often arise in markets that are fairly competitive. Indeed, it may often be strong price competition – which would otherwise be perceived as beneficial – that is responsible for bad advice and distorted incentives. As the case of stockbrokerage suggests, where customers are fairly sophisticated, and where it is relatively easy to evaluate the quality of an agent's advice, reputation can be an effective mechanism for maintaining the right incentives for agents – but where the feedback mechanism is less effective, problems of distorted incentives may arise.

1.6 The theoretical analysis of such problems suggests that there are few general conclusions that can be drawn. The effects of competition under conditions of imperfect information crucially depend on the specific market circumstances. This makes it imperative that the models of competitive interaction that are being used in order to determine the potential source of problems, the potential magnitude of the detriment suffered, and the likely efficacy of possible remedies closely reflect these conditions.

1.7 Moreover, models that are based on perfectly rational behaviour may provide some insight into the underlying problems, but may often not give the full picture. For example, systematic biases in the way in which individuals respond to uncertain information (including the way in which it is presented) render invalid many of the predictions made on the basis of rational choice theory.

1.8 This suggests that future research should focus on markets in which informational problems are likely to occur, and that such research should incorporate models of bounded rational choice. Unfortunately, there is no generally agreed model of bounded rational behaviour, and it may therefore be necessary to consider a potentially large range of behavioural rules and heuristics and check whether any analysis undertaken in order to identify potential sources of problems and possible remedies is robust with regard to variations in these behavioural rules.

Case study summaries

1.9 The five sectors covered by our case studies reflect a broad range of agency functions and commission rate structures. In each of the sectors buyers and sellers rely to a significant extent on the service of agents in order to meet, find a suitable transaction partner and obtain advice and other services that assist with or facilitate the transaction. The starting point for assessing the effectiveness of competition in such markets with commission rates is to consider whether there would be alternative arrangements that better suit the needs of the agent's customers than those that can be observed in the market place, that is, arrangements that would lead to:

- a better match between a seller and buyer (thus increasing overall gains from trade), or allowing for a greater level of exploitation of network effects
- better advice to customers to assist their selection of a product or service
- lower costs of using agents (which would be indicative of lack of competitive pressure on agents' fees), or
- a more equitable distribution of benefits as between the two-sides of the market (in particular where one side of the market consists of businesses).

1.10 Where there is a potential charging mechanism that is likely to perform better against these criteria than the existing arrangement, one can then consider the reasons for the market not having led to the emergence of these. Table 1.1 below sets out a summary of our main case study findings against these criteria in each of our case study sectors.

Table 1.1: Summary assessment of case studies

<table>
<tr><th>Do alternative charging mechanisms exist that lead to…</th><th>better match or tapping of unexploited network effects</th><th>better advice/selection</th><th>lower agency costs</th><th>more equitable distribution of benefits</th></tr>
<tr><td>Residential sales estate agency</td><td>✓
(staggered charges might mean a better match, but poorer advice)</td><td>✗
(competitive in terms of valuation and commission)</td><td>✗
(competitive, low barriers to entry)</td><td>✗
(distribution of benefits depends on whether it is a buyer's or a seller's market)</td></tr>
<tr><td>Financial advisory services</td><td colspan="2">✓
(alternative fee based remuneration might limit bias in advice and improve selection match)</td><td>✗
(competitive, low barriers to entry)</td><td>?
(extent of product providers' profitability may be of interest)</td></tr>
<tr><td>Private client stockbrokerage</td><td colspan="2">✗
(current structure in case of advisory services might lead to bias toward trading, but feedback and reputation effects work well)</td><td>✗
(competitive, low barriers to entry)</td><td>✗
(trading is with total market on one side)</td></tr>
<tr><td>On-line auctions</td><td>✗
(alternative pure fixed fees may limit number of smaller value trades)</td><td>N/A
(on-line auctioneers do not provide advice)</td><td>?
(eBay largest provider, but low barriers to entry and alternative ways of buying & selling exist)</td><td>?
(distribution determined by auction format)</td></tr>
<tr><td>Temporary and contract employment agency</td><td colspan="2">✗
(reputation provides a strong incentive not to lead to over or under qualified matches)</td><td>✗
(competitive, low barriers to entry)</td><td>✗
(mark-ups are used to cover the range of costs)</td></tr>
</table>

Key to table: ✓- alternatives exist, ✗- alternatives do not exist, N/A– not applicable, ?– uncertain

2 INTRODUCTION AND BACKGROUND

Background

2.1 This report presents the results of research commissioned by the OFT into the use of commission rates, aimed at examining the circumstances under which consumers might be better served by a different charging structure. The research combined a theoretical review of the effect of the structure of intermediary charges and a series of case studies of sectors where commission rates are employed, in order to provide:

- a greater understanding of the rationale for commission rates, their potential effect on competition and the impact they can have on consumer welfare under different circumstances especially where a trade off may exist between the effect on competition and other potential benefits
- broad indicators of when commission rates have a potential beneficial or detrimental effect on consumer welfare, and
- help in identifying areas for further investigation/research by the OFT.

Our approach

2.2 We have undertaken this project in two parts:

- first, we have developed a conceptual framework for assessing the relationship between commission rates and competition. In particular we have developed an operational definition for commission rates, considered the likely rationale for their use, assessed how competition in markets is affected by and affects that use, and considered the scope for any problems given the use of commission rates, and
- second, we have undertaken case studies in five sectors where commission rates are currently employed. In particular, we have sought to understand the key features of these sectors,

competition within them and how commission rates are employed within the sectors.

2.3 In informing our conceptual framework, we have reviewed relevant literature on principal agent issues, two-sided markets and on incentives resulting from charging structures within the various sectors.

2.4 The case studies chosen for this assessment are five significant sectors selected to reflect a diverse set that employ commission rates in some form. These include:

- residential sales estate agency
- financial advisory services
- private client stockbrokerage
- on-line auctions, and
- temporary and contract employment agency.

2.5 In undertaking these case studies, we have reviewed key market reports and publicly available reports on the various sectors, met with the FSA in the case of the financial advisory services and stockbrokerage case studies and have, where possible, taken on board views of any stakeholders.

2.6 For the avoidance of doubt, we should stress that the case studies are not intended to draw out evidence of potential breaches of either of the Chapter I or the Chapter II prohibitions of the 1998 Competition Act, but rather to understand why commission rates emerge in certain sectors and the effect that such charging structures have on consumer welfare.

Structure of this report

2.7 Chapters 2 and 3 set out the conceptual framework we have developed. Chapter 2 provides an operational definition of commission rates from an economic perspective and examines potential reasons for their use, discussing the main insights from the economics of principal-agent relationships, and the economics of two sided markets, both of which are relevant for the analysis of commission rates. Chapter 3 considers how competition affects commission rates, and how it may be affected by the use of such charges, and provides an approach for assessing the relationship between competition and commission rates. Chapter 4 sets out a summary of the findings of our case studies as assessed against this checklist.

2.8 To this main report, we have annexed further details on the individual case study sectors. In particular, each case study annex includes:

- a description of the market highlighting the size, nature of buyers and sellers, the role of the intermediary, the key players within the market and other features of the market that may be pertinent to our assessment, and

- a description of the charging structures and levels used in the sector today and historically, and where known, the rationale for the use of commission rates.

3 UNDERSTANDING COMMISSION RATES

What are commission rates?

3.1 In order to examine the relationship between competition and the use of commission rates, assess the extent to which there might be alternative charging arrangements that would better promote the interests of consumers, and examine the potential problems arising from the use of commission rates with regard to competition, it is essential to develop an operational definition of commission rates.

3.2 From an economic perspective, commission rates seem to be characterised by two features:

- first, commission rates are payments to an agent for assisting with a transaction between two parties to which the agent is not itself a party. For example, an estate agent receives a commission for the sale of a property, a financial adviser receives a commission for distributing the products of a financial service provider, or the operator of an on-line auction website receives a commission for every transaction that is made through its site

- second, commission payments are generally contingent on the completion of a transaction, and often depend on the value of that transaction. For example, an estate agent will normally not receive any payment unless a sale is agreed (and completed), and is generally paid a proportion of the price agreed between the buyer and the seller. An IFA is often (and often exclusively) paid by the provider of the financial product in proportion to the value of the business it brings to that provider, and may therefore not obtain any remuneration for the time and effort spent on advising a particular investor if no contract is concluded.

3.3 Thus, commission payments remunerate agents for the time and effort they spend on facilitating or assisting with a transaction between two parties, but they are not purely determined on the basis of the effort undertaken by the agent, but partly linked to whether or not this effort is successful. This already has an important implication: as agents may often incur costs without receiving payment, but will need to recover costs **on average**, commission payments can be expected to exceed the cost incurred by the agent in serving the payee. Those who make payments also cover the cost of serving those who do not transact.

3.4 In practice, payments made to an agent may be made up of a number of different components such as:

- non transaction-related fees that are payable regardless of whether a transaction is completed (for example, listing fees which have to be paid regardless of whether or not an item sells through an auction web site, or payments to an adviser based on the amount of time spent advising a customer and an hourly rate)

- fixed payments contingent on the completion of a transaction (for example, a flat fee for the execution of a particular sale or purchase of shares by a stock broker), and

- payments linked to the value of the transaction[1] (for example, the commission earned by estate agents, employment agencies or financial advisers), these payments may be specified as a fixed proportion of value, or a menu of percentages depending on the transaction value (for example, commissions charged by on-line auction providers, which have different tiers). These may take the form of one-off payments, or – as in the case of IFAs – ongoing commissions and retention bonuses.

[1] Note that the value of the transaction may be measured in different terms, for example, as simple gross value of the transaction, or as a difference between this value and some benchmark value. It may even be the case that fixed payments are contingent on the failure of a transaction. For example, auction houses may use so-called 'buy-in penalties' for which a seller becomes liable if the article fails to sell, which are intended to induce sellers to set a realistic reserve price (see Greenleaf and Sinha (1996)).

3.5 In practice, these different payment elements may be combined. However, the nature of a commission arrangement requires that at least some part of the payment is linked to the completion of a transaction, although sometimes there may be a minimum offer condition, which specifies that the agent will receive the commission when an offer at a particular price level is found, even if the seller decides not to accept the offer.[2] Very often the commission payment is set with reference to the transaction value, for example, as a percentage of the price agreed between the buyer and seller of a property. Thus, in a commission arrangement the agent's remuneration needs to depend at least to some extent on the success of the agent in bringing about a transaction – no transaction, no commission.

3.6 In addition to the payment elements listed above, there may also be non-payment terms that link remuneration to the success or failure of a transaction, such as a maximum selling time beyond which the agent's contract is terminated if unsuccessful.

3.7 In summary, in what follows we consider as a commission arrangement any arrangement in which:

- an agent is used to assist with, facilitate or bring about a transaction between two parties (that is, a transaction to which the agent is not party), and where
- the payment received by the agent is in some way contingent on this transaction.

If the only compensation received by the agent is a fee that is payable regardless of whether or not a transaction is completed (for example, an hourly rate charged by a financial adviser regardless of whether the advice leads to a transaction, or a pure listing fee for inclusion of an item on an auction web site), then this falls outside our the definition of commission payments, though it is instructive to consider such arrangements as an alternative that would be available to the parties

[2] This provision is used widely in estate agents' contracts in several European countries and in the USA, though not normally used in the UK.

involved in a commission arrangement. Equally, an arrangement in which the agent itself becomes a party to the transaction, buying and selling in its own name (for example, a car dealer purchasing and selling used cars), would not be considered to be a commission arrangement, though again it is useful to consider such a resale arrangement as an alternative.

3.8 It is interesting to note that commission arrangements are not just used in certain markets where agents are involved in the completion of the transaction, but are also (and perhaps even more commonly) used within firms – quite often in the remuneration of sales staff. Indeed, the typical 'sales commission', where a salesman is rewarded for each sale he makes through a proportion of the sale's value, is perhaps the archetypal commission rate arrangement. The characteristics noted above apply also in this case: the salesman is 'assisting' the firm in making a sale, he is not himself part of the transaction, which is concluded between the buyer and the firm, and the payment depends on the completion of the transaction, and is often linked to the value of the transaction.

3.9 However, as the focus of this report is on the use of commission rates in the context of markets, we restrict our attention to cases where the services of an agent are offered in the market place, rather than within a firm.

Why are commission rates used?

3.10 Commission payments remunerate agents for their assistance with transactions between two parties, for example, a buyer and a seller of a property, or an employer seeking to fill a position and a job seeker. In fulfilling its role, the agent may perform a number of functions:[3]

- the agent may simply assist one of the parties in executing the transaction, as is, for example, the case with stockbrokers

[3] Often, agents perform multiple functions, and may charge separately for the different services they provide. For example, a stockbroker may set different charges for executing trades and for managing a client's portfolio.

offering execution-only services. Here, an agent acts by accepting and executing orders from individual principals detailing the equities to be traded and at what terms to transact. This role of stockbrokers is set out in more detail in our case study in Annex C

- the agent may provide a platform that enables the two parties to the transaction to meet and to conduct their business. For example, on-line auction sites provide a forum where buyers and sellers can meet and conduct transactions

- the agent may help to search for an appropriate match. For example, estate agents match up buyers and sellers, and employment agencies match prospective employees to job opportunities

- the agent may provide advice in connection with the transaction. For example, estate agents often advise on property valuation in order to help the vendor set an appropriate asking price

- sometimes the agent may even help one party to identify and define its specific needs, and perhaps even select the trading partner. For example, financial advisers help potential investors to identify the most appropriate financial product, which may often involve assisting the client in defining and articulating the specific requirements that the financial product should satisfy, and may imply the adviser almost picking the product on behalf of the investor

- the agent may provide ancillary services connected with the transaction. For example, estate agents often help their customers to find a mortgage.

3.11 For these services, the agent is – at least partly – rewarded through a commission payment.

3.12 Being contingent on the completion of a transaction (and often on its value), commission payments affect both the parties to the transaction and the agent involved in bringing it about:

- The parties (or the party instructing the agent) only pay if the agent is successful, that is, if a suitable transaction takes place (or at least pay less if the agent is unsuccessful in the case where only part of the agent's remuneration is a commission). Where the parties would otherwise face the risk of having to pay for the services of an agent even if the agent's efforts do not produce the desired outcome – namely a transaction – the commission rate arrangement mitigates or completely eliminates this risk.[4]

- The reduction in risk faced by the parties is mirrored by an increase in the risk faced by the agent: being paid on a commission basis, the agent faces the risk of investing time and effort without receiving payment. Through this, the commission rate arrangement changes the incentives for the agent: the agent is much more interested in the completion of the transaction (and often its value) than if it were simply receiving payment for its services regardless of whether the parties eventually trade with each other. Put differently, the agent becomes more interested in ensuring that its efforts produce a successful outcome from the perspective of the parties to the main transaction, because its reward directly depends on its success (rather than indirectly, for example through acquiring a reputation for being successful in bringing about transactions, which would be the main driver in the case where the agent receives a fixed payment regardless of whether a transaction is completed).

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[4] As we discuss in our case study on financial advisory services (see Annex B for details), the limited success of fee-based charging by financial advisers seems to be linked to an unwillingness of customers to incur a cost for obtaining advice if they then do not purchase a product.

3.13 Because they shift risk from the transacting parties to the agent and align its incentives more closely with those of the transacting parties, commission rates may be regarded as a response to so-called principal-agent issues, as we will discuss next. Because they protect the parties from the downside of having to make a payment in the case that no transaction comes about, they also affect the incentives of parties to use an agent in the first place, and may impact on the relative attractiveness of agents in a two-sided market context. To the extent that they are linked to the value of a transaction, they may further be a method for the efficient recovery of costs incurred by the agent.

Commission payments as a response to the principal-agent problem

3.14 The use of agents in order to perform certain tasks, such as finding a suitable buyer/seller, finding the best available transaction opportunity, or simply carrying out the administrative tasks involved in a transaction (for example, in the case of stock trading) can be explained by the fact that the agent possesses superior skills or information and is thus better placed to carry out the task. Agents can exploit advantages from specialisation, and may be able to exploit economies of scale and scope, which are augmented by the fact that there are normally network effects in bringing together prospective transaction partners. For example, the effort required by a financial adviser in order to acquire the necessary skills to evaluate the suitability of different products for a particular investor, and to acquire and process information about available products, is a fixed cost that can be spread across many transactions, the cost incurred by an estate agent in finding a suitable buyer for a particular property is smaller the more potential buyers are already signed up with the agent, the attractiveness of an auction site increases for buyers with the number of sellers who list their goods on the site, and for sellers with the number of buyers who use the site for their purchases.[5]

3.15 However, the use of an agent potentially creates a problem with regard to ensuring that its actions are in the best interest of those who have instructed the agent (generally referred to as principals). This is because in many cases:

- the principal is better off the more effort the agent expends on the principal's behalf (for example, the more an estate agent markets a particular property and shows around prospective buyers, the better for the seller as this increases the likelihood of finding a buyer who is prepared to pay a higher price, the more information an IFA gathers about both the investor's requirements and the financial products that might be suitable, the better the chosen product will ultimately be for the investor), but effort is costly for the agent, and

- the effort expended by the agent can neither be directly observed and verified, nor inferred from the outcome with perfect certainty (for example, a seller cannot normally verify how much marketing effort an estate agent has undertaken, or how many prospective buyers have been shown around, while at the same time the price achieved does not only depend on the effort put in by the estate agent – that is, a low price may be the result of too little marketing, but it may also be the result of a slump in the market).

3.16 Within an agency arrangement, where undertaking effort is costly for the agent, and where the effort exerted by the agent cannot be

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[5] Rubinstein and Wolinsky (1987) argue that it is the time consuming nature of the matching process which the agent is better placed to carry out for reasons stated above that allows the agent to extract surplus in return for shortening the time period buyers and sellers must wait for a transaction. Similarly, Yavas (1994) reports that the use of agents can reduce the risk of not finding a match relative to searches carried out by individual buyers and sellers.

observed by the principal, a fixed payment[6] will generally lead to the agent undertaking too little effort: even though more effort produces a better outcome for the principal, the agent will seek to avoid the cost associated with this unless it also benefits in some way from the outcome. Estate agents may not wish to show the property to many buyers unless doing so is likely to bring them some reward in the form of higher revenues, for example.

3.17 This means that, in order to induce the agent to spend more effort for the benefit of the principal than it would if left to its own devices, it is necessary to link the agent's payment to the outcome of the transaction.[7] The best way of incentivising the agent is the subject of the literature on principal-agent relationships.[8]

3.18 In simple terms, the challenge for the principal is to devise a payment schedule that aligns the agent's incentives with those of the principal, subject to the agent being prepared to accept the contract in the first

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[6] Note that this also applies to payments that vary with some observable characteristic of the agent's effort, for example, the time spent by an employment agent to look for a suitable candidate to fill a particular vacancy, as long as there is another, unobservable dimension to the agent's effort (for example, the effort undertaken by the employment agent to pre-screen applicants, or to set up systems that increase the quality of the matching of job seekers to vacancies).

[7] Arrow (1965), Pauly (1974), Jensen and Meckling (1976) and Holmstrom (1979) point out that the agents remuneration can only be based on what can be observed or deduced. Thus, when the agent's effort is unobservable, contracts must depend on observable output.

