

# **Minority interests in competitors**

**A research report prepared by DotEcon Ltd**

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## **FOREWORD BY AMELIA FLETCHER**

This report was commissioned by the Office of Fair Trading (OFT) from DotEcon. They were asked to review the potential implications to competition from minority share ownerships, interlocking directorships, loans to competitors and contracts for differences. They were also asked to develop an economic framework for the analysis of the competition effects of these instruments.

It covers several topics of interest for competition policy including the use of Contract for Differences. Contract for Differences (or derivative contracts in general) has never come up for debate before in competition policy circles and raises particularly interesting issues. The paper also clearly lays out the more recognisable issues of interlocking directorships and minority share ownership. All of these are areas of interest to us, and others, and we hope this report furthers discussion here.

The views of this paper are those of DotEcon and do not necessarily reflect the views of the OFT nor the legal position under existing competition or consumer law which the OFT applies in exercise of its enforcement functions.

This report is part of the OFT's Economic Discussion Paper series. If you would like to comment on the paper, please write to me, Amelia Fletcher, at the address below. The OFT welcomes suggestions for future research topics on all aspects of UK competition and consumer policy.

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# 1 EXECUTIVE SUMMARY

- 1.1 DotEcon has been commissioned by the Office of Fair Trading (OFT) to undertake research in relation to the competition impacts of minority interests held in competitors. As part of this project, DotEcon has been asked to review current practice in relation to minority share ownerships (MSOs), interlocking directorships (IDs), loans to competitors and contracts for differences (CfDs), and to develop a theoretical framework for the analysis of the competition effects of these instruments.
- 1.2 The OFT has not sought policy recommendations or views on the application of competition law from DotEcon, nor has it required that data be collated and analysed in order to test the emerging hypotheses.

## Definition of minority interests

- 1.3 For the purposes of our research, we consider a minority interest to arise where a party has an interest in the financial performance of a firm that is insufficient to attribute the ability materially to influence policy relevant to the behaviour of the firm in the marketplace.<sup>1</sup> This means that minority interests do not give any sort of control.<sup>2</sup>
- 1.4 In addition to creating an interest in the financial performance of a firm, minority interests may also be associated with receiving some additional information about the firm in which the interest is held that would not normally be available.

- 1.5 More specifically:

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<sup>1</sup> For a more detailed explanation of the concept of material influence, see for example the OFT/CC Merger Assessment Guidelines, paragraph 3.12 f.

<sup>2</sup> This means that our analysis is limited to the effect of interests that would not fall under the scope of the UK Merger Control regime. We should point out that these effects (and the underlying mechanisms) also apply to interests that would nevertheless be covered.

- MSOs will involve ordinary non-deferred shareholdings in a firm definitely below 50 per cent.<sup>3</sup> MSOs may involve a one-way direct stake in a rival or may be reciprocal in nature, where two competing firms hold shares in one another (or indeed amongst many competitors). MSOs may also arise through a third firm and thus be indirect in nature.
- IDs exist where an individual director or officer of a company – or a relative or associate of one – serves as a director for another firm. More generally, ID refers to cases where executive or non-executive board members or other officers of a company hold additional positions on one or more company boards.
- Advancing a loan to a competitor generally takes two forms: a simple bi-lateral agreement between the firms or through the purchase of exchange-traded company debt.
- CfDs are a particular type of over-the-counter financial derivative product (meaning that they are not traded on an exchange, but offered by brokers to retail investors). These allow buyers and sellers to take positions on the future performance of an underlying financial instrument (for example, equity shares), earning the difference that arises between the price at the opening date and at the closing date of the contract. By buying CfDs, an investor would benefit from an increase in the underlying share price.

CfDs also permit investors to bet on the price of shares falling. CfDs do not involve the purchase of the underlying asset (that is, the shares) and they are generally traded on a leveraged basis,

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<sup>3</sup> A fully-paid share essentially gives the right to a share in the company's dividend, a share in the assets of the company, the right to attend certain meetings including an annual general meeting and the right to receive the report and accounts of the company. Most notably though, such shares give the right to vote on issues affecting the company. Greater levels of shareholding also afford additional rights, for example the right to call a meeting. Deferred shares provide fewer rights than ordinary shares as a result of dividend payments being deferred or being ranked lower than ordinary shares in the case of insolvency.

meaning that the investor only needs to put down a proportion of the value of the underlying shares.