[8] The first formal papers on moral hazard in a principal-agent framework were those of Mirrlees (1974 and 1975), Harris and Raviv (1979), Holmström (1979), and Shavell (1979). For literature reviews see Rees (1987) and Hart and Holmström (1987) and for a textbook on agency issues Macho-Stadler and Pérez-Castrillo (2001). Lazear and Rosen (1981), Holmström (1982), Mookherje (1984), and Green and Stokey (1983), and Malcomson (1986) amongst others analyse optimal payment mechanisms in case of moral hazard with several agents. Holmström and Milgrom (1991) consider moral hazard problems when the agent carries out several tasks that are not independent in terms of the required effort levels. Radner (1981), Rubinstein and Yaari (1983), Lambert (1983), Fudenberg et al. (1990), and Chiappori et al. (1994) discuss repeated moral hazard, where an agency relationship in which moral hazard is a problem is repeated over time.

place.[9] This will require that at least part of the agent's payment is linked to the completion of a transaction, and to its value in cases where the value of a transaction depends on the agent's efforts. Because outcome-related commission rates introduce some uncertainty to the agent's remuneration, the relative degree of risk aversion of principal and agent also plays a role in the choice of remuneration scheme.[10]

3.19 The typical sales commission used by firms to reward its sales staff is a simple example of how to address the potential divergence of interests. A salesman on a fixed salary may prefer not to put too much effort into identifying sales opportunities, following leads and developing contacts. Because the effort level of the salesman is difficult to monitor (hours spent in the office or on the road are not necessarily a good proxy) and because sales volumes are, at best, an imperfect indicator of the effort undertaken (because they depend on factors beyond the salesman's control), it is difficult if not impossible to make the salary conditional upon effort. In this case, remunerating the salesman on the basis of the sales it achieves provides an incentive to invest more effort in pushing

[9] More specifically, optimal contracts need to satisfy both the so-called 'incentive compatibility constraint', which requires that the incentives of the agent are aligned, as much as possible, with the incentives of the principal, and the so-called 'participation constraint', which requires that the agent must be better off accepting rather than rejecting the contract. Knowing the utility function of the agent, the principal devises a contract that aligns the agent's incentives most closely with its own, subject to the constraint that the agent must be willing to accept the contract.

[10] Consider, for example, the case where the agent's effort is observable and can be specified in a contract, but the outcome is subject to some uncertainty. In this case, the principal may still prefer to offer the agent a contract that specifies the required effort level, but makes payment dependent on the outcome of the agent's efforts if the agent is risk neutral and the principal is risk averse. In this case, the agent essentially provides insurance to the principal in the presence of certain risks over the outcome. By contrast, if the principal is risk neutral, and the agent is risk averse, the principal would be better off if it offered the agent a fixed payment for the specified effort, as any expected payment under an outcome-dependent contract would have to be in excess of the fixed sum at which the agent would accept the contract. For a detailed description of the standard principal-agent problem see, for example, Macho-Stadler and Pérez-Castrillo (2001).

the firm's products, that is, behave in a way that is in the interest of the firm.[11]

3.20 Of course, linking the salesman's pay to the sales it achieves exposes him to risk. Because sales volumes may fluctuate for reasons completely outside his control, the salesman may sometimes find its pay to be low despite having put in significant efforts. On the other hand, the salesman benefits from general improvements in sales conditions by seeing its income increase without having to undertake more effort.

3.21 In a similar way, commission rate structures affect the incentives of agents. For example, an agent charging only joining fees will primarily be interested in signing up buyers and sellers, and even though the attractiveness of using that agent may also depend on the volume and value of transactions that buyers and sellers expect to conduct, the agent is only indirectly interested in transactions. By contrast, if charges are levied for transactions conducted over the platform, then the agent is primarily interested in increasing the volume of transactions (though signing up members may be the most efficient way of achieving an increase in transaction volumes).[12] Where payments are linked to the value of transactions, the agent's incentives shift towards generating high-value transactions.

3.22 For example, where an estate agent who is paid a fixed amount on completion of a particular transaction would merely have an incentive to find a buyer, tying the remuneration to the value of the sale will provide an incentive to search for a buyer who is prepared to pay more, thus increasing the value realised by the seller (and, to the extent that the buyer's willingness to pay reflects the underlying valuation, the total

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[11] This implies that the volume of sales achieved within a particular period is the sole (or at least the most important) criterion of the firm's success, and explains why sales commissions are less appropriate in cases where, for example, it is equally important to provide detailed advice to a customer, and potentially also be involved in the provision of after sales services. In this case, offering sales commissions might have perverse incentives in that it would lead employees to push a firm's products even if they were inappropriate for a particular customer, or spend too much effort on selling and too little on providing after sales services.

[12] We will return to the difference between joining fees and usage fees below.

surplus created by the transaction). Now, the agent has an incentive to undertake efforts in order to match the right seller with the right buyer. This suggests that commission rates are used in order to address principal-agent issues in those cases where the agent not merely provides a platform that allows buyers and sellers to meet, but where the agent's efforts affect the likelihood of buyers and sellers finding an appropriate transaction partner, or the value of transactions that buyers and sellers expect to make. Thus, the agent has incentives to:

- screen buyers/sellers joining the platform (for example, an employment agency checking the qualification of candidates it takes on its books)
- assist with presentation of information (for example, an insurance broker presenting the risk posed by a particular client to a number of potential underwriters), and
- help in identifying the best transaction partner (for example, an estate agent finding the buyer with the highest valuation for the property).

3.23 Having seen why agents are paid through commissions rather than receiving a fixed payment based on their efforts, it is also instructive to consider why agency arrangements are used instead of resale arrangements. Exploiting the advantages enjoyed by agents listed above, or using the skills of a salesman to sell one's products, does not necessarily require an agency arrangement where the agent is not directly part of the transaction between buyer and seller - alternative arrangements are possible. For example, rather than selling products on behalf of a firm, the salesman could be a re-seller, purchasing products in bulk from the firm, and then selling them on to end users. Similarly, rather than introducing buyers and sellers to each other, an estate agent could buy and sell properties, in the same way as car dealers buy (often in part exchange) and sell used car, and indeed the question has been raised why there are no used house dealers.[13]

3.24 In many cases, resale and agency arrangements may be regarded as alternative ways of organising transactions – they are substitutes, and may sometimes even exist side by side. For example, a travel agent may simply help a traveller to find an appropriate flight or holiday package (and may be rewarded for its efforts by commission payments from the airline or tour operator, and/or payments made by the traveller). Alternatively, however, the agent may bulk-buy seats on a particular flight, and then sell this capacity on to travellers. Used car dealers may purchase cars from sellers, but may also work on a commission basis. Similarly, estate agents may buy properties in their own name and then auction these off, as well as organise auctions on behalf of the seller, and take a commission from the seller and/or buyer for sales made at that auction – though the latter is a rather exceptional arrangement.

3.25 Obviously, in a resale arrangement, the agent bears more risk than in an agency arrangement, but it also reaps the full benefits from undertaking effort. For example, having acquired goods from the seller, the agent faces the risk that the buyer might withdraw from the transaction, or become insolvent – risks which would otherwise be faced by the seller, and which the agent would not assume under a commission arrangement. Similarly, the agent is exposed to the risk that goods may be faulty, or may perish before a buyer can be found – risks, which would otherwise be borne by the seller. By comparison, under a commission arrangement, which ties the agent's remuneration at least in part to the completion of the main transaction, the agent's exposure is limited to the risk that no such transaction may take place. At the same

[13] In their paper, Anglin and Arnott (1991) derive an efficient contract on the basis of standard principal-agent theory and contrast the predicted features of the efficient contract with the actual contracts in the real estate brokerage sector. Their paper predicted that where agents were risk-neutral, competitive equilibrium in the real estate market entails an agent purchasing the house from the seller and then reselling it. Anglin and Arnott cite the standard conjectures relating to why houses are not bought and sold through resellers instead of agents: agent risk aversion, risk, inventory costs, technological complexity, trust, difficulty of selling a vacant house, package deals and collusion.

time, however, the reseller enjoys the full benefits of finding a buyer with a higher willingness to pay, and thus has a strong incentive to undertake the optimal amount of effort.[14]

3.26 However, resale arrangements may be unworkable or undesirable for a number of reasons:

- first, the agent would assume a potentially significant amount of risk from the seller, which may not be the most appropriate reward structure if the agent is risk averse
- second, the seller or the buyer may also have some control over the likelihood that a transaction takes place, and the potential value of such a transaction. For example, properties sell more easily if they are occupied, and while it would therefore be possible for an estate agent to purchase a house and allow the previous owner to live there until a buyer is found, this might distort the incentives of the occupier and make a successful sale less likely[15]
- third, splitting a single transaction into two would create additional risk in the case where the object of the transaction is highly specific. For example, in the case where an agent would have to obtain a product or service that is tailored to a particular buyer, it would face the (additional) risk that this

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[14] That is, the level of effort at which the marginal benefit equals the marginal cost. As a result, potential gains from trade should be maximised: based on the expectation that the agent would do its best to find the most suitable buyer, a seller could not expect to obtain a higher price in an alternative arrangement, and similarly a buyer should not expect to pay less.

[15] Note that it would still be possible to put in place alternative arrangements for rewarding estate agents. For example, Jares, Larsen and Zorn (2000) discuss an arrangement in which the estate agent would purchase the property from the seller together with a put option to sell back the property to the seller for the same price at a specified date if no suitable buyer has been found by then. This arrangement would maintain the seller's incentives to assist the agent in finding a suitable buyer. However, this arrangement would distort the agent's incentives because it allows the agent to benefit from the upside – finding a buyer who is prepared to pay much more than the purchase price agreed with the seller – without being exposed to the downside – only finding a buyer who is prepared to pay much less.

buyer might walk away or try and re-negotiate terms in a way that exploits the fact that the product or service would have little, if any, value to another buyer. Even though the risk of such hold-up could be addressed through appropriate contractual provisions, such a solution would introduce additional costs

- last but not least, agency arrangements might be superior if there are costs associated with each and every transaction (for example, conveyance fees), and having a single transaction between buyer and seller would therefore be less costly overall than having two transactions, as would be required for a resale arrangement.[16]

3.27 For these reasons, the use of an agent may be the only available option – though it would generally seem worthwhile to explore to what extent alternative arrangements are feasible in order to establish whether a particular commission arrangement is best serving the interests of the parties involved.

3.28 The remuneration schemes that result in an optimal alignment of the agent's incentives with those of the principal (subject to the constraint that the agent would be prepared to accept the contract) predicted by economic theory are potentially very complex and diverse, reflecting differences in the specific needs of principals, and the specific capabilities of agents (which affect the agent's cost of undertaking effort). They do not necessarily bear any resemblance to the relatively simple commission rate contracts found in practice. Commission rate arrangements are generally relatively simple, so-called 'linear' contracts where the remuneration of the agent increases in proportion with the value of the transaction.

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[16] This is of course not an insurmountable obstacle to replacing agency arrangements by resale arrangements. For example, in the same way that special provisions exist for the transfer of ownership of a car to a dealer, it should be possible to define similar provisions for the ownership of a property by an estate agent who has acquired the property for the purpose of selling it on to a prospective buyer.

3.29 However, as McAfee and McMillan (1987) have shown, simple linear contracts are optimal for a wide range of circumstances where agents compete for contracts. In this setting, the issue is not simply for the principal to design a contract that best aligns the incentives of a particular agent with those of the principal (subject to that agent's participation constraint), but also one of picking the best agent. Where agents differ with regard to their ability, but the principal is unable to establish the agent's ability with certainty, the agency contract not only needs to provide the right incentives for the agent, but also attract those agents who are best suited for the task (and be unattractive for others).[17] More specifically, McAfee and McMillan show that 'a range of different contracts, optimally linear, will coexist in the market for agents' services. The sharing provision in a contract both screens the potential agents and evokes efforts from the selected agent. ... In an incentive-compatible contract, the more able the agent, the larger the fraction of his marginal output he keeps, and thus the harder he works. ... The striking feature of the contract is that in a broad range of circumstances there is an optimal bidding-contracting arrangement in which the contractual payments are linear functions of the output. ... Payment schemes used in practice that involve royalties or commissions are usually linear in the outcome.'[18]

3.30 McAfee and McMillan refer to a system used by IBM for remunerating sales staff as an example for such linear contracts: salesmen are asked for a forecast of sales in their particular territory, and are then offered a combination of commission and fixed payment, where a higher commission (and a lower fixed payment) is offered to those forecasting a relatively high sales volume, and a lower commission (and a higher fixed payment) is offered to those forecasting a lower volume. These contracts provide an incentive for good salespeople to forecast high volumes, and then work hard to achieve these. Similar arrangements can be observed in the case of estate agents, where a seller chooses an

[17] Technically, the contract needs to address both moral hazard (the risk that the agent does not undertake the required effort) and adverse selection (the risk that a contract attracts agents with the least ability to undertake the task).

[18] McAfee and McMillan (1987), p 303 f.

agent not necessarily only on the basis of the commission rate it charges, but also on the property valuation it provides – agents who believe that they are better able to achieve a high sales price would have an incentive to submit a high valuation, and a high commission rate,[19] and the seller may be happy to accept the higher rate provided that the higher sales value is realised.[20]

3.31 In addition, the observed simplicity may also be the result of practical constraints. For example, the principal may not know how costly it is for the agent to undertake effort (which would be required in order to define the optimal contract), it may be too costly to measure outcomes, or it may be even impossible to establish success or failure without

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[19] As noted in the estate agency case study, there is generally a high level of accuracy associated with the property valuation function of agents, the average final selling price is around 98.3 per cent of the initial valuation (OFT, 2004). The OFT's business survey noted that there can be considerable variation between the values placed on a particular property by different estate agents. This underlines the possibility that there are particular estate agents who can extract a higher price for the same property and thus have greater discretion in setting their commission rates without having negative repercussions in demand for their services.

[20] Of course, even though a linear contract may be optimal, this does not imply that current levels of commission rates are, or that optimal levels of commission rates guarantee the same effort that the agent would undertake if it were enjoying the full benefits. Indeed, using data on property sales in the US, Levitt and Syverson (2005) demonstrate that properties owned by estate agents remain on the market for longer, and achieve higher prices, suggesting that estate agents spend more time (and presumably effort) on finding a higher-value buyer for their own properties than for those of their clients, where they benefit only to a limited extent of the increase in value for the seller that their effort generates. The underlying theoretical model considers the function of the agent to be to recommend whether a particular offer should be accepted or rejected, and therefore the conclusions drawn by Levitt and Syverson relate to estate agents' incentives being distorted towards recommending to accept offers that are too low in order to save costs. Separately, Bartlett (1981) reports that while the estate agency market is highly amenable to different commission rates within the sector, in practice the commission rates observed are almost uniform, and that there are no obvious reasons for this. Bartlett looks to both competition and collusion as potential explanations for this but concludes that neither has caused the widespread adoption of a common remuneration structure and commission rate convergence to the extent observed amongst agents in this sector.

significant delays.[21] It may also arise from the need for transparency, which may be of particular importance in two-sided market settings (as we will discuss below), or could be the result of collusion (though in this case agents would have to collude not only on a particular rate, but also on the form of the contract).

3.32 Additional constraints on the potential complexity of remuneration schemes may also arise from the fact that in very many cases the ultimate incentive scheme is the result of a combination of both the agency arrangement and the way in which the agent remunerates its staff.[22] For example, in the case of estate agents, the incentives ultimately faced by the agent handling the sale are determined by the extent to which its remuneration is tied to the sales value, as well as by its attitude towards risk. Even though the proportion of the individual agent's salary that is linked to the value of the sale may be much larger than suggested by the commission charged by the estate agency, the individual agent may be even more prepared to forego a higher value in exchange for a quick sale, in particular because each individual has a limited capacity for handling properties, and therefore the opportunity costs incurred in continuing to show a particular property are not just the incremental cost of time, but the foregone chance to take on another property, which will give the individual agent a much larger incremental income than would pushing up the price of one for which the agent already has found a buyer.

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[21] The last point may be of particular relevance in the case of independent financial advisers, where success or failure of a particular investment with regard to the objectives of the investor may not be apparent for a long time. For example, whether buying into a particular pension scheme achieves the desired outcome for the investor will become apparent only at the point of retirement, and it may therefore be impossible to tie the remuneration of the agent advising on the choice of pension scheme to success or failure from the perspective of the principal.

[22] Where the agent is not an individual, but a firm, there are two principal-agent relationships that need to be considered. These relationships are, first, that between the buyer/seller as a principal and the agent and, second, that between the individual agent and the agency overall whom he represents.

Commission payments and the incentives for using agents

3.33 Even in cases where there is little scope for the agent to engage in activities that increase the likelihood of a transaction, or the value of the transaction for the buyer or seller, the fact that commission payments shift some of the risk of failing to find a transaction partner onto the agent implies that risk-averse customers are more likely to use the services of an agent.[23]

3.34 As noted above, commissions are paid to agents for bringing together two parties, and assisting them in concluding their transaction. This implies that agents generally operate in two-sided markets, which can be 'roughly defined as markets in which one or several platforms enable interactions between end users.'[24] These two-sided markets are generally characterised by the presence of network externalities and usage externalities. As a result, providing the right incentives of the parties on both sides for using an agent is a potentially complex task.

- Network externalities capture the fact that one side (for example, those wishing to sell a property, or those looking for employment) benefits from an increase in the number of

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[23] In a competitive market for agency services, for risk-neutral customers, the fact that she only becomes liable for the commission payment in the case that a transaction is successful will be compensated by the fact that this payment will have to be higher than a fixed payment to the agent because it will have to allow the agent to recover the cost incurred in serving customers who then fail to transact. Moreover, if the customer is risk-neutral, and the agent is risk-averse, and the agent's efforts do not affect the likelihood or value of a transaction, commission payments are inferior as they need to compensate the agent also for the risk it assumes under such a payment structure.

[24] Rochet and Tirole (2005), p 2. There is by now a fairly extensive body of literature on two-sided markets, extending insights from the initial models of network externalities (which focussed mainly on technology adoption and the issue of compatibility – see, for example Katz and Shapiro (1985, 1986) or Farrell and Saloner (1985, 1986)) for cases where so-called platforms compete for two groups of customers (who need the platform to interact with each other) by appropriately charging each side. As Rochet and Tirole (2005) state, the 'theory of network externalities has largely ignored price structure issues, as well as many of the themes of the two-sided market literature such as multi-homing (focusing on the design of converters by platforms rather), or the control of interaction among end-users.'

customers on the other side (for example, the number of buyers registered with an estate agent, or the number of employers using a particular recruitment agency), and vice versa. Obviously, a buyer, for example, does not consider the benefits to sellers when deciding to register with a particular estate agent, and therefore these benefits are not internalised. Thus, the success of any platform in competition with other platforms depends on its ability to attract both types of customers. At the same time, all other things being equal, an increase in the number of customers on one side may have a negative impact on customers on that side. For example, for any given number of potential employers on an employment agency's books, additional job seekers reduce the probability that any one of them finds employment.

- 'Usage externalities'refer to the fact that each side may make its usage decisions exclusively based on the price it is charged, not taking account of the cost to the other side when deciding whether to use a particular agent. For example, consider the case where a seller has instructed multiple estate agents to sell its property. A buyer, when deciding which agent to use, does not take account of the commission the seller pays (that is, a buyer has no immediate incentive to use an estate agent that charges a lower commission).[25] Usage externalities arise only in the case where the two parties are unable to re-allocate the cost of using an agent in such a way that the charging structure is neutral. If the seller in the above example varied its asking price with the level of commission paid to the various agents (that is, if the seller asked for less through an agent charging a lower commission), then the buyer would have an incentive to use the lowest-cost agent. Buyer and seller will have a joint

[25] Where the two parties are primarily motivated by maximising the gains from trade, and are able to redistribute those in any way they wish (for example, through changing the terms of the main transaction), such usage externalities may not be relevant. Moreover, such internalisation is not generally possible with regard to fixed fees charged by the platform (for example, listing fees). Fixed payments are sunk by the time a transaction takes place, and therefore there is no incentive for one side to contribute to costs incurred by the other side.

interest in minimising the cost of using an agent if they can share the benefits from reducing agency costs (and agree on how to share them).

3.35 The existing literature distinguishes between simple membership fees (that is, prices paid for joining a platform), and usage charges (that is, prices paid for transacting over a particular platform). Platforms can affect total transaction volumes by varying these charges to both sides, and transaction volumes depend not just on the total charges paid by the two sides taken together, but also on their structure.[26]

3.36 Membership and usage charges obviously have a different impact on the propensity of buyers and sellers to join a particular platform, and transact over it. Fixed payments to an agent regardless of whether or not a transaction is being completed can be regarded as membership charges, whereas commission payments are examples of usage charges (though in the case of commission payments, usage charges may vary not just with the number of transactions, but also with their value).

3.37 Membership charges can be used to create or strengthen network externalities: having to pay for joining a platform makes customers less likely to join multiple platforms, and make it more important to join a platform with many potential trading partners.[27] For example fixed fees payable for listing an item on an on-line auction web site make it less

[26] Indeed, the fact that the structure of prices set to the both types of users matters with regard to the volume of transactions conducted by an agent has been identified as the distinguishing feature of 'two-sidedness': Rochet and Tirole (2005, p 2) explicitly define a two-sided market as 'one in which the volume of transactions between end users depends on the structure and not only on the overall level of fees charged by the platform. A platform's usage or variable charges impact the two sides' willingness to trade once on the platform, and thereby their net surpluses from potential interactions, the platforms' membership or fixed charges in turn condition the end-users' presence on the platform. The platform's fine design of the structure of variable and fixed charges is relevant only if the two sides do not negotiate away the corresponding usage and membership externalities.'

[27] As put by Rochet and Tirole (2005), fixed fees are generally non-neutral, whereas transaction fees may be neutral provided the two sides can redistribute such fees between them.

attractive for the seller to seek multiple listings,[28] and make it more important to list on a site that gives access to many potential buyers. By contrast, where the payment is only due once an item has been sold through a particular platform, it is less costly to have multiple listings and even sites with fewer customers may be attractive.

3.38 This suggests that smaller agents, by offering to operate on a commission basis rather than for a fixed fee, may be able to attract customers who would otherwise prefer to stay with a larger firm offering access to more potential trading partners. However, the impact on agent competitiveness and platform profitability is somewhat ambiguous.

3.39 If transaction charges make network effects less important, then the incentives of agents to compete aggressively for signing up customers may be weakened and as a result usage charges may allow agents to earn larger profits. This is, for example, the result in the model of Armstrong (2005), who considers a case where platforms compete for two groups of customers who differ with regard to their preferences for using a particular platform (which are relatively strong in comparison to the network effects).[29] Platforms compete by setting fixed joining fees and transaction charges for both types of users, and – as in the model of Rochet and Tirole (2003) – the number of transactions is completely determined by the number of customers on both sides (that is, a customer on one side interacts with every customer on the other side exactly once).[30] Further, there is no scope for customers to redistribute

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[28] Note that the ability to have multiple listings supposes that an item can be withdrawn by the seller.

[29] As Armstrong (2005) notes, otherwise market sharing equilibria would not be sustainable: 'If network effects were large compared to brand preferences then there could only be equilibria where one platform corners both sides of the market.' But for differences with regard to the assumptions about costs incurred by platforms, and the nature of heterogeneity of customers, Armstrong's model is similar to the model in Rochet and Tirole (2003).

[30] Note that because of these assumptions the distinction between joining fees and transaction charges only matters when there are competing platforms. When there is an (uncontested) monopoly platform, it makes no difference to outcomes whether tariffs are levied on a lump-sum or per-transaction basis.

transaction charges through negotiating the terms of the transaction, and customers on one side of the market exclusively uses one platform (single-homing), whereas those on the other side may use multiple platforms (multi-homing). Transaction charges reduce the magnitude of network effects because the benefit from interacting with an additional customer on the other side is reduced as a result of the transaction charge.[31] Thus, an agent will obtain fewer benefits from signing up more customers on the other side, and hence the incentives to compete aggressively for such customers are reduced. The agent may consequently earn higher profits when this type of charging is used.

3.40 On the other hand, transaction charges may allow agents to compete more aggressively, in particular where such charges are more attractive to customers. For example, Caillaud and Jullien (2001, 2002) consider competition between two matchmakers for customers in the case where for each customer on one side there is exactly one matching partner on the other side. If the two parties meet, they obtain a fixed surplus, which is shared between them through an efficient bargaining process in line with the relative bargaining power of the two parties, otherwise, their utility is zero. The probability of finding a matching partner is

[31] Note that this result depends crucially on the assumption that every pair of customers will transact exactly once. Rochet and Tirole (2005) develop a more general model of platform pricing, where potential buyers or sellers differ ex ante only in their fixed benefit of joining the platform, and where differences in their per transaction benefits are only uncovered once they have signed up to the platform. Although all buyers interact with all sellers, not all interactions result in a transaction. Where seller and buyer can negotiate the terms of the main transaction and know each other's valuation, trade occurs whenever the sum of the buyer's and seller's per transaction benefit is greater than the total transaction charge. The structure of usage charges does not matter, as they can be renegotiated by the parties. In this case the monopolist will set the total transaction charge equal to the marginal cost associated with the transaction in order to maximise usage, and extract any surplus through membership fees. However, where buyer and seller cannot re-negotiate the terms of the transaction, it is not sufficient that total transaction benefits are above total transaction charges for trade to occur. In this instance, in a wide range of cases the platform sets a total usage fee that is below cost in order to increase the probability of a transaction, and recovers the losses (plus earns a profit) from membership charges. In both cases the monopolist maximises the average social surplus from potential interactions – and then expropriates this surplus through membership fees. The Rochet/Tirole model contains the Armstrong model as a special case.

determined by the matching technology, and the number of customers on the other side that a particular matchmaker has signed up.[32] Matchmakers compete by offering fixed fees for joining the platform to each group of customers, and a transaction fee payable once a transaction takes place. Caillaud and Jullien assume that the two parties share the agency cost through the same bargaining process that determines their sharing of the surplus, which means that transaction charges are neutral.

3.41 Because of the strong network effects, the market tends towards a single monopolistic matchmaker and, if matchmakers compete only through registration fees, the single matchmaker earns economic profits. Owing to the role played by beliefs about the behaviour of other customers, there is no guarantee that the matching technology employed by the dominant firm is efficient, that is even if the potential competitor promises a higher probability of producing a match (everything else being equal), customers may not be prepared to switch to the other firm.[33]

3.42 However, these profits are not sustainable in the presence of transaction charges. This is because customers prefer transaction fees to registration fees (as the latter are payable even in the case that no

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[32] Note that in both the model developed by Armstrong (2005) and the Caillaud and Jullien (2001,2002) model the benefits to a customer on one side are unaffected by the number of other customers on that side. In the terminology of Rochet and Tirole (2005), there is 'non-rivalry' between customers on each side, either because each customer interacts with each customer on the other side, or because there is exactly one matching partner on the other side. In practice, this assumption may not hold because buyers as well as sellers may compete with other buyers and other sellers respectively. In that case, signing up more potential buyers, for example, increases the expected benefit from joining the platform for a seller, but at the same time reduces the expected benefit from joining the platform for a buyer. Alternatively, one might say that the benefits to sellers from signing up additional buyers are diminishing, as this does not create additional sales opportunities but only more intense competition between buyers. However, increasing marginal costs (or decreasing marginal benefits) do not fundamentally change the analysis, and thus the non-rivalry assumption can be made for analytical convenience (see Rochet and Tirole (2005)).

[33] The role played by expectation is well-known from the analysis of two-sided markets in the context of technology choices (see, for example Liebowitz and Margolis (1996)).

match is found), and thus the matchmakers can attract customers by using revenues from transaction fees in order to reduce registration fees. This allows competitors to overcome network effects (and pessimistic beliefs), and contest an established matchmaker. The firm can use transaction fee revenues in order to subsidise registration fees for one group of users, thereby inducing them to switch (which would induce users on the other side to switch as well, assuming rational expectations). Thus, in the model presented by Caillaud and Jullien, the best strategy for building and protecting market share is a combination of high transaction fees alongside low (or even negative) registration fees.

3.43 Given the assumption of Bertrand-competition, and the fact that the market is perfectly contestable by an inactive firm (provided that there is a sufficiently rich set of pricing instruments to overcome optimistic beliefs with regard to an existing provider of matching services and pessimistic beliefs with regard to a new entrant), the monopolistic match-maker cannot earn profits unless the ability of potential competitors to charge transaction fees is limited.[34]

[34] Market sharing equilibria may exist when there are strong limitations on the size of the transaction fees that a platform can charge, but these equilibria are inefficient because the likelihood that customers are being matched is reduced. They also imply zero profits for the active matchmakers. Such equilibria are not sustainable if one match-maker can obtain efficiency gains and capture some of these through its pricing instruments (that is if there is no restriction on transaction fees): the only reasonable equilibria in this case are dominant firm equilibria with zero profits.

3.44 The role of transaction charges is also affected by the extent to which both buyers and sellers multi-home, that is sign up with multiple agents or platforms.[35] Allowing for such multi-homing changes the nature of competitive strategies as it becomes easier to convince some users to register. At the same time, the focus shifts to attracting transactions, because in the case where users would be matched on either platform they choose the platform through which they transact on the basis of the transaction charge (provided they can redistribute agency costs, and thus are both interested in using the platform with the lowest per-transaction cost).[36]

3.45 As Caillaud and Jullien argue, if matchmaking technology is imperfect (that is even if the two matching parties are using the same platform, they are not matched with certainty), the efficient allocation may involve global multi-homing, provided that the cost of registration and information processing are small enough. In this case the two match-makers play different roles: one firm sets a low transaction fee and acts

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[35] Note that in the Armstrong model there is no good reason for both sides to multi-home. If the aim is to interact with people on the other side, and the number of interactions is determined by the number of people on the platform, then even if there are multiple platforms it is sufficient if one side multi-homes. For example, if buyers register with all estate agents in a particular area, it is sufficient for sellers to register only with one agent, as this will give access to all potential buyers. By contrast, in the Caillaud/Jullien model, matching technology is imperfect, and there are benefits from multi-homing. In terms of the example, if individual estate agents only present a selection of properties to a particular buyer, and the selection differs from agent to agent, then sellers would benefit from signing up with more than one agent even though buyers already multi-home.

[36] Note that this may create a free-rider problem to the extent that customers may benefit from the effort undertaken by an agent on one platform, but then transact using another one. For example, assume that both buyers and sellers are using multiple estate agents, some of which provide comprehensive services (for example organise viewings, show around buyers, answer questions), but some of which do not. Both buyers and sellers would have an incentive to use the services of the former, but then conclude the transaction using the latter, who can charge lower rates. This would ultimately make the provision of services unsustainable without either some form of exclusivity, or non-transaction related payments. It is also worth noting that multi-homing by both sellers and buyers may not be sustainable for other reasons: if one side is in a position to choose the platform over which transactions take place, the other side may have an incentive to pre-empt that choice by deciding to single-home (see Hermalin and Katz (2004)).

as the first source of matching, whereas the other sets a high transaction fee and acts as a second source (that is it will be used only if the first firm fails to produce a match). There is endogenous differentiation, and both firms earn a positive profit (though this result is likely to rest on the assumption that further entry is not possible).[37]

3.46 More generally, if buyers and sellers use multiple agents, competition for transactions limits the extent to which usage fees can be increased and used in order to recover costs, in particular where buyers and sellers can negotiate over the terms of a transaction and therefore can meet their joint objective of minimising the cost of using an agent. Consider, for example, a case where a seller has listed her property with multiple estate agents, all of whom have offered the property to a specific buyer. In this case, both the buyer and the seller have strong incentives to use whichever agent charges the lowest commission rate.

3.47 Agents may seek to prevent such an outcome through a combination of fixed fees and usage-related fees, or through charging a higher commission in the case where the seller lists her property with multiple agents (that is to provide an incentive for customers to single-home rather than multi-home). Indeed, setting lower commission rates for sole agency contracts is common practice amongst estate agents.

3.48 However, it is worth noting that such strategies do not necessarily create benefits for the agent, but rather benefit the single-homing side: because those customers who have decided to single-home can only be reached through their chosen agent, the agent has what might be called

[37] Where costs of registration and information processing are large, global multi-homing is inefficient, and the equilibrium involves a single firm enjoying some market power. This arises from the fact that contestability is limited. If the other firm came in, the resulting differentiation would lead to the entrant making losses, and the established firm can exploit this. Where one side of the market chooses to multi-home, but the other side single-homes, market-sharing equilibria may exist, but the allocation of users is inefficient, and the availability of transaction fees reduces profits. However, market-sharing might still be preferable for both match-makers to a dominant firm equilibrium.

'monopoly power over providing access' to these customers.[38] The potential profits the agent can earn from exploiting this monopoly power will however be competed away in trying to attract single-homers, hence the situation is often referred to as a 'competitive bottleneck'.

3.49 The provision of incentives for single-homing may be of concern in cases where customers who decide to multi-home will be charged higher prices, as there will then be suboptimally few customers on the multi-homing side. For example, employers might use only one employment agency when seeking candidates, while job seekers may register with several agencies. Indeed, if employers tend to prefer using a single agency, job seekers have an incentive to register with multiple agencies, but are likely to have to pay more in order to obtain access to particular companies. The resulting equilibrium may then have too few job seekers registered with agencies compared to the social optimum, and too many people seeking jobs without the help of the agency, even though this has higher cost than using an agency would have.

3.50 In summary:

- membership charges reinforce network effects, discourage multiple listings by principals and increase the importance of reaching large user groups from which to find a suitable counterparty. The impact of transaction charges on competition is ambiguous. Where transaction charges make network effects less important, they can weaken the incentives for agents to compete in signing up customers. On the other hand, transaction charges may allow agents to compete more aggressively, reducing their ability to extract surplus from users through membership charges. This is the case where network

[38] See Armstrong (2005). Armstrong does not deal with the case where both sides may decide to multi-home. He states that, if interacting with the other side is the primary reason for joining a platform, one might not expect this case to be very common because 'if each member of group two joins all platforms, there is not need for any member of group one to join more than one platform.' However, this argument depends crucially on the assumption that joining a platform will automatically lead to a transaction, that is there is not imperfect matching.

effects are strong, and therefore the market would tend towards a single monopolistic agent. In this case, competing agents can use transaction charges to contest an established large provider because principals tend to prefer the latter (given that these are only payable when a transaction is completed)

- to the extent that an agent's matching function is imperfect, there is an incentive for multi-homing by principals. Multi-homing principals generate a focus on attracting transactions by agents, which may lead to endogenous differentiation amongst agents. Transaction charges become a more important pricing tool, and to the extent that such charges can be re-negotiated between the two principals (which registration charges generally cannot be), the principals should jointly have an incentive to choose an agent who minimises total agency costs

- agents may seek to limit this behaviour through disincentives for multi-homing principals. However, these generally benefit single-homing principals instead of agents.

Commission rates and cost recovery

3.51 The preceding discussion is applicable to fixed membership fees and fixed per-transaction payments. Often commission payments vary with the value of a transaction, and as we have argued above, this may be a way of providing an incentive to the agent to undertake effort to maximise transaction value. However, it may also simply be the case that the cost incurred by the agent varies with the transaction value for reasons other than the agent expending more effort on higher-value transactions (that is the cost incurred by the agent is related to transaction value in some way that is not related to the fact that the agent is incentivised to incur a higher cost). For example, one stockbroker noted that dealing in certificated shares is risky (relative to electronic share dealing), and that the risk borne by the dealer increases with the transaction value. Therefore, flat fees would be less suitable relative to shallow ad valorem commission rates. Similarly, it may be more costly for a recruitment agent to assess the qualification of a more highly qualified job applicant (for example because such applicants may need to be interviewed by more experienced staff). This would suggest that higher fees should be paid for more qualified employees, and charging on the basis of the employee's salary will achieve such an outcome.[39]

3.52 Moreover, percentage commission also exists in cases where agents' costs are largely fixed with regard to particular transactions, and agents undertake little effort with regard to individual transactions, and may have limited impact on the value of such transactions. For example, an on-line auction provider may not be able to do much in order to increase the bids received by a particular seller, apart from attracting as many prospective buyers as possible, and therefore the practice of collecting commissions on the basis of the selling price is unlikely to be explained by the need to provide incentives.

3.53 In these cases, a further potential rationale for the use of percentage commissions is that such a structure of charges may allow the agent to recover fixed costs incurred in providing the platform in the most efficient manner by collecting higher contributions from customers for whom the value of using the platform is higher.

3.54 This promotes efficiency and increases the size of the platform relative to the case where price discrimination is not possible, leading to greater network benefits for the platform's users. If fixed costs were spread evenly across all platform users (for example through a fixed per-transaction charge that includes a mark-up for fixed costs), it might well be the case that some of the potential users for whom the benefit from using the platform is relatively small are being priced off, as the cost of using an agent would be disproportionate.

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[39] An obvious issue in this regard is that costs of assessing the qualifications of an applicant are incurred regardless of whether in the future a placement for this applicant will be found, and whether therefore commission revenues will be earned to cover these costs. As noted above, this is a general issue where agents sometimes incur costs without receiving payment, as this implies that those payments that they do receive generally will have to exceed costs to allow the agent to recover its costs on average.

3.55 For example, the cost involved in providing an on-line auction platform may vary little with putting up additional items and running additional auctions. If the underlying fixed cost were recovered evenly from all customers who list items, the platform might not be able to attract many sellers who offer low-value items, given that the price they achieve is generally an upper bound for the benefits they obtain from the transaction. This would not only increase the cost that has to be recovered from other sellers, but would also reduce the attractiveness of the platform for buyers, which would further reduce the attractiveness of the platform. In this case, recovering a greater proportion of fixed costs from users who sell higher-value items, and who might therefore be prepared to pay more for the service of the site, would seem to be an efficient way of cost recovery.

3.56 In other words, commission rates are a way of price discriminating, charging customers who value the services of an agent more highly more than those whose value is likely to be lower, and the value of a transaction in these cases simply serves as a proxy for the value of using a platform.

Summary

3.57 We have argued that commission payments, and in particular percentage commission rates, may be used for a number of reasons. Although necessarily imperfect, it may be instructive to consider which of the potential functions of commission payments are relevant with regard to the different tasks that agents may undertake. The following table attempts to provide such a match.

Table 3.1: Matching agent functions and commission payment functions

Agent function	Provide incentive to undertake effort	Help overcoming network effects and attract customers	Efficient fixed cost recovery (percentage commissions only)
Execution of transactions	No	No	Potentially, if costs are fixed with regard to transaction volume/value
Provision of platform for transactions	No	Yes	Yes
Search for appropriate match	Yes	No	Potentially, if there are scale economies in matching
Provide advice in connection with transaction/select on behalf of one principal	Yes	No	Yes
Ancillary services	No	No	No

3.58 Which form the remuneration of the agent eventually takes is determined by a combination of technological constraints and the benefits that might be obtained from various reward schemes. For example, where it would be very difficult to monitor the volume of transactions, the agent may be restricted to pure joining or membership fees. A farmer providing a field for a car boot sale, for example may simply charge both sellers and buyers a fixed fee: even though sellers are interested in making a sale, and might therefore prefer to pay on a per-transaction basis (and may even be willing to pay more if that provided an incentive for the farmer to attract a better clientele), it might simply be too costly to monitor the transactions made over the course of the day. By contrast, an on-line auction provider, essentially offering a similar service to buyers and sellers, will find it very easy to monitor not only the number, but also the value of transaction made through its site, and will therefore be able to charge on the basis of transaction volumes/values.