### **Our analytical framework**

- 1.6 In order to analyse the impact that such minority interests might have on competition, we have drawn on the extant academic literature and our understanding of the instruments and have:
- Followed the route of distinguishing between unilateral effects and the effect that such minority interests can be expected to have on the likelihood or sustainability of tacit (as opposed to overt) collusion (or co-ordinated effects). The first category refers to the impact of minority interests on the incentives of firms to compete more or less aggressively taking the behaviour of competitors as given.
  - Considered differences in the nature of competition in oligopolistic markets in terms of the strategic relationship between firms. This aspect can be exemplified by the extreme cases of Cournot competition, and Bertrand competition. In the former case the individual firms' strategic variable is the quantity they wish to offer, with prices adjusting to match demand to the quantity supplied. Under Bertrand competition the strategic variable is price, and quantity then adjusts to meet the demand at the given price.

### **Our findings**

- 1.7 In general terms, we found that minority interests in imperfectly competitive markets can be used to (further) soften competition, and thus can lead to higher prices and lower quantities to the detriment of consumers.
- 1.8 However, the intensity of these effects, as well as the incentives facing firms to use minority interests to affect competition, vary across the different instruments and depend on the nature of competition.
- 1.9 In relation to MSOs and unilateral effects, we found that

- The theoretical effect of MSOs is to reduce competition leading to higher prices and lower output absent efficiency gains. We find this effect is strongest where products are differentiated or competition is focused mainly on price (where markets are characterised by Bertrand competition).
- We note that, unlike Bertrand competition, where firms compete on quantities (Cournot competition) firms should have no incentive to acquire MSOs. Absent efficiencies MSOs should reduce profitability. This is because of the 'Cournot Paradox', which is discussed in the merger literature.

1.10 In relation to MSOs and co-ordinated effects we found that MSOs have potentially two main, and conflicting, effects:

- Once a firm has an MSO in a rival (or rivals), its incentives to deviate from a co-ordinated outcome are reduced. This is because in deviating, the firm inflicts losses on rivals and this will partially reflect back through the MSO. This thus increases the ability to co-ordinate.
- On the other hand, because MSOs soften competition, the profitability of the non co-ordinated outcome is greater. This reduces the ability to punish firms that deviate from the co-ordinated outcome and reduce the incremental gain from co-ordination. This decreases the ability to co-ordinate.

1.11 Which effect dominates depends upon the individual characteristics of the industry and firms concerned. The type of competition within the market, the involvement of mavericks and the extent of product differentiation are all important factors here.

1.12 Finally we note that our review of efficiencies have not revealed any strong efficiency rationale underlying the use of MSOs.

1.13 Overall we find, whether they are motivated by unilateral or co-ordinated effects, the presence of MSOs among competitors in the absence of efficiencies is likely to result in higher prices and lower quantities, and thus reduces consumer welfare.

1.14 In relation to IDs, we found that while IDs may generate efficiencies, they can also have anti-competitive effects.

- Concerns about such effects are perhaps strongest in relation to the information flow to which IDs may give rise, and thus their contribution towards the increased likelihood and effectiveness of collusion, and in cases where there are reasons to suspect that corporate governance is weak.
- The scope for efficiencies is greater in relation to vertical IDs than horizontal IDs, and the threat of anti-competitive behaviour is weaker. Therefore, vertical IDs (unless they also create indirect IDs among horizontal competitors) are likely to be pro-competitive.

1.15 In relation to loans we found that:

- The unilateral effects of loans given to competitors share some of the features of MSOs in the case where the recipient of the loan is in financial difficulty, but not otherwise. This is because the lender may have an incentive to compete less aggressively in order to avoid pushing the borrower into insolvency, which would put repayment of the loan at risk.
- With regards to co-ordinated effects, loans also share some of the features of IDs, namely where the lender, through granting the loan, obtains information about the borrower's business that might otherwise not be available.

1.16 In relation to CfDs, we found that they have broadly similar unilateral effects to MSOs in those cases where the buyer 'goes long' (benefits from an increase in the share price of a competitor).

- The ease with which CfD positions can be closed or even reversed, together with the ongoing cost of maintaining an open CfD position, makes CfDs more likely to be shorter-term instrument than MSOs.
- This would suggest that they are more suitable tools for strategically affecting competition in cases where competition

takes place mainly over short, well-defined periods (that is, in cases where competitors fight for lumpy, discrete projects through bidding processes).

- 1.17 Turning to co-ordinated effects, compared with MSOs, the extra flexibility of CfDs and the possibility to 'go short' on rivals, offers increased complexity on their ability to sustain collusion.
- The incentive to deviate could be enhanced because a firm considering deviating could take a 'short' position on a rival. This would increase the profits from deviation by earning a return on the negative impact on its rival's share price.
  - On the other hand, the same ability to take a 'short position' will facilitate punishment of firms who deviate.
  - CfDs, therefore, do not seem unambiguously to increase the potential for collusion relative to MSOs. The exception may be colluding in bidding markets. Here, CfDs could be a tool to solve the problem of how to share the profits from a cartel in a bidding market.
- 1.18 Finally, short CfD positions can be used to support exclusionary behaviour, both in terms of reducing the cost of exclusionary behaviour and discouraging entry. In essence, exclusionary theories of harm include an initial sacrifice in excluding rivals (for example reduced profits through low predatory prices in predation stories). By earning returns through the lowering of rivals' share price, CfDs can be used to reduce the cost of this sacrifice.
- 1.19 Our analysis is supported by the literature and empirical studies in relation to MSOs, IDs and loans. Literature, however, is absent in relation to the competition effects associated with CfDs, and corroboration of the theoretical reasoning in relation to this instrument would seem to be a fruitful area for further research.

## **2 INTRODUCTION AND BACKGROUND**

- 2.1 DotEcon has been commissioned by the Office of Fair Trading (OFT) to undertake a research project in relation to minority interests held in competitors. As part of this project, DotEcon has been asked to review current practice in relation to minority share ownerships (MSOs), interlocking directorships (IDs), loans to competitors and contracts for differences (CfDs), and to develop a theoretical framework for the analysis of the competition effects of these instruments.
- 2.2 Whilst there is a large body of literature in relation to the competition effects associated with minority interests, papers have to date focused primarily on the areas of MSOs and IDs. Research in relation to the effect of loans and CfDs is considerably more limited.
- 2.3 In this context, the OFT required a review of the current literature in relation to these instruments, in order better to understand the full range of effects that may arise through their use whilst highlighting any particular features of their operations that may have implications for competition within relevant markets.

### **Our approach to this study**

- 2.4 In considering the competition impact of minority interests in competitors, we have drawn on a number of sources:
- We have reviewed pertinent literature in relation to MSOs, IDs, loans and CfDs. We have reviewed literature with a focus on unilateral and co-ordinated effects, considering papers in merger and other contexts. We have also reviewed pertinent literature in relation to managerial incentives where we think these are relevant for the assessment of the effects of these instruments. A full bibliography is attached at Annex A.
  - we have reviewed the operations of complex derivative products through publicly available information sources and have participated in CfD seminars in order to understand better how these work

- we have met with staff of the Financial Services Authority (FSA), who have helpfully advised on the current legal framework in relation to the disclosure of the various instruments
- we have met with staff of the London Stock Exchange (LSE), who have helpfully provided further details of its platform and its understanding of the use of these instruments.

2.5 Based on this information, we have developed a theoretical framework for the assessment of the competition effects likely to arise in the case of MSOs, IDs, loans and CfDs. We have developed this framework with the kind assistance of two academic advisors:

- Dr. Jo Seldeslachts of the Universiteit van Amsterdam
- Dr. Albert Banal-Estanol of London's City University.

### **Structure of this report**

2.6 This report is structured as follows:

- **Chapter 3 – minority interests:** In this first chapter, we define minority interests and set out our understanding of how the various instruments operate in practice. We also set out the rules and regulations that apply in each case.
- **Chapters 4 to 8 – framework:** In these chapters, we set out our framework for the analysis of likely competition effects in relation to the various instruments. This is based on our review of relevant literature, pertinent cases, and our understanding of how these instruments operate.
- **Chapter 9 – conclusion:** In this chapter we set out a summary of our findings and conclusions.

### **3 MINORITY INTERESTS**

3.1 In this chapter we set out a definition of minority interests, and describe in summary how MSOs, IDs, loans and CfDs operate in practice within the UK. This chapter is supplemented by a series of Annexes, providing further detailed information on the operations of these instruments and the relevant rules incumbent on companies and directors within the UK.