4 COMPETITION IN MARKETS WITH COMMISSION RATES

4.1 Based on our understanding of the function of commission payments, and the conditions in which they arise, we now turn to considering how competition might affect commission arrangements (both the level of commission rates and the structure of commission payments), and how on the other hand the use of such rates might impact on competition. More specifically, there are two principal potential concerns with regard to competition in markets with commission rates:

- first, competition (even where it is effective) may not result in outcomes that are best from the perspective of the principal(s), or which affect the distribution of surplus in a manner that is detrimental from a public policy perspective

- second, the use of commission rates itself may affect competition between agents. As we have already seen, the balance between transaction and membership charges potentially changes the nature of competition in a two-sided market, and it is therefore conceivable that particular rate structures might be used in order to restrict or distort competition. However, more general concerns apply here as well – for example, simple rate structures may make collusion on the level of charges more easy to sustain (though in this case agents might have to collude on both structures and levels).

4.2 The interaction between these two concerns is potentially complex. Even if it is not necessarily the case that effective competition results in commission arrangements and rate structures that are optimal from the perspective of the parties to the transaction, one would normally expect that rates that have the effect of dampening competition cannot be in the interest of the agent's customers. However, even that presumption may fail in cases where the rate structures that would provide the optimal incentives for agents are so complex that customers may find it difficult to evaluate and compare what different agents offer, and therefore prefer simple (perhaps linear) rate structures, which in turn might be more prone to collusion because they make it easier to monitor compliance with a common policy.

Impact of competition on benefits from the use of commission rates

4.3 In broad terms, competition is generally expected to benefit customers because it promotes efficiency: in a competitive market, those products that customers value most are supplied by those who can produce them at the lowest cost and everyone who is prepared to pay more for the product than it costs to produce will be served. In principle, similar considerations should apply to competition when it is not simply prices that are being set, but contract terms that are being offered to customers for services provided by an agent that are aimed at helping them to find transaction partners, though – as we have discussed above – even the best agency contract may not lead to outcomes that are first best from the principal's perspective. Put differently, in the same manner that the provider of an on-line auction site who is charging fixed listing fees only could compete for customers by lowering these fees, it could offer a different structure of charges that are more attractive to the customer(s) – or, rather than cutting prices, an estate agent could offer a different type of contract that better promotes the interests of its customers.

4.4 However, as in other markets, there may be reasons why competition falls short of delivering an outcome that is best for the customers. In markets where agents work on a commission basis, two particular aspects appear to be of importance, namely that:

- the markets under consideration are two-sided, which may lead to outcomes that, though not uncompetitive, raise public policy concerns with regard to the distribution of benefits amongst the agent's customers, and that
- the agent often has superior skill or knowledge and it may therefore not only be difficult for customers to evaluate the agent's performance (in which case the agent's remuneration could be set contingent on performance), but also the specific

advantages or disadvantages of particular remuneration schemes.

Two-sidedness as a potential source of concern

4.5 Given the role played by the agent, it ultimately needs to serve both sides of the transaction in order to serve either. Although an agent may be instructed (and get paid) by the seller of a property, say, it needs to attract buyers (and may have a strong incentive to identify the most suitable amongst them) in order to complete the service to the seller. The firm requiring a temporary placement may be paying for the services of an employment agent, but that agent needs to attract the right people in order to fill these posts.

4.6 The two transaction partners (the principals) have generally a common interest in finding a suitable (or the best) partner for a particular transaction, but at the same time differ with regard to some of their objectives (for example both employer and job seeker have an interest in finding a suitable candidate/position, but the employer wants to pay the lowest possible salary for a given qualification, whereas the job seeker wants to earn the highest possible salary). The agent's incentives are partly aligned with those of the principals (for example like the principals, the agent is interested in completing a transaction), but at the same time it has diverging interests (where the principals would prefer the agent to spend as much effort as is necessary in order to find the best possible transaction partner, the agent would wish to put in as little effort as possible in order to achieve a transaction). The structure of the commission arrangement may not only affect the incentives of the agent to undertake effort that is in the best joint interest of the two transacting parties, it may also affect the way in which these benefits are being shared.

4.7 However, provided that either party can reap some of the gains from trade, the two principal's preferences over different commission arrangements should not differ significantly. A simple stylised example may help to illustrate this point.

4.8 Assume that the final selling price of a property is determined through negotiations between buyer and seller. If the surplus that is achieved (the gains from trade) are the same regardless of the agent's actions, then buyer and seller have the same incentive - choosing the agent who charges the lowest fees, and then sharing these in line with the gains from trade from the main transaction (as is assumed, for example, in the Caillaud/Jullien model). If there are no further fees, the market would not be two-sided as defined by Rochet and Tirole (2005).

4.9 Now assume, however, that the agent's remuneration is not just a fixed cost of agency which the parties have to bear in the case of a successful transaction, but that it affects the extent to which the agent undertakes effort to match up the 'right' trading partners, for example find those buyers who have the highest willingness to pay for a particular property. More specifically, assume that the seller values the property at 100, and that there are two potential buyers whose valuation is drawn at random from within the range from 150 to 200, with each value being equally likely. This is known to both buyers, and implies that a buyer whose valuation is v knows that it is the highest buyer with probability $\frac{v-150}{200-150}$ (that is the probability that the other buyer has a valuation below v). The buyer who obtains the property shares the surplus (net of agency costs, which for the sake of simplicity are assumed to be zero) equally with the seller, that is a buyer with valuation v, if successful, obtains surplus $\frac{v-100}{2}$. The unsuccessful buyer obtains a surplus of zero.

4.10 Now suppose that there is an arrangement that does not provide the agent with any incentive to pick the highest buyer, and each buyer has an even chance to be picked. In this case, the expected surplus to the buyer from using such an agent is simply $50\% \cdot \frac{v-100}{2} = \frac{v-100}{4}$. By contrast, if the agent had an incentive to find the highest value buyer, and thus the probability of the highest-value buyer being chosen were to increase to $q > 50\%$ due to the increased efforts of the agent, the expected surplus of a buyer with valuation v is

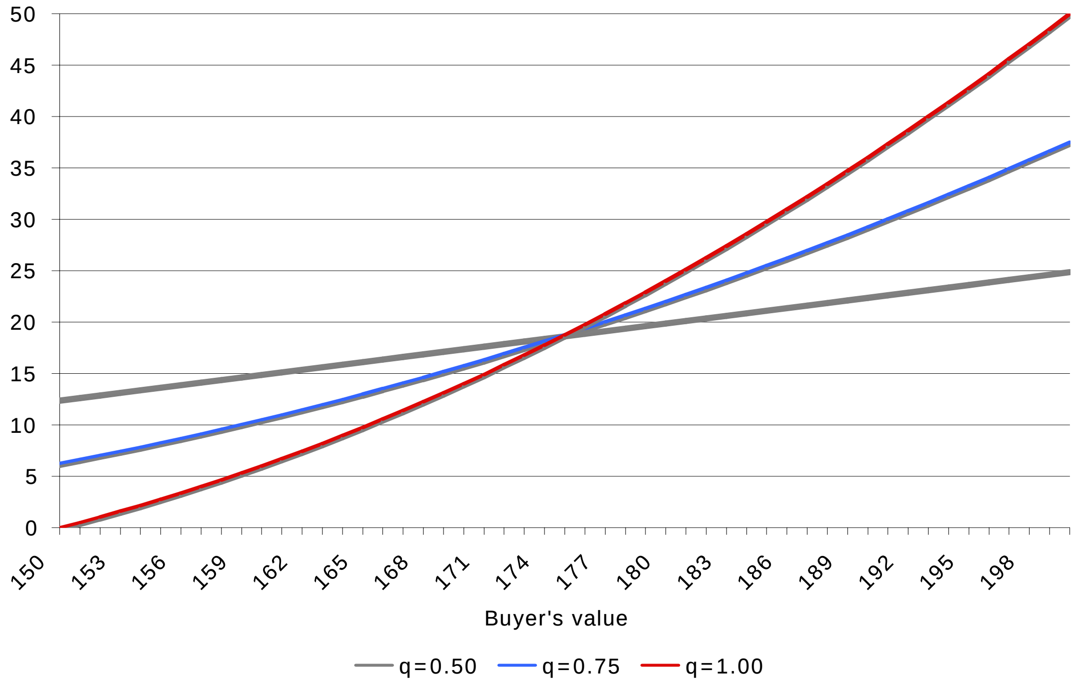
$$\left[q \cdot \frac{v-150}{50} + (1-q) \cdot \frac{200-v}{50}\right] \cdot \frac{v-100}{2}$$

The term in square brackets describes the probability that the buyer is picked by the agent that is the probability that the buyer has the highest valuation and is chosen, plus the probability that the buyer has the lowest valuation but is still picked by the agent who has failed to realise that the valuation of the other buyer is higher. The term outside the square brackets is the surplus obtained by the winning buyer as described above.

The expected surplus of the buyer reduces to $\frac{v-100}{4}$ for $q = 0.5$.

4.11 The expected surplus is larger than in the case of an evens chance to be matched with the seller if the buyer is 'strong' in the sense of being more likely than not to be the highest value buyer (that is for v above 175), and smaller if the buyer is weak. Figure below shows the expected value of the buyer's surplus for different values of q.

Figure 4.1 Buyer's valuation and expected surplus under different agency arrangements – a stylised example



4.12 This confirms the intuition that a weak buyer would prefer to use an agent where the fact that it is not prepared to pay as much as others does not affect the likelihood of being matched up with a seller. By contrast, a strong buyer would prefer to use an agent where it is more likely to benefit from its strong position. The fact that some buyers would prefer to use agents who have little or no incentive to seek the best deal for the seller is of limited relevance because, by doing so, the buyers would signal that they are prepared to pay below average for a property – and agents who attracted those buyers would not find it easy to attract many sellers.

4.13 Moreover, a buyer who does not know its relative position should prefer agents who are more likely to select high-value buyers, because the gains from being more likely to be selected if high-value more than outweigh the losses from being less likely to be selected if low-value. Thus, the expected surplus of a buyer who does not know its relative position (which is captured by the area underneath each of the curves) is larger the stronger the incentive for the agent to seek out the highest-value buyer.

4.14 Thus, even though preferences diverge to some extent, both buyers and sellers have a joint incentive to use agents that offer contracts which give them an incentive to achieve a high sales price, which in this case is also an incentive to maximise the joint surplus of buyers and sellers.[40] Although it would seem that the buyer might be better off if the agent were not incentivised to seek out the highest value buyer, this is not the case. This result does not depend on the specific rule for sharing the surplus – as long as both parties obtain some share of higher gains from trade, they should have a joint incentive to choose agents on the basis of the overall gains from trade they promise to generate.

4.15 More generally, the (robust) insights from the literature on two-sided markets should carry over to the case of markets with commission arrangements. Although commission rates may potentially be more complex than simple combinations of usage and membership fees, offering a particular contract that aligns the agent's incentives better with those of the buyer or the seller may be interpreted in the same way as offering a lower price to the buyer or the seller. Rather than competing for each side on price only (where a lower charge to one side would then be made up by increasing charges to the other side), an agent may compete by offering a commission rate structure that promises greater benefits to one side, reducing the benefits available to the other side.

4.16 As Rochet and Tirole (2005) have shown, the pricing to each side of the market matters where agency costs cannot be fully redistributed

[40] While agents are incentivised to achieve a high sales price, in their comparison of estate agents selling their own properties and selling properties of third parties, Levitt and Syverson (2005) demonstrate that the low incremental payoff to agents provided for in current estate agency contracts for selling a property at its maximum sales price relative to an arbitrary high price can be insufficient to induce agents to continue exerting effort to achieve the maximum price. Zietz and Newsome (2001) find that commission levels have an impact on sales prices, but only for lower-value properties, though without being able to provide an explanation for this surprising result.

through negotiations between the two parties.[41] In this case, there are unresolved externalities, which the agent may partly be able to address through its pricing structure, but which may lead to market outcomes that are not fully efficient. Where the agents can share the cost of using the platform as they see fit, the market ceases to be two-sided – and the problem of finding the optimal agency arrangement can be expected to lead to an efficient arrangement that maximises the joint surplus. Preferences over the different possible contracts should be identical for both principals. For example, one would expect that the agent is chosen or instructed by whichever one of the principals is better able to provide proper incentives, and agents would compete by offering contracts that set the best incentives for the agent to act in the joint interest of the two principals (incentive compatibility constraint), subject to not making losses (participation constraint).

4.17 Thus, for example, if one principal is in a better position to monitor the agent's efforts or provide the appropriate incentives for the agent (for example because it has better information about circumstances that might affect the agent's likelihood of success and is therefore in a better position to infer the agent's effort from the outcome) it will be in the joint interest of both parties that it is this principal who takes responsibility for setting the level and structure of commission rates, or for picking the agent.

4.18 Even where agency costs cannot be redistributed, however, the agent has an incentive to price its services, and structure its contracts, so as

[41] Note that bargaining under perfect information is a sufficient, but not a necessary, condition for the neutrality of fees. Although bargaining under asymmetric information will generally lead to situations in which some gains from trade remain unrealised (see, for example, Myerson and Satterthwaite (1983), Samuelson (1984)), it does not necessarily prevent neutrality of fees: as Rochet and Tirole (2005) argue, even with asymmetric information, it may be the case that bargaining strategies are only 'shifted' by the change in agency costs borne by either party, and the final outcome does not depend on who pays what proportion of the agent's fees. Where bargaining takes place under asymmetric information, there may be an incentive for the agent to 'subsidise' transactions by charging transaction fees that, taken together, are below the marginal cost incurred by the platform, in order to partly compensate for the inability of the two sides fully to internalise usage externalities, that is to transact whenever the joint benefits are larger than marginal costs.

to appeal to the two sides. This should not generally be a problem with regard to the appropriate incentive structure. As we have seen above, the alignment of incentives of the two principals with regard to the choice of remuneration scheme does not depend on the way in which the surplus is shared between the buyer and the seller of a property – given any particular sharing rule, both buyers and sellers have an incentive to use agents who are more likely to match up parties with the largest joint surplus. Clearly, buyers would prefer agency arrangements that gave them a larger share, and sellers would have the opposite preference. However, this only means that the division of surplus will ultimately be determined by the relative importance of buyers and sellers (which in turn reflects whether there is excess demand or supply on the property market).

4.19 The fact that the relative prices paid by the two sides using a particular platform, and thus the benefits obtained from using the platform, reflects the relative importance of the two sides is one of the robust insights from the literature on two-sided markets. As expressed by Evans, Rochet and Schmalensee, although many of the results obtained in the academic literature on two-sided markets is sensitive to the assumptions on which the underlying models are based, 'certain critical results are robust in that they depend only on the assumption that the industry is two-sided in nature and not on any other simplifying assumption or parameter value.

- First, although privately profitable and socially optimal prices may differ, in both cases the prices charged to **each** set of consumers depend on (1) the elasticities of demand on **both** sides, (2) the marginal costs of production on **both** sides, and (3) indirect network effects **between** the two sides. As in any market, prices also depend on many other things, including the structure of the market, the behaviour of the participants, regulations, and product differentiation. But the interdependence between the prices on both sides of the market—which results from the role of the platform as an intermediary between the two groups of customers—is a fundamental result and one that distinguishes two-sided from one-sided businesses.

- Second, and as a corollary to the first point, there is no necessary theoretical relationship between the prices charged on one side and the costs on that side. Privately and socially optimal prices may be higher or lower than marginal cost and may be zero. Extensive surveys of privately-set prices in two-sided markets find that prices that are zero to one side or below the marginal cost are the norm rather than the exception. (There is not enough information to conclude whether the common occurrence of privately set prices of zero is or is not socially optimal).

- Third, the interdependence of the two sides has ramifications for non-price decisions. Product design is based on appealing jointly to both sets of customers and getting them both on the same platform and interacting with one another. Optimal product design decisions may result in a direct cost to one set of customers but increase the value to another set of customers and increase the overall value of the platform. In the United States, for example, shopping malls are often designed to increase the amount of time it takes consumers to walk from store to store, this increases the foot traffic for individual stores and raises the value of the mall to them. Platforms also adopt rules and regulations to promote positive externalities and discourage negative ones. Most exchanges or auction houses have such rules to prevent and penalize opportunistic behaviour by buyers and sellers.'[42]

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[42] Evans, Rochet and Schmalensee (2006), p10. Similarly, Rochet and Tirole (2005) refer to the 'topsy-turvy' principle, which suggests that often the facts that make it optimal to set a high price to one side of the market imply that it is optimal to set a low price to the other.

4.20 This suggests that, although competition in two-sided markets may not necessarily produce an outcome that is 'socially optimal', the concerns that arise are perhaps most likely to be predominantly about the distribution of benefits across the two sides using agents. A crucial issue in this regard – as noted above – is the decision of customers to use single or multiple agents (that is to single- or multi-home), with the single-homing side generally obtaining a larger share of the benefits than the multi-homing side.

4.21 Given that potential concerns are most likely to be about the distribution of benefits, which in turn is driven by market conditions,[43] there is little if any justification for intervention, which will inevitably produce winners and losers. A possible exception is the case where one side of the market is firms making profits at the expense of customers. However, this would seem to be the result of market power wielded by these firms rather than the two-sidedness of the market, and it would seem to be more appropriate to address this issue directly. One potentially helpful indicator in this regard is the extent to which firms can afford to single-home and have potential customers compete for access to the firm, rather than the other way round (as is the case, for example, with IFAs covering all of the market, or multi-tied financial advisers covering a selection of multi-homing financial service providers).

4.22 However, it may be the case that the two-sidedness of the market in which commission rates are charged amplifies some of the effects of imperfect information or bounded rationality (which we will discuss in the next section). The ability of one side of the market to reap a greater share of benefits may be greater if the other side is less well informed, or in a worse position to assess the performance of agents. For example, consider the case where the ability of buyers and sellers to monitor the agent's efforts differs, and therefore one side should play a

[43] Concerns have been raised to the extent that the price sensitivity of one side of the market is somehow 'distorted' relative to what it should be, for example because one side is taking into account the benefits accruing to the other, so that the other side has greater influence on the choice of platform (see, for example, Farrell (2006)). However, it is far from clear that such concerns, which generally apply to two-sided markets, justify intervention on grounds of competition being distorted.

greater role in determining the structure of charges by choosing the agent. Agents may compete more aggressively for the better-informed market side, potentially forcing the other market side to multi-home. Although overall surplus may increase as a result, the share of surplus obtained by the better-informed side may be higher than their informational advantage would suggest.

4.23 This may turn into a concern in cases where the choice of commission arrangement may suit one side, but not the other. Looking again at the use of sales commissions by firms, there are cases where providing high-powered incentives to sales staff to increase their sales volume is unlikely to be appropriate, for example in the case where the customer needs advice on the product or service, and the quality of that advice affects customer satisfaction and leads to repeat business. It is therefore in the interest of the firm, not to provide incentives to their sales staff to push volume, as this would inevitably lead to re-directing effort to achieving sales rather than providing the advice that guarantees customer satisfaction in the long term. Yet, in the case of independent financial advisers, we observe financial service providers trying to increase the share of their product by offering commissions to IFAs, who are regarded as their distributors. Even though the level and structure of these commissions have to be communicated to the potential investor, it is far from clear that investors can fully correct for any distortions in incentives that might arise as a result of these commissions through their choice of IFA. Arguably, these arrangements make financial advice less helpful than it could potentially be in the absence of such distortions of incentives.[44]

4.24 Although it would seem to be in the adviser's interest not to be remunerated through such sales commissions because that would give him a better standing with investors, it may be the case that the gains from such an improved standing are limited, in particular if investors are less well informed, or less able, to consider the implications of the existing arrangements (which we will discuss in more detail below).