#### **Defining minority interests**

3.2 Traditional accounting standards define a 'noncontrolling interest, sometimes called a minority interest, [as] the portion of equity in a subsidiary not attributable, directly or indirectly, to a parent'.<sup>4</sup> In practical terms, this essentially relates to situations where the portion of equity held by a shareholder in a firm amounts to less than 50 per cent of the voting shares in issue, as otherwise the firm would no longer be classified as a subsidiary of a 'parent' shareholder. However, this definition does not necessarily address whether a minority shareholder, for example, can materially influence a firm's decisions.

3.3 In economic terms, a minority interest may be described as an interest in the performance of a firm for the holder without affording the holder of that interest the ability materially to influence policy relevant to the behaviour of the firm in the marketplace. The holder of a minority interest may in addition also receive some information about the firm's operations than would normally be available to the public at large.

3.4 Defined in this way, a minority interest does not necessarily imply that the holder exercises no control at all over the firm, but rather that the interest is not sufficient to allow the holder to exercise material influence over the conduct of the firm.

3.5 A minority shareholding in a company is a typical, but by no means the only, way in which such a minority interest may arise. More specifically, the use of the term minority interest may also relate to cases where the

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<sup>4</sup> 'FASB No.160: Statement of Financial Accounting Standards No. 160 - Noncontrolling Interests in Consolidated Financial Statements (an amendment of ARB No. 51)', FASB.

interest is indirect in nature, for example, through holdings of complex financial derivative products associated with the underlying shares such as a CfD (although the holding of such products may in some cases lead to ownership of shares at a later date). The holder of such derivative products will have a potentially very strong interest in the financial performance of the firm, but the level of control that may be exercised is likely to be lower than through the ownership of voting shares.

- 3.6 We also consider there to be cases where a firm has an interest in the performance of another not through shares but rather through an individual holding positions of responsibility in both firms. Such an interest, generally referred to as an ID, will be largely one that is associated with the party being given preferential access to information that might not otherwise have been made available to them.
- 3.7 Finally, interests in a firm's performance could also arise in situations where a party provides financial support, through extending a loan, to another. Although the interest in the financial performance of the firm arises only where the borrower faces the risk of bankruptcy. In these cases, additional information may also be shared where the terms or covenants of the loan warrant it.
- 3.8 In sum, therefore, we consider a minority interest to relate to cases where a party has an interest in the financial performance of a firm – be it through an active shareholding, a holding of derivatives such as CfDs, an interlocking directorship or through other means such as advancing a loan – but where that interest is insufficient to afford the holder the ability materially to influence policy relevant to the conduct of the firm in the market place, and where some additional company information may be extended as part of that interest.
- 3.9 In the following sections we discuss these types of minority interests in greater detail, highlighting the practical issues that these raise. We discuss in turn the holding of voting shares and holdings of non-voting shares and other derivatives, in particular CfDs. We discuss the types of IDs that may arise and we discuss interests through the provision of loans. In each case we also highlight the current UK regulations that apply in the exercise of these instruments.

## Minority share ownership

- 3.10 MSOs relate to holding a stake in a firm where that stake means the holder has a financial interest in the performance of the firm through the return that may be earned on the shares, but that the stake is insufficient for it to exercise material influence over the conduct of the firm. In addition, the MSO may afford certain informational benefits to the holder of the shares (although this may not be so significant a feature in the case of listed companies where much information is already disclosed to the market).
- 3.11 In this sub-section we describe the different types of shares in companies, the rights afforded by different levels of shareholding and the types of MSO that may arise. We also highlight the regulatory requirements relevant for listed companies, notably in relation to the disclosure of information.

### Types of shares in a company

- 3.12 A public limited company's articles of association will generally set out the types and classes of equity shares in the company and the corresponding voting rights that shareholders are afforded. Although there may be a large number of variants, shares generally take four main forms:
- Common or ordinary shares: These are the most common type of shares that might be issued at an initial public offering by a company,<sup>5</sup> a bonus issue<sup>6</sup> or a rights issue.<sup>7</sup> A fully paid<sup>8</sup> share

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<sup>5</sup> An initial public offering occurs when a previously unlisted company floats the business in the stock market in order to raise funds.