4.25 Moreover, it is worth pointing out that in the case of credence goods (where the customer even ex post is unable to evaluate the quality of advice without consulting another adviser) even where advisers compete on fees rather than commission charges strong price competition may undermine the incentives for providing good advice. As Pesendorfer and Wolinsky (1983) argue, this is because a customer has an incentive to use an expert charging a lower price even if the probability of getting good advice is reduced provided it can obtain a reliable second opinion at relatively low extra cost. This means that a situation in which all

[44] The IFA's customer is free to follow the adviser's recommendation, to choose a different product or not to take out a pension at all. Obviously, the customer would benefit if the adviser could credibly communicate all the information that is relevant for making the right choice. If the adviser's incentives could be perfectly aligned with those of the investor, this would be possible. However, if the adviser receives commission payments from the financial service providers (as compensation for its role as a distributor of the latters' products), this drives a wedge between its preferred choice of product and provider, and the customers preferred choice. As a result, the ability of the agent credibly to communicate relevant information is limited, and so are the benefits that the investor can obtain from using an adviser. This is the insight from models of so-called 'cheap talk', where an adviser who has superior knowledge of factors that are relevant for the optimal choice of action of its client is limited in its ability to communicate this information if its own preferences are out of line with those of the client, and the client knows this (see Ottaviani (2000), early work by Holmstrom ((1982) and (1999)) and a recent literature on reputational cheap talk and signaling (Scharfstein and Stein (1990), Prendergast and Stole (1996), Ottaviani and Sørensen (2000), and (2006) for the theory, and Chevalier and Ellison (1999) and Hong, Kubik and Solomon (2000) for the empirics), for the original model of strategic information transmission see Crawford and Sobel (1992)). More generally, the incentives of intermediaries to reveal or strategically manipulate information are complex, and results are very sensitive to assumptions (see, for example, Gaudeul and Jullien (2005)).

experts provide good advice with a high probability (and thus the cost of obtaining a valid second opinion is low) is vulnerable to experts undercutting each other: each expert has an incentive to free-ride on the information provided by other experts, with the result that price competition undermines the incentives for providing good advice (and consequently intervention that would limit the extent of such competition, for example by introducing a price floor for advice, could increase welfare).

Incomplete and asymmetric information and bounded rationality

4.26 The effectiveness of competition in producing benefits for consumers rests upon the ability of customers to evaluate the different propositions they face in the market place, and choose whichever gives them the greatest benefit. As we have seen in the previous section, making these choices is somewhat more complicated in two-sided markets, and as a result benefits may be shared rather unevenly (though, of course, no side can be worse off than it would have been if it did not participate in the market at all, so that all sides achieve a net benefit from the use of agents).

4.27 A further problem with regard to customers making the right choice is that in many cases their ability to evaluate and compare the different offers they find in the marketplace may be limited. This could be because they are lacking some of the information that would be required in order to evaluate the likely performance incentives created by a particular contract, or because their ability to undertake such an evaluation is limited (bounded rationality).[45]

4.28 In particular in cases where agents are being used because of their informational advantage, it may be difficult to establish for the customer whether a particular contract offered by an agent is good or bad for her. Problems associated with asymmetric information and superior agent knowledge are especially acute in settings where the agent not only helps the customer to identify the best trading opportunity, but also to understand and define its own needs, as is often the case, for example, with financial advice.[46]

4.29 In these cases, there is no guarantee that competition will lead to outcomes that are in the best interest of consumers. Although reputation may be an important mechanism to discipline agents, the reputation mechanism requires that at least some feedback mechanism

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[45] It is by now well understood that consumers do not behave in the way predicted by rational choice theory – they are 'boundedly rational' (see Simon (1982) for a collection of papers on that topic, for a recent overview see Kahneman (2003)). There are a number of reasons for this, including certain systematic biases in the way in which information is being used. Specifically, there are systematic biases in the way in which consumers respond to uncertainty (see Kahneman, Slovic and Tversky (1982)). For a discussion of how imperfect information and bounded rationality can result in consumer detriment see OFT (1997), and for a general discussion of bounded rationality see Kahneman (2003).

[46] The underlying problem is more general and not restricted to markets in which agents are used in order to facilitate transactions. There are a number of markets for expert services where the supplier does not simply meet a given demand, but at least partly determines the level of demand in the first instance. For example, demand for repair services on a car may often depend on the advice of the mechanic who will then carry out the repair. The problems that arise in these market settings are, for example, discussed in Emons (1997). As Emons notes, in many cases the solution to the problem is to separate obtaining advice on what is required and the provision of the service in question (that is to ask one mechanic what needs to be fixed on a car, and another mechanic to carry out the repairs). However, this may be undesirable if having the same firm carry out both results in cost savings. Emons shows that there are conditions under which the market equilibrium entails 'honest' service, that is where suppliers do not suggest inappropriate levels of repair to their customers. A crucial feature of Emons' model is that experts are capacity constrained and have to allocate their effort between diagnosis and repair that is they cannot simply increase their profits by recommending more repairs as this would reduce their ability to undertake diagnoses.

linked to agent performance, which is possible even if customers that can evaluate agent performance can only do so after the transaction has taken place and the agent has secured payment. These reputational effects do not fully discipline the agent however.[47]

4.30 A further complication arises in this regard from the fact that the agent serves two groups of customers, and that the service provided to one side may be affected by the arrangements the agent has with the other. For example, in the case of an agent charging flat fees to both sides for joining the platform (for example a dating agency, or a farmer offering his field for a car boot sale), it is not important for one side to know how much the other side has paid in order to obtain access to the platform, and in particular whether some customers have paid more than others. By contrast, in the case of an insurance broker, who is helping customers to find an appropriate policy, but is also rewarded by commission payments from underwriters, it is important for customers to understand how these payments are structured in order to understand – to the extent that they can – how this might affect the broker's incentives. Not knowing how much the broker receives from a particular underwriter, or not being able to establish how this affects the advice obtained, will put the customer at a severe disadvantage.[48]

4.31 Returning to the example of financial advisers given above, it might be the case that effective competition might create a strong incentive for such advisers not to accept commissions from financial institutions and rather earn higher revenues from investors in exchange for an improved ability to provide advice, but that this does not occur because investors

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[47] For a general discussion of the role of reputation in the market place see Horner (2002). Reputation may not necessarily be sufficient to address the problems that arise in the context of providing advice, however. Ottaviani and Sorensen (2006), for example, examine the situation where a principal combines the ex post state (that is the situation after the transaction has taken place and the agent has secured payment) with the advice of the agent and updates his belief regarding the agent's ability. This corresponds to the agent's reputation which determines his payoff. Ottaviani and Sorensen show that the reputational concern does not provide the right incentives to report truthful information and hence better inform the principal.

[48] For a more detailed discussion of these issues, see Irish Competition Authority (2005), p124.

fail to appreciate the distortion of adviser's incentives that result from commission payments (even if these are transparent), and thus undervalue the improvement in the adviser's service that might result from a different remuneration structure. Although the problem becomes worse if such commissions are not even transparent, transparency in itself is not sufficient to alleviate concerns about distortions in incentives and the potentially very skewed sharing of benefits.

4.32 Last but not least, it is worth bearing in mind that in many cases the commission arrangement that is in place between the customer(s) and the agent is only part of the story, and that internal arrangements governing the incentives of the agents' employees are relevant for how well the interests of the two principals are being catered for. Again, one would expect that in an effectively competitive environment internal incentive structures would adjust, as far as possible, to reflect the firm's objectives, which may mean that arrangements that ultimately are not in the best interests of the principals should be eliminated – but there is of course no guarantee for that. As argued above, the incentives faced by estate agency staff may well make them favour a quick sale over a higher value one, and estate agency may be quite happy with such an arrangement if they are capacity constrained, and therefore the additional cost they face as a result of continuing to search for a higher buyer are high relative to the small gain they would obtain through their commission payment.

Summary

4.33 In summary, competition amongst agents offering commission rate arrangements does not guarantee that overall benefits are maximised, and the results of competition in terms of how benefits are shared may be very skewed. This could be a potential concern, in particular where one side is at a significant disadvantage in terms of evaluating the incentive properties of particular commission arrangements. This is not so much the result of the use of commission rates, however, but rather a feature of two-sidedness in combination with asymmetric information and bounded rationality.

4.34 Moreover it is far from clear that alternative arrangements can be expected to perform better, taking account of the potential complexities that such arrangements might involve. For example, it may be the case that the structure of commission charges that emerges from competition does not provide optimal incentives for agents to seek out opportunities for transactions that maximise the joint benefit of the two principals. However, even if more differentiated and complex arrangements might have this effect, such arrangements may be more difficult to understand in terms of their incentive effects, and customers might ultimately be worse off to the extent that there is an increased risk of making uninformed choices.

Impact of commission rates on agent competitiveness

4.35 As discussed above, commission arrangements are potentially more complex than simple combinations of joining and transaction fees, but this additional complexity only reflects the fact that the markets in which commission rates are being used are somewhat different in that there are underlying principal-agent issues that need to be addressed, or that agents need to find the right balance of charges in order to attract customers and transactions, taking account of the need to recover fixed costs in the most efficient way. It is therefore not obvious how competition between agents could be affected by the use of commission arrangements instead of simple price-for-service charging.

4.36 However, to the extent that pricing can affect the relative importance of network effects, the detailed structure of commission rates might be used in order to affect competition. For example, if fixed (joining or membership) fees make network effects more important, moving from pure transaction-based (commission) charges to fixed fees (or increasing the proportion of total payments made by customers that are fixed with regard to the volume of transactions undertaken) might be seen as an effort to leverage an agent's size and to make it more difficult for smaller agents to compete. This would be of concern if it leads to an uncontestable market position and market power, which would however require that smaller competitors are unable to enter and expand by pursuing exactly the opposite strategy, that is contest the agent trying to exploit market power through joining fees by offering to provide similar services for pure transaction fees.

4.37 Otherwise, similar considerations to those in other markets apply. For example, when clients are not well informed, commission rates can act as signals of good quality service, thus limiting the incentives of agencies to compete on prices.[49] The focus of competition may then shift towards other service characteristics, or on investment in acquiring reputation. Although this might be considered to be suboptimal relative to a situation in which principals are fully informed and capable of choosing on the basis of the most appropriate competitive variable (which often is price, or in this case the rate charged by the agent), such an outcome may still be efficient given limited information and bounded rationality. Moreover, it is not different from markets in which single prices signal quality.[50]

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[49] In other words, agents may – by setting particular rates – affect the expectation of customers with regard to the likely number of potential transaction partners. Higher total charges may signal that the agent provides access to a greater number of potential transaction partners, or higher value transaction partners, and lower prices might trigger pessimistic expectations about the agent's ability to provide a matching partner. This phenomenon complicates the analysis because it can lead to demand functions that increase in price (and is excluded by assumption in the Caillaud and Jullien model, for example). For the avoidance of doubt, note that this effect is different from the point that higher prices to one side might signal greater access to potential transaction partners because they are coupled with lower prices to the other side, but rather related to the fact that higher total charges are taken as signal of a larger customer base.

[50] See Wolinsy (1983), Milgrom and Roberts (1984), Overgaard (1993) or Jones and Hudson (1996). The role of prices as a signal of quality in relation to incentives for providing truthful advice has been examined in the context of financial advice by Bentz (2001), who argues that commission-based payment for financial advice may not necessarily mean biased advice if the best products earn the adviser the highest commission, and financial product providers use commissions in order to signal the quality of their products. The link between price and quality is also implicit in the model of McAfee and McMillan (1987) in that more capable agents obtain a higher share of output that is charge a higher percentage commission. As noted above, this is arguably consistent with the experience in the estate agency sector, where competition may not take place primarily on the level of commission rates, but focuses on non-price factors, mainly the level of service, quality of service and reputation, as well as the valuation given by an agent (see GAO (2005)).

4.38 A similar argument arises with regard to the structure of commission rates. As noted above, the theoretically optimal reward structure may be relatively complicated, and may increase the difficulty faced by principals in understanding and evaluating the relative benefits they might get from using particular agents. Thus, bounded rationality may mean that competition does not produce the most appropriate reward structure, but rather takes place on the basis of relatively simple (for example linear) contracts. Again, given the constraints faced by principals in terms of obtaining and processing information, it might however be better (even from a social point of view) to offer sub-optimal but more transparent commission charges.

4.39 Notwithstanding the fact that simple commission rate structures that do not provide optimal incentives may be efficient in the case of bounded rationality and limited information, concerns may arise if agents are in a position to propose a remuneration structure that allows them to compete less aggressively for one side of the market, or if there are high levels of market concentration, which may raise concerns about the likelihood of collusion.

4.40 Concerns about tacit collusion in markets where commission rates are used need to be assessed against the standard set of criteria that make tacit collusion more or less likely.[51] In particular the following considerations seem to be relevant:

- Given the potentially rich menu of charges available to competitors, it may be difficult to detect deviations from a collusive outcome, rendering appropriate retaliation strategies more difficult to implement. However, where bounded rationality favours the use of simple charging arrangements, where it would be difficult for a firm to attract customers by offering a different rate structure, and where therefore the focus of competition is on particular rate elements (such as a percentage of value), concerns about collusion may be justified (provided the other factors that facilitate collusion are present).

[51] For an overview see Ivaldi et al. (2003).

- Although in many instances where commission rates are used, goods are not homogenous, the service provided by the agents may be very similar, and therefore collusion may be sustainable even though the underlying transactions are often very specific and one-off.

4.41 Moreover, it may often be the case that intervention designed to overcome bounded rationality or to remedy informational asymmetries can have the unintended side-effect of facilitating collusion. For example, it may be the case that agents are required to express the level of remuneration in a certain manner in order to ensure comparability. In this case, a legal requirement meant to assist customers in making the right choice might establish a highly transparent price metric and a focal point which could facilitate tacitly collusive behaviour. In the case of financial advisors, for example, the FSA requires financial advisors to make public the maximum commission they charge on a given range of products. In addition, the FSA publishes market average commissions for various products. IFAs are then required to express this market average commission in a format that makes it comparable to the advisor's own commission fees. This could facilitate collusion among financial advisers, although there is no evidence to suggest this is so.

4.42 Concentration measures by contrast may provide misleading information in the case of agency services. As shown above, the presence of indirect network externalities might result in a situation where monopolisation occurs. Even though platform profits may be competed away through the threat of entry, there may be concerns about the effectiveness of such a threat. Where reputation plays a strong role in the choice of agents, the disciplining effect of new entry may not exist (or be eroded over time), and agents may then increasingly enjoy market power. This would become apparent in higher charges, or deteriorating terms, with increasing concentration.

4.43 Moreover, it may be the case that some forms of behaviour that at first sight look like a strategy of co-ordinating behaviour might actually have the effect of increasing the level of competition. For example, where agents work together and provide access to each other's databases, the suspicion might arise that this is being done in order to soften competition. However, such forms of 'interconnection' make it easier for customers to choose the agent on the basis of the services it offers in addition to providing access to potential transaction partners, and thus reduces the role of competitive bottlenecks. This may lead to less aggressive competition to sign up customers that might become such competitive bottlenecks, but at the same time would facilitate competition for transactions.

4.44 In this regard, one needs to take into account that agents compete along several dimensions, not only price. If an agency offers a more comprehensive service, then it is expected to charge a higher price. Therefore, the fact that some agencies with higher commission rates seem to be more sought-out than other agencies might not be the result of the problems such as inefficient lock-in or bounded rationality but rather reflect quality differences. This is fully consistent with the results obtained by McAfee and McMillan, which suggest that more capable agents should generally obtain higher commission charges in order to induce them to work harder, and to distinguish themselves from less capable agents.

4.45 It is also possible that in some cases problems do not stem from the use of commission rates but from other activities of agents. For example, if the matching function of the agent also includes advice on valuation then the agent might have an incentive to provide a less than accurate estimate to the client regarding the value of its property or the salary it can expect to earn. Even the optimal regulation of commission rates (if that was the aim of the social planner) would leave these possible problems unresolved. If there is suspicion that such problems are present then these are best solved by putting in place an adequate legal framework.

4.46 In all cases where commission rates are being used to stifle competition, one would expect that the agent's customers are worse off from the increase in agency costs or the reduction in service quality relative to what should be achievable in a competitive market. Thus, as in any other market, harm suffered by customers is an indicator of whether competition is restricted or distorted.

How to assess the effectiveness of competition in markets with commission rates

4.47 Effective competition amongst agents for the business of buyers and sellers should result in commission arrangements that best promote the joint interest of the parties, although the way in which these benefits are split between the two may often be regarded as highly skewed.[52] However, as the literature on two-sided markets has clearly shown, there is nothing wrong with such a distribution of benefits, and it certainly does not indicate a failure of competition. Indeed, an uneven sharing of gains from trade is not uncommon in two-sided markets.

4.48 Thus, if we observe commission arrangements that are ostensibly failing to provide good incentives for the agent to work in the best (joint) interests of its customers, while alternative arrangements are available that would better promote the customers' interests, this might be taken as prima facie evidence of a failure of competition to produce an efficient outcome. The relevant question to be considered in this regard is not whether customers could conceivably be better off, as any agency contract that is providing incentives for the agent will inevitably come at a cost to the principal. Rather, the relevant benchmark is whether there are alternative arrangements that produce a better outcome from the customer's perspective, for example whether there are alternative commission rate structures that would provide better incentives for estate agents to seek the best buyer, or whether estate agents would perform better if they were prevented from charging lower rates for sole agency.

4.49 We would, therefore, look at whether there are alternative commission rate structures that could be expected to provide better matching of buyers and sellers, result in the exploitation of more network effects, give agents an incentive to provide better advice or selection, have lower overall agency costs or generate a more equitable distribution of

[52] A highly skewed distribution of benefits does, of course, not imply that one side benefits at the expense of the other. Regardless of their share of gains from trade, both sides benefit from the use of an agent as they are free to bypass the agent's services.

benefits (where the actual distribution has been considered to cause a public policy concern). In doing so, it is however important to bear in mind that these different criteria are interrelated, and that we therefore might have to trade off better incentives against a more equitable distribution of benefits or higher agency costs, for example. Moreover, in considering the distribution of benefits, we have to be careful to consider who ultimately pays agency costs and who reaps the largest proportion of gains from trade. Often, the incidence of these costs in the end differs significantly from where they fall in the first instance. In a seller's market that is where sellers have more leverage in negotiating a deal, we would expect that the large majority of the cost of using estate agents is ultimately borne by buyers, who simply face higher prices – in the same way that intense competition among buyers for properties is likely to leave sellers with the bulk of gains from trade. Conversely, in a situation where buyers have more leverage in negotiating a deal, that is in a buyer's market, we would expect the opposite distribution. This suggests that concerns about the distribution of benefits should certainly not be relevant in the case where the two parties to the transaction can negotiate over the final terms. In this case, the extent to which agents have an incentive or the ability to create competitive bottlenecks by trying to attract one side of the market, leaving the other side potentially little choice but to follow, is limited, and their efforts are more likely to be geared towards providing services that maximise joint benefits. By implication, it might be wise to look in more detail at cases where agents are trying to put in place rate arrangements that limit the ability of the two types of customers to redistribute agency costs (for example use fixed registration fees rather than transaction-related fees).

4.50 If alternative arrangements that would overall be better for the agent's customers are found to exist, the next question is whether competition is failing to produce such arrangements. Further investigation is then required, in order to determine whether the observed failure is due to restrictions or distortions of competition, or the result of incomplete and asymmetric information or bounded rationality, which might take on an added dimension in two-sided markets.

4.51 If it is the former, we may wish to investigate whether the arrangements that are being used in the market place themselves contribute to the restriction of competition, or whether there are other factors that affect the competitiveness of the market for agency services (for example high levels of concentration in combination with barriers to entry, which in turn might be of a regulatory nature). Where concerns exist about collusive behaviour of agents, it is important to establish how collusion can be maintained in the presence of a potentially rich set of possible charging structures, taking account of the possibility that obligations imposed on agents to support well-informed consumer choice might provide the necessary transparency to allow agents to sustain coordinated behaviour.