<sup>6</sup> If authorised by its articles, a company may also use undistributed profits, or certain other sums to finance an issue of partly paid up 'bonus' shares to the members in proportion to their existing holdings at no cost to the shareholder.

<sup>7</sup> A rights issue is a way in which a company can sell new shares in order to raise capital. Shares are generally offered to existing shareholders in proportion to their current shareholding at a discount to the current share price, which gives investors an incentive to buy the new shares.

essentially gives the right to a share in the company's dividend, a share in the assets of the company upon a winding up, the right to attend certain meetings including an annual general meeting ('AGM') and the right to receive the report and accounts of the company. Most notably though, such shares give the right to vote on issues affecting the company. Non-voting shares might exist which are similar to ordinary shares but simply do not involve the right to vote, these are generally less valuable types of shares.

- Preference shares: Preference shares are associated with a fixed dividend, where the company pays out to preference shares before ordinary shares. In exchange for this level of security, preference shares are generally associated with reduced or no voting rights.
- Convertible shares: These are preference shares that give the holder the additional right to convert the share into ordinary shares.
- Deferred shares: Deferred shares provide fewer rights than ordinary shares by deferring dividend payments to latter (or ranking these lower than ordinary shares in the case of an insolvency).

3.13 We consider the holding of ordinary non-deferred shares in a competitor for the purposes of this project. Ordinary shares are usually (though, not always) 1:1 shares in that a single share gives the right to a single vote either at AGM or for the appointment of the board of directors. In other words, a holder of 10 per cent of the company's shares, will make up 10 per cent of the vote at a meeting or AGM.

3.14 Greater percentages will generally increase the level of control that the shareholder will have on the company. The Companies Act 2006 specifies rights that are given to different percentages of holdings. These are summarised in Table 1 below.

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<sup>8</sup> Some companies may issue shares that are partly paid, meaning that an investor may pay for the shares in instalments.

**Table 1: Rights of shareholders by percentage of voting shares**

Percentage share	Additional rights conferred
≥5 per cent	<ul style="list-style-type: none"> <li>• The ability to table items on AGM agendas</li> <li>• The ability to request reports on polls from meetings, or the circulation of statements following meetings</li> <li>• The ability to prevent the reappointment of auditors</li> <li>• The ability to require auditors to publish audit concerns</li> </ul>
≥10 per cent	<ul style="list-style-type: none"> <li>• The ability to request a general meeting</li> <li>• The ability to demand a poll</li> <li>• The ability to require an audit</li> </ul>
≥15 per cent	<ul style="list-style-type: none"> <li>• The ability to apply to court to object to a variation of classes of rights</li> </ul>
> 50 per cent	<ul style="list-style-type: none"> <li>• The ability to pass ordinary resolutions</li> </ul>
≥75 per cent	<ul style="list-style-type: none"> <li>• The ability to pass special resolutions</li> </ul>
≥90 per cent	<ul style="list-style-type: none"> <li>• The ability to buy ('squeeze out') minority share holdings</li> <li>• The ability to call a meeting at short notice (private)</li> </ul>
≥95 per cent	<ul style="list-style-type: none"> <li>• The ability to call a meeting at short notice (public)</li> </ul>

Source: DotEcon summary from Companies Act 2006.

- 3.15 As this table highlights, holding shares that amount to less than 50 per cent of the voting shares does not afford sufficient rights to pass resolutions, however it does allow the right to request items be placed on the agenda of meetings. Still, MSOs may afford greater levels of control where these can be exercised in conjunction with a small number of other minority shareholders. For example, two minority holders may in combination have the control to veto motions. It may also be the case that minority holders may be able to exercise control on account of a high likelihood that they might form a majority with other voters or through the lack of others voting: this is particularly pertinent in the case of shares being widely dispersed across a large number of shareholders.<sup>9</sup>
- 3.16 As an aside, buying shares in a company is not the only way of gaining the benefits associated with share ownership. In addition, shares may be 'borrowed' from a shares lending institution. Hedge funds and other brokers are increasingly relying on borrowed shares, in order to hedge risks on their portfolios or to gain temporary voting control in certain shares.<sup>10</sup>
- 3.17 At the end of October 2009, there were 2,839 companies listed on the Main Market of the LSE.<sup>11,12</sup> These companies all had in issue equity shares being traded on the exchange.