4.52 Standard measures used in the assessment of competition would seem to be equally appropriate in markets for agency services, but some care might be required in terms of the interpretation. For example, measures of market concentration might hide the fact that (a) the use of agents is only one way in which transactions can be concluded, and (b) that in the presence of network effects, markets may be prone to tipping, but that this does not necessarily imply that a particular supplier's market position is not contestable (either from within or from outside the market).

4.53 With regard to the first point, it is for example far from clear that on-line auction services constitute a relevant market for the assessment of competition, as many sellers and buyers may have alternative ways of trying to find suitable transaction partners, albeit potentially less efficient ones (for example advertise items for a fixed price in the classified advertisement columns of newspapers). Regarding the second point, it is clear from the literature on network effects that the crucial issue about whether a new technology can contest a less efficient existing one is the expectation of potential users.[53] In a similar way, it should be possible for a small supplier of agency services to contest a larger one who is trying to exploit market power, provided that customers on one side would expect customers on the other side to

[53] See Liebowitz and Margolis (1990).

move to the more competitive supplier. This should make the market position of a larger agent contestable (unless there are other sources of barriers to entry or expansion).

4.54 Care is also required when assessing the relationship of commission payments to underlying costs. In particular, one should not expect that commission rates in each and every instance bear a strong relationship to the underlying cost incurred by the agent in providing the service. One obvious reason for this is that commissions are (by definition) only paid for successful transactions, and therefore need to cover the cost incurred in trying to bring together parties where these attempts ultimately prove to be unsuccessful. The cost incurred by an estate agent, for example, in showing around buyers who choose not to purchase a property are borne by the seller, and may ultimately be shared with the buyer in the form of a higher price (or would be directly borne by the buyer if the buyer were to pay the estate agent's fees).

4.55 More generally, the need to provide incentives to agents to act in the interests of the principals generally implies that the charging structure cannot be 'cost plus'. If an employer were to pay the employment agency for every single interview conducted, based on the cost involved in screening potential candidates, this would create an incentive for the agency to assess too many candidates with little regard for their suitability. Moreover, the notion of costs incurred in serving a particular group of customers in a two-sided market may be unhelpful. Effective competition in two-sided markets may well imply that one side is subsidised and the other side is charged above the total costs incurred by the agent. Thus, even comparing mark-ups over marginal costs of dealing with one side and the other side does not provide much insight into the level of competition.[54]

[54] Rochet and Tirole (2003) show that for linear demand the monopoly, competitive and Ramsey pricing structure coincide. This would suggest that one might want to look at relative mark-ups and benchmark these against relative price elasticities, but the informational requirements for doing this are likely to be prohibitive. With regard to the (ab)use of cost benchmarks, see Evans and Schmalensee (2005) or Wright (2004).

4.56 This does of course not imply that prices are completely divorced from costs, or that cost savings will not be passed on to the agents' customers. Clearly, an employment agency that can reduce the cost of screening through the use of computer systems will have a cost advantage over one that uses card files, and will be able to win business by offering better rates. It does suggest, however, that it may be more relevant to compare revenues (perhaps at a suitable level of disaggregation) and costs, rather than charges and costs.

4.57 Where the failure of competition to bring about the right commission rates from the perspective of the agent's customers is due to incomplete information and potentially bounded rationality, a relevant issue to consider is whether there is a lack of transparency that limits the ability of customers to make informed choices (though, of course, this then might lead one to consider why competition itself does not lead to more transparent charging structures). This is a potential issue where agents charge both sides, and each side would wish to know what arrangement the agent has with the other in order to understand the agent's incentives.

4.58 More generally, however, competitive responses to situations of incomplete information and bounded rationality may often appear to have the potential to restrict or distort competition. For example, as noted above, bounded rationality and incomplete information may imply that agent reputation plays an important role, that price competition is muted, and that agents may be limited in their ability to compete by offering 'better' but novel and potentially more complicated pricing structures. This may firstly have the effect of producing more concentrated markets with more significant entry barriers, and secondly create pricing structures that look more transparent and thus more susceptible to collusion. In this case, it is important to consider competition on non-price elements of the agent's offer, and competition in investment to build reputation.

4.59 Having identified a failure of competition to bring about commission arrangements that are in the best interest of the agent's customers, and established the underlying reasons, one could then consider whether there are any standard competition remedies that would address the problem identified.

4.60 Addressing issues of imperfect information and bounded rationality is potentially more complicated. Simply requiring agents to provide more information is unlikely to be an effective response in a situation where problems arise from the inability of consumers to make the best use of information. It is also important to understand the interplay between intervention and market-based responses to the problem of imperfect information and bounded rationality, and it may often be more appropriate to intervene in ways that affect the incentives of those who can disclose information than requiring disclosure of information in a particular format, through increasing liability for mis-selling for example (which of course requires that such mis-selling can be established ex post, and that the cost of enforcing damages is not prohibitive).[55]

4.61 In considering potential remedies it is important, however, to be aware of the information that would be required in order to make them work, and the potential side effects that any of the potential interventions might have. For example, requiring agents to be more transparent with regard to their product offerings, and potentially to standardise the structure of charges in order to aid comparability, might at the same time increase the risk of collusion and prevent experimentation with alternative commission arrangements. Conversely, trying to limit the ability of agents to share information might address concerns about collusion, but it might also limit the benefits from using agents for customers, who could suffer as a result of less network effects being exploited. This makes the decision about whether and how to intervene a delicate one, and one that can only be taken on the merits of each individual case.

4.62 We will follow this procedure for the analysis of competition in markets with commission rates in the next chapter, where we summarise the insights from our five case studies and assess each of them in terms of whether there are likely to be better arrangements for customers, if so

[55] For an overview of potential remedies see OFT (1997), Annex B.

why these have not emerged from competition in the market for agency services, and what could potentially be done in order to remedy the identified problem.

5 SUMMARY CASE STUDY FINDINGS

Introduction

5.1 This chapter presents the findings of five UK based case studies of sectors in which commission arrangements are used. The purpose of these case studies was to gain an insight into the rationale and practical use of commission rates, and to assess whether there were any specific problems associated with such payment structures that might justify further investigation. The case studies cover a diverse set of sectors that currently employ commission rates in some form, namely:

- residential sales estate agency
- financial advisory services
- private client stockbrokerage
- on-line auctions, and
- temporary and contract employment agency.

5.2 Annexes A through to E to this report provide the detailed review of these sectors. Each cases study includes:

- a description of the sector highlighting its size, the nature of buyers and sellers, the role of the intermediary and the key players within the market, and
- a description of the charging structures and levels used in the sector historically and today and the rationale for the use of commission rates.

5.3 This chapter provides a brief summary of our case study findings, draws together the main lessons from all the case studies and contains an assessment of commission rates and competition along the lines set out in the previous chapter. In this chapter we have also set out some recommendations for the OFT on possible further areas of research.

5.4 Table below sets out a summary of our main case study findings.

Table 5.1: Summary assessment of case studies

Do alternative charging mechanisms exist that lead to…	**better match or tapping of unexploited network effects**	**better advice/selection**	**lower agency costs**	**more equitable distribution of benefits**
Residential sales estate agency	✓ (staggered charges might mean a better match, but poorer advice)	✗ (competitive in terms of valuation and commission)	✗ (competitive, low barriers to entry)	✗ (distribution of benefits depends on whether it is a buyer's or a seller's market)
Financial advisory services	✓ (alternative fee based remuneration might limit bias in advice and improve selection match)		✗ (competitive, low barriers to entry)	? (extent of product providers' profitability may be of interest)
Private client stockbrokerage	✗ (current structure in case of advisory services might lead to bias toward trading, but feedback and reputation effects work well)		✗ (competitive, low barriers to entry)	✗ (trading is with total market on one side)
On-line auctions	✗ (alternative pure fixed fees may limit number of smaller value trades)	N/A (on-line auctioneers do not provide advice)	? (eBay largest provider, but low barriers to entry and alternative ways of buying & selling exist)	? (distribution determined by auction format)
Temporary and contract employment agency	✗ (reputation provides a strong incentive not to lead to over or under qualified matches)		✗ (competitive, low barriers to entry)	✗ (mark-ups are used to cover the range of costs)

Key to table: ✓- alternatives exist, ✗- alternatives do not exist, N/A– not applicable, ?– uncertain

The case study sectors

5.5 The five sectors covered by our case studies reflect a broad range of agency functions and commission rate structures. In each of the sectors buyers and sellers rely to a significant extent on the service of agents in order to meet, find a suitable transaction partner, obtain advice and other services that assist with or facilitate the transaction. Table 5.25.2 below gives a brief description of each of these sectors.

Table 5.2: Case study sectors

Sector	Description
Residential sales estate agency	Residential sales in the UK property market have yielded approximately £3.7bn in agent's fees in 2004. Agents range from national and regional chains through to local and specialist companies. In 2004, there were approximately 11,000 estate agent offices in England and Wales.
Financial advisory services	Financial advisers can be independent and cover the whole of the market (IFAs), tied to a single product provider (tied) or tied to a selection of products (multi-tied). IFAs have so far accounted for the largest proportion of sales in life and pension products, accounting for some 67% of the £6.1bn worth of sales in the two areas in 2004.
Stockbrokerage	Stockbrokers complete transactions for the over 10m people in the UK who currently invest directly in stocks and shares to secure their financial futures. The number of shares traded in 2002 reached approximately 706.4bn. Given statutory requirements, only registered stockbrokers are permitted to fulfil this function. Customers will generally open an account with a broker to manage their portfolio and deal with a series of trades.

On-line auctions	On-line auctions are a relatively recent development, both in the UK and internationally. The largest provider of on-line auction services is eBay with over £4bn worth of trades taking place on the site in 2005. Products sold on eBay range from large ticket items such as cars through to smaller inexpensive items such as CDs. On-line auction sites are increasingly being used by smaller retailers to create virtual shops.
Temporary and contract employment agency	The temporary and contract sector has grown over the past decade, where today there are over 1 million temporary or contract workers, 12,700 recruitment offices and over 28 thousand consultants recruiting solely for temporary and/or contract positions. Many employers contract with agents to provide them with temporary staff over the course of the contract.

5.6 The roles fulfilled by the agents vary considerably across these five sectors. In some cases they will provide advice, whilst in others they will merely provide a platform for buyers and sellers to meet. The specific roles of the agents in our case studies are discussed in more detail in Table 2.3 below.

Table 2.3: Role fulfilled by agents

Sector	Comment
Residential sales estate agency	The main role of estate agents is to match buyers and sellers. However, agents also provide a range of other services including advice on valuation of the property and help in overseeing the progress of the transaction.
Financial advisory services	Legislation and regulatory requirements play a key role in the way in which the provision of financial advisory services is organised, with the nature of operations of advisers (be they independent, tied or multi-tied) being regulated by the FSA. Financial advisers have both buyer facing and seller facing roles. For product providers, they distribute financial products matching these to suitable buyers. For buyers, they provide advice for their customers given their individual financial situation and requirements.
Stockbrokerage	The primary role of stockbrokers is in the execution of deals and a significant proportion of brokers are classified as execution-only brokers. Nonetheless, a large number of brokers do provide advisory and discretionary dealing services.[a]
On-line auctions	On-line auction providers principally create and maintain a marketplace for buyers and sellers to trade. To accomplish this they provide the space for sellers to advertise items, and define the rules that govern how items on the website are to be sold. On-line auction providers do not provide advice to clients, or attempt to match up particular buyers and sellers.

Temporary and contract employment agency	The role of an intermediary in the temporary recruitment sector is to provide an employee to a company where an employer is in need of overcoming an immediate shortage. Agents will typically hire the employees directly and then make the employee available to the employer as and when required. At first sight this suggests that the underlying relationship is more akin to a resale arrangement, with the agent transacting with both the employee and the employer. However, the temporary and permanent contract employment markets are closely linked (with agents generally operating in both), and recent case law has suggested that employers should be seen as contracting with employees, even where existing agency arrangements might suggest otherwise. In the case of contract employment (where contracts are generally up to a year long, but are not permanent in nature) agents will fulfil a pure agency role of introducing parties

Note (a): Stockbrokers provide services to individual clients and to institutional investors. For the purposes of this study we have excluded an assessment of the services provided to institutional investors.

5.7 Our case studies cover the full range of agent functions described above:

- **platform provision:** in all sectors (with the potential exception of temporary employment where there is no direct contract between the employer and the employee and where the agent essentially re-sells the employee's labour and skills) agents provide a platform over which transactions take place. On-line auctioneers act only as a platform provider by making available a forum for potential buyers and sellers, without assisting with particular transactions

- **matching services:** some agents will also seek to find an appropriate match between a buyer and a seller of a particular product or service (such as an estate agent matching a seller of property with a buyer potentially willing to purchase)

- **transaction execution services:** the agent may also help facilitate the completion of the transaction between a specified buyer and a seller. For example, many stockbrokers complete transactions buying or selling shares on behalf of their customers

- **provision of advice:** agents often provide advice to customers, most notably in the case of financial advisory services where one of the main functions of an IFA, for example, is to advise potential purchasers of financial products on available choices, and potentially even recommending particular products. The provision of advice varies across the sectors: estate agents advise sellers on the appropriate asking price, for example, whereas on-line auction providers do not offer advice with regard to any particular transaction (though they may offer guidelines for sellers helping them to design their listings).

5.8 Table 5.4 below presents a summary of the various agents' roles against these four main types of services.

Table 5.4: Summary of role of agents

Sector	Platform provision	Matching functions	Transaction services	Provision of advice
Residential sales estate agency	✓	✓✓	× [a]	✓
Financial advisory services	✓ (acting as distributors for the financial product provider)	✓	✓	✓✓ (to investors)
Stockbrokerage (execution only)[b]	✓	N/A	✓✓	×
Stockbrokerage (advisory and discretionary)	✓	N/A	✓	✓✓
On-line auctions	✓✓	×	×	×
Temporary & contract employment agency	✓	✓✓	✓	×

Key to table: ✓✓- predominantly provided ✓ - provided × - not provided N/A – not applicable
Note (a): although estate agents may oversee the progress of the transaction
Note (b): stockbrokers do not fulfil matching functions in the way described above, as trade is completed to the various stock exchanges, that is with the whole of the marketplace.

The use of commission rates

5.9 The structure of commission payments varies widely across our case study sectors. In some cases they might be combined with other charging mechanisms, charged to one, the other or both of the sides of the market engaging in the transactions (the buyer or the seller), or involve a wide range of percentage levels. Charging structures in some sectors are also heavily regulated (for example FSA rules on commissions in the financial advisory sector, Employment Agencies Act rules on the side of the market that can be charged in the case of temporary and contract employment, and FSA requirements relevant for stockbrokerage).

5.10 Table 5.6 below sets out a summary of the nature of commission rates employed in each of the case study sectors.

Table 5.6: Use of commission rates in the case study sectors

Sector	Comment
Residential sales estate agency	Percentage commission rates are a common feature of the estate agency market, with rates generally calculated as a percentage of the final transaction value and charged to the seller of the property. Commission rates employed are typically between 1% and 2%, although there are instances of rates of 0.5% and 4.0%.
Financial advisory services	Advisers are receiving fees for advice (payable regardless of whether a transaction takes place), commission rates, or a combination of both. Commission rates are currently negotiated by the agent and the product provider, before being applied to products at the time of the sale to a customer. The sector regulator, the FSA, currently requires that financial advisers make the levels of all their commissions known to customers beforehand. Rates will differ according to the product being sold and, for example, whether the product is new or a renewal. The Association of British Insurers suggests that there are over 1,200 alternative commission structures.[a]
Stockbrokerage	Stockbrokers use a mix of flat fees (payable upon completion of a transaction) and percentage commission rates. Flat fees are generally used for execution only services, whilst percentage rates are used when the package of services sought by the client includes advisory services and discretionary trading services (where the broker considers when and how best to trade on behalf of the client).

On-line auctions	On-line providers typically charge a listing fee, payable regardless of whether an item is sold, alongside a tiered percentage commission on the final value of the lot sold through the site. eBay currently charges anywhere from 15p to £2 by way of a listing fee, and commissions range from 1.75% for higher value items (over £600) through to 5.25% for lower value items (below £30).
Temporary and contract employment agency	Temporary and contract agencies place a mark-up on salaries paid to temporary staff. Agencies also use fees that are unrelated to transactions for managed services to clients (where they provide a complete recruitment service or a business function). The current Employment Agencies Act 1973 prohibits charging employees for finding them a job. Given this, employers pay for the service provided by employment agents.

Note (a): Source: www.abi.org.uk

5.11 Thus, our review has brought to light three main charging elements generally employed in the case study sectors:

- **fixed fees** unrelated to the completion of a transaction, such as listing fees, or the fees charged for advice provided by a financial adviser (where customers may even choose between paying such a fee, or paying a commission linked to the value of the product)

- **flat fees** linked to the completion of, but unrelated to, the value of the transaction, some sectors also offer flat fee payment systems for those customers preferring it to commission rates

- **simple percentage rates**, that is ad valorem fees paid for the successful completion of a transaction and linked to the transaction value, these may take the form of single rates (as in the case of estate agencies) or be tiered (as in the case of on-line auction providers) or highly differentiated (as in the case of financial advisory services).

Agents may combine these charging elements, and sometimes even give customers a choice of charging structures.

5.12 Table 5.7 below sets out a summary of the types of commission rates employed in the case study sectors.

Table 5.7: Summary of types of charges levied by agents

Sector	Fixed fees only	Flat fees only	Percentage rates only	Combination
Residential sales estate agency	×	×	✓✓	×
Financial advisory services	✓	×	✓✓	✓
Stockbrokerage (execution only)	×	✓✓	✓	×
Stockbrokerage (advisory and discretionary)	×	×	✓	✓✓
On-line auctions	×	×	✓	✓✓
Temporary & contract employment agency	×	×	✓✓	✓

Key to table: ✓✓- most agents in sector ✓ - some agents × - no agents

5.13 Agents also vary in terms of which side of the market they charge.[56] In some cases only buyers pay, in others only sellers and in one case (financial advisory) buyers pay, whilst product providers are involved in the determination of the commission rate and its structure (both in terms of initial commission on a product, renewing commission where a customers renews their product with the provider, and rebates offered by the provider for example where the agent out-performs pre-agreed targets in any one year).

Table 5.8: Summary of side of market the agent charge is levied on

Sector	Buyer	Seller	Both
Residential sales estate agency	×	✓	×
Financial advisory services	✓	×	✓[b]
Stockbrokerage [a]	✓(×)	×(✓)	×
On-line auctions	×	✓	×
Temporary & contract employment agency	✓	×	×

Key to table: ✓- side charged × - side not charged ✓(×) & × (✓) – see note (a)
Note (a): buyers and sellers will vary in the case of brokers, depending on whether a client is buying or selling shares. The other side (the anonymous 'market') is never charged.
Note (b): product providers will generally negotiate commissions with the agent, based on an assessment, amongst other things, of past performance of the agent and expected business generated by the agent.

[56] It is worth reiterating, however, that the side of the market being charged by the agent is not necessarily the side of the market that is ultimately bearing the cost of using the agent.

Competition within the sectors

5.14 Although we have not undertaken a full analysis of relevant markets (both in terms of product and geographic dimensions), it would seem that four of the five sectors we have considered as markets are unlikely to be concentrated. There are large numbers of estate agents, financial advisers, stockbrokers and employment agents operating at both local and national levels, so that even if competition were limited to the (fairly narrowly) defined sectors, and were very localised, concentration would be unlikely to be high. Only the on-line auction section has a clear leader in the form of eBay which accounts for some 90 per cent of all items listed on all auction websites in the UK. If the relevant market were to be for on-line auction services,[57] then concentration in this market would be significant.

5.15 Table5.9 below sets out a summary of the nature and level of competition in the sectors.

[57] The relevant consideration in this regard is whether those selling and buying via on-line auctions would have suitable alternative ways of transacting to constrain the pricing of on-line auction services, or whether suppliers not currently offering such services could do so within a sufficiently short timeframe to provide a constraint on pricing from the supply side. A proper analysis of the relevant market boundaries would also have to consider to what extent suppliers might be able to price discriminate amongst different types of users. If such price discrimination is possible, the boundaries of the relevant market might have to be drawn with regard to particular types of buyers/sellers, or products. Such an analysis is of course beyond the scope of this report.

Table 5.9: Competition in the case study sectors

Sector	Comment
Residential sales estate agency	The sector is characterised by a number of mass-market national chains (such as Countrywide PLC and Connells), a series of mass-market regional chains (such as Kingleigh Folkard and Hayward), a number of smaller independents with local coverage and national agents dealing with exclusive properties. Competition takes place at a local level (87% of sellers choosing an agent within 5 miles of the property),[58] although it is difficult to determine what range of concentration there may be at a local level, there is no evidence to suggest that concentration levels are high. Competition takes place in terms of both the commission rates charged and the valuation advice given (which, though not binding, may be seen to be indicative of the price an agent is expecting to achieve). Estate agents also compete in the provision of additional services such as mortgages and financial advice.

[58] Buyers, on the other hand, tend to use agents close to the areas to which they are looking to move. Buyers generally seek the assistance of multiple agents and an OFT market study noted that two thirds of the respondents to its survey registered with approximately five agents ('Market Study of Estate Agents in England and Wales', OFT, March 2004).

Financial advisory services	The financial advisory sector is highly fragmented with currently over 11,000 firms being active (including large networks and their members, national, regional, large and single outlet IFAs). Small firms (with less than five sales people) account for approximately 79% of the total sector. Regarding the distribution of financial products, financial advisers compete with other channels such as bancassurers and direct sales forces, but these providers may not be seen as providing the same level of advice.
Stockbrokerage	Market players include large brokers including those owned by banks (for example Barclays and Merrill Lynch). At the end of 2003, 32 firms provided execution only services (the largest three accounting for 47.6% of execution-only revenue) and 58 provided predominantly advisory and/or discretionary services (with the top three accounting for 38.7%).
On-line auctions	eBay is the largest provider of on-line auction services accounting for over 90% of all on-line listings. Both the sector and eBay's position within it has been growing over a short period of time. The growth of eBay's share of listings has been mainly the result of exit, with a number of players that had been operating in 2000 now having left the sector.

Temporary and contract employment agency	The sector is largely fragmented with a large number of firms specialising in different skill sets or sectors. Three of the top four agents by turnover (Adecco UK, Manpower UK and Vedior UK) are global firms. The top 20 firms in temporary and contract services also operate in the permanent employment market.

Assessing the effectiveness of competition in markets with commission rates: an application to the case study sectors

5.16 As noted above, the starting point for assessing the effectiveness of competition in markets with commission rates is to consider whether there would be alternative arrangements that better suit the needs of the agent's customers than those that can be observed in the market place, that is arrangements that would:

- produce a better match between a seller and buyer (thus increasing overall gains from trade), or allowing for a greater level of exploitation of network effects
- better advice to customers to assist their selection of a product or service
- lower costs of using agents (which would be indicative of lack of competitive pressure on agents' fees), or
- a more equitable distribution of benefits as between the two-sides of the market (in particular where one side of the market consists of businesses).

5.17 Where there is a potential charging mechanism that is likely to perform better against these criteria than the existing arrangement, one can then consider the reasons for the market not having led to the emergence of these. We discuss these issues below for each of the case study sectors.

Residential sales estate agency

5.18 A number of issues have been raised in the literature with regard to the incentives of agents to seek the best buyer for a particular property. Empirical analysis undertaken for the US by Levitt and Syverson (2005) shows that agents spend more time and effort on selling their own properties, which fetch higher prices and stay on the market for longer. This should not be surprising given that the agent obtains the full benefit from achieving a higher price when selling its own property compared to getting a small fraction of any increase in price of a client's property, and simply confirms that agent's behaviour is affected by the balance of costs and benefits in the way that principal-agent theory would predict. In theory, and provided that agents are risk neutral, this would suggest that resale arrangements whereby estate agents acquire properties from sellers, and then sell them on to buyers, might be more appropriate. However, in practice such arrangements may be not be possible for a number of reasons such as transaction costs, or because uninhabited properties may deteriorate more quickly and are more difficult to sell (which might require the owner to continue living in the property under a tenancy agreement, though in that case incentives to co-operate in order to achieve a sale may be rather distorted). For this reason, alternatives such as a sale of the property to the estate agent together with a put option that would enable the agent to sell the property back to the previous owner at the same price if it remains unsold for a period of time have been discussed,[59] though such arrangements are likely to have undesirable properties (for example they completely eliminate the downside for the agent).

5.19 Nevertheless, even though it may not be possible to let the agent share the full upside from getting a better price (at least at the margin), alternative arrangements with tiered commission rates that increase with the extent to which the offer obtained by the agent exceeds a certain threshold price might conceivably improve the incentives of the agent to find the best buyer for any particular property. Such a charging mechanism would ensure that the agent is more incentivised to expend

[59] See Jares, Larsen and Zorn (2000).

greater levels of effort and to search for a better buyer for a property (in some cases taking longer to market a property), rather than simply completing a transaction and finding a buyer in the shortest timeframe.

5.20 Such a charging mechanism may, however, skew the incentive of the agent when advising on property valuation and helping the seller to set an appropriate asking price. This is because the agent has an incentive to undervalue a property compared to what the agent believes is a realistic value at the time of agreeing the contract with the seller in order to pass off any higher offer as being derived from effort that they have expended in marketing the property, and obtaining the associated benefits.

5.21 As such, although these alternative charging mechanisms may lead to a better matching for the seller and buyer, it may skew the incentives of the agent in providing the right property valuation advice. Given the role played by valuation advice in competition amongst agents, it may therefore not be surprising that such alternative charging structures have not emerged in the market place, or are only used in exceptional circumstances. This implies that the observed structure of charges does not indicate failure of competition.

5.22 The current rate structure may also be regarded as appropriate with respect to the underlying cost structure. On the face of it, some of the agent costs are clearly associated with an individual transaction: for example the cost of a board outside the property, the costs of arranging and undertaking a viewing for a property. Some costs may also be linked to the value of the property. Marketing larger and higher value properties may be more resource intensive and may require more expensive advertising in order to attract a buyer willing to purchase. Last but not least, fixed overhead costs (of setting up local offices to meet the local competition) are likely to be important in estate agency. Thus, commission rates set as a percentage of property value might be seen as an efficient way of recovering costs.

5.23 Further, the current charging structure also seems to be appropriate with regard to the role of network effects. Sellers are interested in placing their property on the books of agents that have the largest number of potentially suitable buyers and buyers generally prefer to obtain access to as many sellers as possible. This is currently achieved by buyers multi-homing (that is registering with multiple agents), while sellers are generally single-homing as a result of lower charges for sole agency contracts. The relevant question in assessing the appropriateness of these arrangements is therefore whether it would be better if both sides multi-homed, or if sellers multi-homed and buyers single-homed.

5.24 As noted above, with both sides multi-homing a concern arises about free-riding undermining the incentives for providing services. If both a seller and a buyer were registered with multiple agents, they will have an incentive to use the agent charging the lowest commission. This would, in turn, undermine the ability of agents to compete on factors other than price. For example, agents would be reluctant to incur the cost of showing potential buyers around a property if any transaction that followed from that would be conducted through another agent who does not provide viewings and can therefore charge a lower commission. This means that the structure of charges would have to change (for example buyers might have to be charged for individual viewings), which in turn would seem to discourage the use of agents and make searches less effective as buyers face a marginal cost for looking further.

5.25 With regard to the opposite situation – buyers single-homing and sellers multi-homing[60] – the question is one of the relative magnitude of cost incurred in registering a seller and registering a buyer (assuming that the number of viewings undertaken would not change significantly).[61] If it is more costly for an agent to prepare property details, take measurements

[60] Note that this might require that agents charge buyers so that they can discourage buyer multi-homing through lower sole agency fees.

[61] There is no obvious reason why the number of viewings should change significantly. Instead of a buyer having registered with five estate agents, say, being shown around suitable properties of sellers who have registered exclusively with these agents, a buyer having exclusively registered with an agent would be shown around a larger number of properties as more sellers would have non-exclusively registered with each agent.

and put together property descriptions than it is to take down a buyer's detail, the current arrangement is likely to be more cost effective.

5.26 As noted above, there is no evidence to suggest that estate agency is uncompetitive, with low levels of concentration and low entry barriers. It is therefore unlikely that agency costs could be lower as a result of more intense competition (unless costs were lower, which would only seem possible if less effort were spent on providing services). Equally, the relatively large spread of rates nationally[62] (with the highest rates being about eight times the lowest) does not suggest that agents are colluding on rate levels. The fact that negotiation of fee levels occurs not infrequently further suggests that there would be scope for secret price cuts, undermining the viability of tacit collusion.

5.27 The distribution of benefits in the case of residential property sales will generally depend on whether or not it is a buyer's or a seller's market, and is unlikely to be affected significantly by the charging structure and charging policy of agents.

5.28 For these reasons, there does not seem to be any particular concern with regard to the use of commissions in order to dampen or restrict competition, or with the force of competition to bring about commission rate structures that serve the interests of the agent's customers well.

5.29 We note, however, that a number of concerns have been raised with regard to the quality of agency services. These concerns relate mainly to problems with communication of offers to both buyers and sellers, suggestions that a buyer would be more likely to be successful if they also used the financial services offered by the agent, failures by the agent to declare a personal interest, and complaints about an unfair bias

[62] It should be noted that the spread of rates is a lot less locally than nationally. As agents compete with other agencies located geographically close to their own offices, this might suggest that the spread of of rates across England and Wales somewhat overstates the variation of prices within relevant markets. However, to the extent that local 'markets' overlap, it might be more appropriate to consider the national spread of rates as an indication of price variation.

towards one of the parties.[63] Such concerns seem to be related to the fact that the services provided by agents have the characteristics of an experience good – their quality cannot be established prior to instructing an agent (and it may even be difficult to assess whether an agent has performed well after the event, turning estate agency services from an experience into a credence good). This places much weight on the effective functioning of reputation mechanisms for competition to be an effective tool for ensuring that agents perform well, and it may be in this regard that problems arise.

Financial advisory services

5.30 As noted above, there are currently 1,200 different charging structures used in the financial advisory market.[64] These include fees only, commission only and combinations of fees and commission structures. Costs incurred by agents include fixed costs and those for undertaking individual transactions (principally including providing advice to the buyer and setting up the agreement between the buyer and the product provider). Costs associated with unfulfilled transactions are an important feature of the financial advisory market where commission rates are currently used to cover the cost of advice provided to clients who do not go on to purchase a product.[65]

5.31 Financial advisory services are unique amongst our case study sectors in that the emphasis placed on the different roles played by the agent differs substantially between the two sides of the market. Where IFAs (and multi-tied advisers) are primarily seen to be distributors of their products by the financial product providers, they are an important

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[63] See OFT (2004).

[64] ABI (2005), 'Financial Advice: How Should We Pay For It?'

[65] The significance of these costs will vary depending on the type of adviser – independent, tied or multi-tied. Independent advisers will generally have higher costs in setting up arrangements with all the product providers in the market, although this is lessened through the use of networks that allow a financial adviser to contract with multiple product providers in one go. Tied advisers, on the other hand, will predominately incur their costs in completing product sales and in providing advice. In some cases, these may also benefit from support from their product provider in marketing efforts to reach a wider client base.

source of advice for potential investors. It is this difference of emphasis that may cause potential concerns with regard to the use of commission rates in this particular sector.

5.32 In order to see the issue, it is worth considering a situation in which the adviser did not receive commissions on the various products. In this case, the agent's remuneration would not be tied to the choice made by the investor, and the adviser should be indifferent with regard to which (if any) product the investor ultimately buys. If its commercial success in the long-term (for example through reputation) depends on the quality of advice given, the adviser would have a good incentive to help potential investors to choose the most suitable product.

5.33 However, in the presence of commission arrangements negotiated with the various product providers, the adviser is immediately affected by the investor's choice of product. The adviser's revenues depend on both the amount invested and the choice of product, which can be expected to result in a distortion of incentives.[66] This in turn means that the ability of the adviser to credibly communicate information that is relevant for the investor is reduced. The quality of advice may be expected to suffer as a result.

5.34 This is the case even if the commission arrangements were fully transparent to the investor, and the investor was in a position to assess the impact of the various commissions on the agent's incentives. However, given the proliferation of commission rate structures, and the limited ability of customers to assess the relative merits of different investment options on their own (which is one of the main reasons for using financial advisers in the first place), let alone in combination with

[66] This distortion of incentives would not take place if effective commissions were signals of product quality, with better products attracting higher commissions (see Bentz (2001)). However, the argument rests upon the assumption that 'owners need to be able to obtain information about the product that they have purchased. If a buyer will never know whether his financial adviser has provided good or bad advice, the signalling intuition no longer holds' (Bentz, 2001, page 2).

various commission arrangements, makes the problem worse.[67] There have indeed been numerous debates around whether or not advice provided by agents may in some way be biased toward the products from which they benefit the most in the form of a higher level of commission payments, although evidence for such bias is limited.[68]

5.35 Thus, it is easy to envisage alternative charging structures that may be expected to lead to better advice being provided to customers. In particular, the alternative of advice being provided on a fee only basis (aside from the value of the investment and the product being chosen) might limit any bias in advice toward certain products or investment values. Indeed, such charging structures might even be in the interest of financial product providers, who might not choose to remunerate their distributors on the basis of sales commissions were it not for the attempt to gain a better positioning with individual advisers who act as common distributors for a large number of product providers. Put differently, the use of commissions by financial service providers to

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[67] The number of charging structures and the variety of mixed regimes also raises concerns about the transparency of the charges currently employed by agents with it being likely that potential customers may be unable to understand clearly the differences amongst different offerings. Given this concern, the FSA has placed requirements on and provided guidelines to financial advisers (FAs) to report their charging methods to customers at the outset and on a standardised basis so that these may be compared. It is noteworthy, though, that the guidelines do not place requirements on separating the charges for the provision of advice and the completion of transactions for clients, nor do they force them to separate their costs as between their buyer and product provider roles.

[68] See Charles River Associates (2002), who found some product bias in the case of single-premium saving and investment products and personal pensions, as well as some provider bias. Charles River Associates (2005), by contrast, find that problems concerning bias are due more to perception than reality, but that public concern is justified and that remedial action might be appropriate.

remunerate IFAs (and subsequently tied advisers) may simply be a response to the requirement that these advisers distribute all available products.[69]

5.36 However, although some agents have more recently been providing advice on a fixed fee basis, take-up by customers has been low. It has been suggested that this is on account of customers being unwilling to pay for advice (in particular where they might then not purchase a product) or would prefer to defer the payment of advice (by consolidating it within their product payments which may be deducted annually). However, it may well be the case that customers believe that they can obtain advice for free, or might not be in a position to evaluate the potential benefit of paying through a fee rather than through a commission on the product purchased. The fact that the fee-based option is more commonly taken up by specialist and high net worth parts of the market may suggest that more sophisticated customers are more aware of the potential benefits from replacing commissions by fees in terms of obtaining better advice.

5.37 Given the structure of the sector (as discussed above), it is clear that the failure of such alternative charging structures to gain in importance is unlikely to be the result of restricted or distorted competition. Rather, the underlying reason is likely to be incomplete and asymmetric information, and a limited ability of potential investors to understand the impact of the various charging structures. To the extent that commission rate arrangements have been a response to the requirement

[69] In this regard, it is instructive to consider again the case of simple sales commissions. Such commissions are used primarily for commoditised products, or in wholesale markets (that is in business to business relationships), where little advice to the customer is needed. Sales commissions are less likely to be used in the supply of complex products to end users because they might distort the incentives of sales staff towards a quick sale at the expense of providing advice to the customer, which is important for the long-term success of the business. The situation would change, however, if these firms were required to sell through 'common distributors' who offer the products of all potential suppliers. This creates a strong incentive on the part of each supplier to compete for the distributor's preference and thus 'share'. Trying to win share through commissions may still have a detrimental impact on the quality of advice provided by the distributor, but part of this would be externalised and affect other suppliers selling through the same distributor.

that IFAs distribute all available products, as discussed above, depolarisation may provide some improvement. However, ultimately the best solution might be a separation of advice and distribution, which would however require customers to understand that they are paying for advice in one way or another.

5.38 It is worth pointing out that the distortion of incentives discussed above does not in any way imply that financial product providers or financial advisers benefit at the expense of investors:

- competition between multi-homing financial service providers to secure access to customers is likely to reduce (in the extreme to zero) their share of the gains from trade that are available, that is it is not the case that commission rates allow these firms to earn profits which would otherwise not be available. On the contrary, it is the intense competition for distribution through FAs that is responsible for the distortion of incentives

- competition amongst FAs should eliminate any economic profits in the provision of advice, and it is thus unlikely that agency costs (for a given level of service) could be lower.

5.39 Rather, the impact of these distortions is that there is an unrealised scope for improvement in the quality of advice, and therefore there are unrealised gains for investors.

Stockbrokerage

5.40 Brokerage is the only one of our case studies which largely uses fixed fees (for execution only). Ad valorem commissions are used in the case of advisory and discretionary brokerage. In the case of execution only brokerage, costs associated with individual transactions tend not to be related to the value of the transaction, except in limited cases where extremely high value trades involve such costs as breaking up the trade into blocks or more specific notification requirements, etc.[70] Given this, brokers have adopted flat fees in relation to fulfilling transactions.

5.41 In the case of advisory services, however, brokers generally adopt a commission charge based on the value of the completed transaction. This might raise concerns about an incentive on the part of the brokers to provide advice that leads to a trade in order to generate commissions.

5.42 As such, alternative charging structures may be able to lead to a better deal for customers. However, customers are likely to be able to observe the effect on their portfolio of a broker offering churn advice fairly quickly, and it may also draw the attention of regulators such as the FSA. In the case of discretionary services (where the broker trades on behalf of the client using their discretion), brokers generally charge a fee on the total value of the portfolio. At one extreme, this may lead to an incentive not to trade as frequently (as the broker does not earn a return on individual trades). However, discretionary services are generally used for higher value portfolios as held by more informed customers who will again be able to monitor immediately changes in value of the portfolio.

5.43 Stockbrokerage is a not particularly highly concentrated, and there is no indication to suggest that competition is ineffective. Indeed, competition is largely responsible for ad valorem commissions for execution only services having been replaced by flat fees, showing how the competitive process can work not just with regard to fee levels, but also fee structures. Similarly, the migration towards more cost-effective and cheaper on-line trades suggests that competition is largely effective.

5.44 In addition, there is significant variation in charging structures, alleviating any potential concern about the use of commission rates in order to facilitate collusion. Although the proliferation of different arrangements may make it more difficult for customers to compare the

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[70] The main costs incurred by execution only brokers include those in setting up their platform for executing trades. Where these are predominantly telephone based then a brokerage will include the costs of employing brokers to trade over the telephone, while in the case of internet brokerage then there will be the cost incurred in setting up the internet trading system. There will also be a cost in setting up a nominee account for the share holding.

offers of different brokers, one would expect that private investors requiring the services of a broker are fairly sophisticated and capable of evaluating different fee propositions.

5.45 Given that buyers and sellers of shares are essentially trading with the whole of the market, there are no reasons to be concerned about the distribution of benefits.

On-line auctions

5.46 Network effects are particularly strong in the case of on-line auctions. Increasing the number of different types of products available for sale on a website is likely to draw a wider base of potential buyers. Indeed, the rapid growth of eBay's operations, listings and transaction record suggests that network effects are a driving feature of success in this market. In addition, reputational effects for on-line auction providers appear to be important with eBay now having partnered with payment system providers PayPal.

5.47 The costs incurred by on-line auctioneers include certain fixed costs, including for example those for initially setting up the website. In relation to each of the transactions, there is a cost per each webpage that is provided for an individual item put up for sale. However, this cost is likely to be very small, and similar for all items irrespective of the value that an item ultimately trades at. Also, the costs are incurred regardless of whether or not the item is sold.

5.48 It could therefore be argued that alternative charging structures (for example pure listing fees) rather than ad valorem commissions would be more appropriate in terms of reflecting underlying costs. However, commission rates are likely to be preferable, as high levels of flat fees for low value items might otherwise discourage some prospective sellers from placing their items on the site for sale. This, coupled with the strong network effects in the sector and the advantage to sellers of achieving higher value from serendipitous purchases by buyers initially looking for lower value items, suggests that a mix of flat fees and ad valorem commissions should be the most appropriate way of recovering the costs associated with on-line auctions. The success of eBay certainly supports this suggestion.

5.49 In this regard, the main purpose of the commission rate structure in the provision of on-line auctions is to ensure an efficient recovery of costs, and to provide the right incentives for buyers and sellers to join the platform, rather than to provide an incentive for the intermediary to expend effort in matching transaction partners or providing advice (which does indeed not occur in the provision of on-line auction services).

5.50 Out of our five case studies, the on-line auction sector is the one with the strongest potential concerns about concentration, given that eBay enjoys a share of nearly 90 per cent of all on-line auction listings in the UK. However, it is far from clear that on-line auction services constitute a relevant market, and therefore this share measure may not mean very much. This is because customers are in a position to use alternative means of finding a suitable buyer or seller for a transaction (for example through newspaper advertising or drawing on specialist resources). In any case, given the importance of network effects in the provision of a market place, one would expect the sector to be fairly concentrated (though the position of any firm is potentially contestable).

5.51 As we have noted above, commission rates may be used to reinforce or weaken such network effects (through joining fees and usage fees respectively). There is no evidence, however, that eBay, through its charging structure, is trying to strengthen its position and leverage its size. Rather, eBay is charging a mix of fixed listing fees and commissions contingent on a successful sale in line with what one might expect in terms of efficient recovery of costs.

5.52 Clearly, the seller has little option to recover some of the costs incurred in using the services of the on-line auction provider from the seller, having committed to listing fees and a fee schedule in case of a successful sale. However, the distribution of benefits as between buyers and sellers is determined by the auction format, and the seller will normally take account of the likely agency cost when deciding whether to use an on-line auction for selling a particular item.

Temporary and contract employment

5.53 The costs associated with providing temporary and contract services include fixed costs of developing and maintaining the database of potential employers and employees, transaction specific costs and costs associated with unmet matches (for example sending potential temporary employees for interview and holding employees on their database). It is also the case that fulfilling higher value matches, for example where there are specific skills required for a job, may be linked to higher costs. For example, agents may need to interview skilled workers in more detail and verify qualifications. Likewise searches for higher skilled labour may be more costly. Possibly given this, agencies have been known to specialise in providing employees for particular sectors (for example financial services).

5.54 The temporary and contract employment sector shows the co-existence of pure agency relationships in the case of longer-term contracts – with the recruitment agent matching employees and prospective employers, who then contract directly – and resale arrangements, where the recruitment agent employs the worker who is then sent to the firm needing to fill a vacancy on a temporary or relatively short-term basis.

5.55 The remuneration is very similar in both cases, with the agent being paid a proportion of the salary of the employee, either in the form of a commission in the case of pure agency, or as a mark-up on the salary paid by the agent to the temporary/contract worker.

5.56 It is not clear that this remuneration structure is intended to provide incentives for the agent to find a proper match – in theory, the agent should have an incentive to provide workers at a higher level of qualification and a consequently higher salary if this increases its remuneration, though competition amongst agents, in combination with reputation effects and the interest in establishing a long term relationship with an employer will work in the opposite direction. Thus, the reason for the use of commission arrangements is more likely that costs vary with the qualification level of the employee, as it may be more costly to screen and evaluate more highly qualified applicants, and that salary levels may be a proxy for the value placed by the employer on the agent's services, thus allowing efficient recovery of fixed costs.

5.57 Concentration in the sector is low, and there is little reason to expect that competition amongst agents is restricted or distorted. Terms and conditions are often the subject of negotiations, and given the limited transparency that results from this, there should be no concerns about collusion.

5.58 Legislation requires that the agent is paid by the employer (as employees – with some exceptions – cannot be charged for finding them a placement). This does not imply, however, that employers ultimately bear the cost of using the agent. Rather, the distribution of agency costs is likely to be determined by the relative shortage of skills in a particular sector. The sector is highly regulated in terms of the protection of employees, and there should therefore be no concerns about the distribution of benefits.

Conclusions and recommendations

5.59 In summary, both our conceptual analysis and our review of five sectors in which commission rates are commonly used suggests that there is no reason to expect competition concerns to be qualitatively different in markets with commission rates compared to 'normal' markets. Provided that customers are able to make well-informed choices about the agent they wish to use, competition should be expected to result in commission arrangements that best serve the interest of the agent's customers, though – as is common in two-sided markets – the benefits from doing so may be rather unevenly distributed. The distribution of benefits can be expected broadly to reflect whether the transactions that the agent facilitates take place in a buyers' or a sellers' market.

5.60 Similarly, there is no reason to expect that commission rates as such might be used in order to restrict or distort competition. Although the specific design of commission arrangements (often simple linear contracts rather than more complex remuneration schemes) might at first sight seem to facilitate tacit collusion on the level of commission charges, such simple contracts may well be optimal in a wide set of circumstances. Moreover, there may often be a trade-off between the benefits of complexity in terms of producing a better alignment of incentives, and the cost in terms of making it more difficult (if not impossible) for customers to evaluate the various offers. Of course, collusion remains a potential concern where commission charges are transparent and other market conditions are conducive to collusive behaviour, but this does not imply that simple contracts are used in order to facilitate collusion (which would, in any case, require collusion on the choice of contractual form).[71]

5.61 If markets in which commission rates are being used are more likely to raise issues than 'normal' markets, this is likely to be because agents receiving commissions are often used because of their superior skills and knowledge, which in turn implies that in such markets there is more scope for problems related to incomplete information and bounded rationality. This is particularly the case where the function of the agent is not simply to provide a platform and facilitate the execution of transaction, but where a substantial proportion of the agent's services consist of providing advice and helping customers to select an appropriate product or trading partner. This is reflected in our case studies, where issues have been raised mainly with regard to financial advisory services, and to a lesser extent with regard to estate agency services. These concerns are not so much about the price paid for these services, but about the quality of service, and specifically the quality of advice, received from the agents.

5.62 These problems are not necessarily related to restricted or distorted competition, but can often arise in markets that are fairly competitive. Indeed, it may often be strong price competition – which would otherwise be perceived as beneficial – that is responsible for bad advice and distorted incentives. As the case of stockbrokerage suggests, where

[71] This suggests that there is nothing special about commission arrangements per se, and that the form of remuneration does not matter much. This should not be surprising, and mirrors an insight from the analysis of vertical restraints, namely that the specific contractual form of these restraints per se does not matter much, but that they need to be evaluated in their market context (see European Commission (1996)).

customers are fairly sophisticated, and where it is relatively easy to evaluate the quality of an agent's advice, reputation can be an effective mechanism for maintaining the right incentives for agents – but where the feedback mechanism is less effective, problems of distorted incentives arise.

5.63 The theoretical analysis of such problems suggests that there are few general conclusions that can be drawn. The effects of competition under conditions of imperfect information crucially depend on the specific market circumstances. This makes it imperative that the models of competitive interaction that are being used in order to determine the potential source of problems, the potential magnitude of the detriment suffered, and the likely efficacy of possible remedies closely reflect these conditions.

5.64 Moreover, models that are based on perfectly rational behaviour may provide some insight into the underlying problems, but may often not give the full picture. For example, systematic biases in the way in which individuals respond to uncertain information (including the way in which it is presented) render invalid many of the predictions made on the basis of rational choice theory.

5.65 This suggests that future research should focus on markets in which informational problems are likely to occur, and that such research should incorporate models of boundedly rational choice. Unfortunately, there is no generally agreed model of boundedly rational behaviour, and it may therefore be necessary to consider a potentially large range of behavioural rules and heuristics and check whether any analysis undertaken in order to identify potential sources of problems and possible remedies is robust with regard to variations in these behavioural rules.

5.66 For example, in order to understand the effects of particular interventions in order to improve the quality of financial advice, it is necessary to understand how financial advisers and their customers respond to such remedies. Although an obligation to offer the customers a choice between fee-based advice and remuneration on the basis of a commission agreed with the product provider should improve the quality of advice in theory, in practice the crucial question is whether customers exploit this option, and what determines their choice. Equally, where there are obligations on financial advisers to disclose certain information in a certain format, it is important to understand how this information affects consumer choice (if at all), and what the possible response of product providers and advisers is to such an obligation. Often, these questions may not be answerable purely on a theoretical basis (and most certainly not on the basis of models that rely on restrictive assumptions in order to guarantee analytical tractability). Theoretical analysis and analytical models can provide a valuable starting point, but they most likely have to be complemented with other tools such as simulations or experimental testing of specific policy proposals.

5.67 Such a research programme would of course be useful beyond the case of commission rate arrangements in all markets where asymmetric information and bounded rationality play a role – but some of those markets in which commission rates are being used and in which problems arise and complaints occur despite what would seem to be effective competition might be a good starting point.

6 REFERENCES

Anglin, P and Arnott, R (1991), 'Residential Real Estate Brokerage as a Principal-Agent Problem', Journal of Real Estate Finance and Economics, 4.

Armstrong, M (2005), 'Competition in Two-Sided Markets', mimeo, University College London, Forthcoming, RAND Journal of Economics.

Arrow, K (1965), Aspects of the Theory of Risk Bearing, Helsinki.

Bartlett, R (1981), 'Property Rights and the Pricing of Real Estate Brokerage', The Journal of Industrial Economics, 30.

Bentz, A (2001), 'Is Commission-Based Financial Advice Always Bad Advice?', CMPO Working Paper 01/042.

Caillaud, B and Jullien, B (2001), 'Chicken & Egg: Competing Matchmakers', mimeo, University of Toulouse.

Caillaud, B and Jullien. B (2002), 'Chicken & Egg: Competition among Intermediation Service Providers', (mimeo), published under the same title in Rand Journal of Economics 34.

Charles River Associates (2002), 'Polarisation: research into the effect of commission based remuneration on advice', report prepared for the FSA.

Charles River Associates (2005), 'Study of intermediary remuneration', report prepared for the ABI.

Chevalier, J and Ellison, G (1999), 'Career Concerns of Mutual Fund Managers', Quarterly Journal of Economics, 104.

Chiappori, P-A, Macho-Stadler, I, Rey, P and Salanie, B (1994), 'Repeated moral hazard: The role of memory, commitment, and the access to credit markets', European Economic Review, 38.

Crawford, V P and Sobel, J (1982), 'Strategic information transmission', Econometrica, 50.

Emons, W (1997), 'Credence Goods and Fraudulent Experts', RAND Journal of Economics, 28.

European Commission (1996), Green Paper on Vertical Restraints in EC Competition Policy, COM(96)721.

Evans, D S and Schmalensee R (2005), 'The industrial organization of markets with two-sided platforms', NBER Working Paper No.11603.

Evans, D S, Rochet, J-C and Schmalensee, R (2006), 'The European Commission's Interim Report on Payment Cards: Some Comments and Suggestions', response to the European Commission's Sector Inquiry into Financial Services.

Farrell, J (2006), 'Efficiency and Competition between Payment Instruments', Review of Network Economics, 5.

Farrell, J and Saloner, G (1985), 'Standardization, Compatibility and Innovation', Rand Journal of Economics, 16.

Farrell, J and Saloner, G (1986), 'Installed Base and Compatibility: Innovation, Product Preannouncements and Predation', American Economic Review, 76.

Fudenberg, D, Holmström, B and Milgrom, P (1990), 'Short-term contracts and long-term agency relationships', Journal of Economic Theory, 51.

GAO (2005), 'Real Estate Brokerage: Factors that may Affect Price Competition', Report to the Committee on Financial Services, House of Representatives: United States Government Accountability Office.

Gaudeul, A and Jullien, B (2005), 'E-commerce, two-sided markets and info-mediation', mimeo, IDEI Working Paper No. 380.

Green, J R and Stokey, N L (1983), 'A Comparison of Tournaments and Contracts', Journal of Political Economy, 91.

Greenleaf, E A and Sinha, A R (1996), 'Combining Buy-In Penalties with Commissions at Auction Houses', Management Science, 42.

Grossman, S J, and Hart, O D (1983), 'An analysis of the principal-agent problem', Econometrica, 51.

Harris, M and Raviv, A (1979), 'Optimal Incentive Contracts with Imperfect Information', Journal of Economic Theory, 20.

Hermalin, B E and Katz, M (2004), 'Your Network or Mine? The Economics of Routing Rules', RAND Journal of Economics, 35.

Holmström, B (1979), 'Moral Hazard and Observability', Bell Journal of Economics, 10.

Holmström, B (1982), 'Moral Hazard in Teams', Bell Journal of Economics,13.

Holmström, B (1999), 'Managerial Incentive Problems: A Dynamic Perspective,' Review of Economic Studies, 66.

Holmström, B and Milgrom, P (1991), 'Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design', Journal of Law, Economics, and Organization, 7.

Hong, H, Kubik, J D and Solomon, A (2000), 'Security Analysts' Career Concerns and Herding of Earning Forecasts', RAND Journal of Economics, 31.

Horner, J (2002), 'Reputation and Competition', American Economic Review, 92.

Irish Competition Authority (2005), 'Competition Issues in the Non-Life Insurance Market: Final Report and Recommendations', Volume I, Dublin.

Ivaldi, M, Jullien, B, , Rey, P, Seabright P and Tirole, J (2003), 'The Economics of Tacit Collusion', report prepared for the European Commission, DG Competition.

Jares, T E, Larsen, J E and Zorn, T T (2000), 'An Optimal Incentive System for Real Estate Agents', Journal of Real Estate Research, 20.

Jensen, M and Meckling, W (1976), 'Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure', Journal of Financial Economics, 3.

Kahneman, D (2003), 'Maps of Bounded Rationality: Psychology for Behavioral Economics', The American Economic Review, 93.

Kahneman, D, Slovic, P and Tversky, A (1982), Judgment under Uncertainty: Heuristics and Biases, Cambridge and London.

Katz, M and Shapiro,C (1985), 'Network Externalities, Competition and Compatibility', American Economic Review, 75.

Katz, M and Shapiro, C (1986), 'Technology Adoption in the Presence of Network Externalities', Journal of Political Economy, 94.

Lambert, R (1983), 'Long Term Contracts and Moral Hazard', Bell Journal of Economics, 14.

Lazear, E P and Rosen, S (1981), 'Rank-Order Tournaments as Optimum Labor Contracts,' Journal of Political Economy, 89.

Levitt, S D and Syverson, C (2005), 'Market Distortions when Agents are Better Informed: The Value of Information in Real Estate Transactions', NBER Working Paper No. 11053.

Liebowitz, S and Margolis, S E (1996), 'Should Technology Choice Be a Concern of Antitrust Policy?', Harvard Journal of Law and Technology, 9.

Liebowitz, S J and Margolis, S E (1990), 'The Fable of the Keys,' Journal of Law & Economics, 33.

Macho-Stadler, I and Pérez-Castrillo, D (2001), An Introduction to the Economics of Information, Oxford University Press.

Malcomson, J M (1986), 'Rank-order contracts for a Principal with Many Agents', Review of Economic Studies, 53.

McAfee, R P and McMillan, J (1987), 'Competition for Agency Contracts', RAND Journal of Economics, 18.

Milgrom, P and Roberts, J (1986), 'Price and advertising signals of product quality', Journal of Political Economy, 94.

Mirrlees, J (1974), 'Notes on Welfare Economics, Information and Uncertainty', in Essays in Equilibrium Behavior under Uncertainty, eds. M. Balch, D. McFadden, and S. Wu, North Holland.

Mirrlees, J (1975), 'The Theory of Moral Hazard and Unobservable Behaviour I', mimeo, Nuffield College.

Mookherje, D (1984), 'Optimal Incentive Schemes with Many Agents', Review of Economic Studies, 51.

Myerson, R and Satterthwaite, M (1983), 'Efficient Mechanisms for Bilateral Trading', Journal of Economic Theory, 28.

OFT (1997), 'Consumer Detriment under Conditions of Imperfect Information', Office of Fair Trading Research Paper No. 11.

OFT (2004), 'Estate Agency Market in England and Wales'

Ottaviani, M (2000), 'The Economics of Advice', mimeo, University College London.

Ottaviani, M and Sørensen, P (2000), 'Herd Behavior and Investment: Comment', American Economic Review, 80.

Ottaviani, M and Sorensen, P (2006), 'Professional Advice', Journal of Economic Theory, 126.

Pauly, M (1974), 'Overprovision and Public Provision of Insurance', Quarterly Journal of Economics, 88.

Pesendorfer, W and Wolinsky, A (2003), 'Second Opinions and Price Competition: Inefficiency in the Market for Expert Advice', Review of Economic Studies, 70.

Prendergast, C and Stole, L (1996), 'Impetuous Youngsters and Jaded Oldtimers: Acquiring a Reputation for Learning,' Journal of Political Economy, 104.

Radner, R (1981), 'Monitoring Cooperative Agreements in a Repeated Principal-Agent Relationship', Econometrica, 49.

Rees, R (1987), 'The Theory of Principal and Agent', in Surveys in the Economics of Uncertainty, eds. J.D Hey and J.L Lambert, Basil Blackwell Oxford

Rochet, J C and Tirole, J (2003), 'Platform Competition in Two-Sided Markets', Journal of the European Economic Association, 1.

Rochet, J C and Tirole, J (2005), 'Two-Sided Markets: A Progress Report', mimeo, IDEI Working Paper No. 275, forthcoming, RAND Journal of Economics.

Rubinstein, A and Yaari, M E (1983), 'Repeated Insurance Contracts and Moral Hazard', Journal of Economic Theory, 30.

Rubinstein, A and Wolinsky, A (1987), 'Middlemen', The Quarterly Journal of Economics, 102.

Samuelson, W F (1984), 'Bargaining under Asymmetric Information', Econometrica, 52.

Sappington, D (1991), 'Incentives in principal agent relationships', Journal of Economic Perspectives, 3.

Scharfstein, D and Stein, J (1990), 'Herd Behavior and Investment,' American Economic Review, 80.

Shavell, S (1979), 'Risk Sharing and Incentives in the Principal and Agent Relationship', Bell Journal of Economics, 10.

Simon, H (1982) Models of Bounded Rationality (two volumes), Cambridge (Mass).

Stiglitz, J (1987), 'Principal and agent', in John Eatwell, Murray Milgate, and Peter Newman, eds: The New Palgrave: A dictionary of economics, London

Wolinsky, A (1983), 'Prices as signals of product quality', Review of Economic Studies, 50.

Wright, J (2004), 'One-sided logic in two-sided markets', Review of Network Economics, 3.

Yavas, A (1994), 'Middlemen in Bilateral Search Markets', Journal of Labor Economics, 12.

Zietz, J and Newsome, B (2001), 'A Note on Buyer's Agent Commission and Sales Price', Journal of Real Estate Research, 21.