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<sup>9</sup> The UK Enterprise Act distinguishes legal control (usually associated with holding shares amounting to more than 50 per cent of a firm's voting rights), de facto control associated with the ability to control policy (where, for example, a minority shareholder accounts for a majority of votes cast in the AGM), and material influence, which requires a case by case analysis.

<sup>10</sup> See the Securities Borrowing and Lending Code of Guidance (updated 2009) by the Securities Lending and Repo Committee.

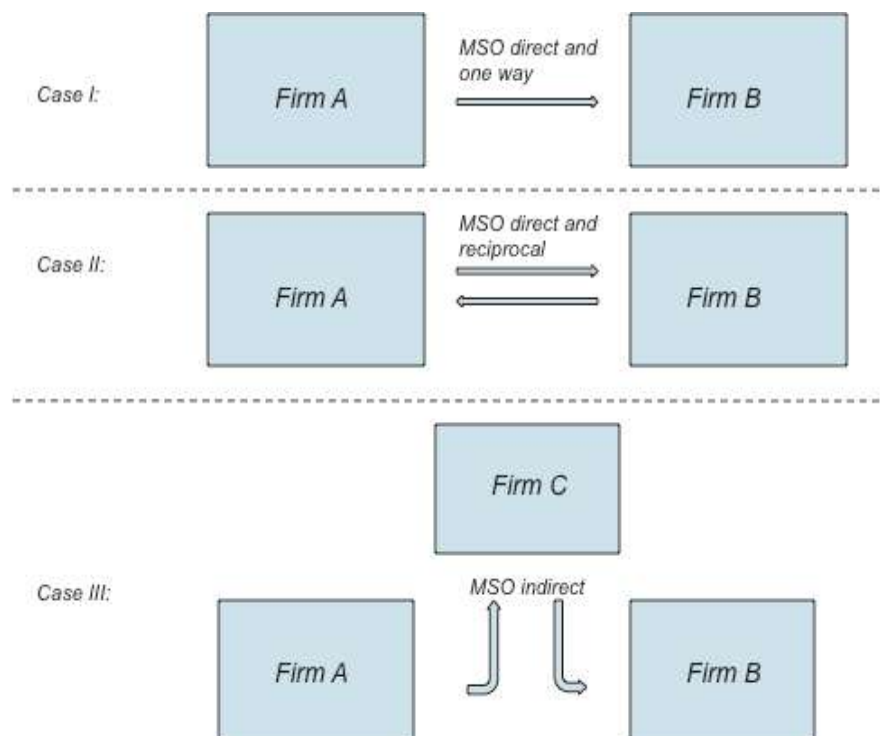
<sup>11</sup> London Stock Exchange (2009), List of All Companies.

<sup>12</sup> The LSE runs four primary equity markets: the Main Market, the Alternative Investment Market (generally for smaller companies), the Professional Securities Market, and the Specialist Fund Market.

## Types of MSO

3.18 MSOs may involve a one-way direct stake in a firm (in the context of this project: a competitor). It may also be the case that minority shareholdings are reciprocal, where two competing firms hold shares in one another (or indeed amongst many competitors). Finally, MSOs may arise indirectly through a firm having a minority holding in another firm, which in turn has an interest in a third.<sup>13</sup> In general terms, these various forms of minority shareholding are summarised in Figure 1 below. However, there are of course a wide variety of other options, for example, where a parent company has a stake in other firms, where more than three firms are involved and where there are combinations of indirect and direct holding.

**Figure 1: Different cases of MSO in a competitor**



Source: DotEcon.

<sup>13</sup> In terms of Figure 1, Firm A might have a minority interest in a competitor Firm B through an interest in Firm C which competes in a different market, but in turn has an interest in Firm B.

## Regulatory framework governing MSOs

- 3.19 There are a large number of rules governing companies and their operations within the UK. First companies are required to register themselves with the UK authority, Companies House: there are then a variety of rules binding on companies in terms of on-going disclosures of information in relation to their directors and to their business operations.<sup>14</sup> Many of these rules are codified within the Companies Act 2006. In the case of listed companies, the informational advantage of being a shareholder seems to be limited, given that very little additional information is provided to shareholders than is made available to the public.
- 3.20 Once a company decides to issue shares that are traded on a regulated market such as the LSE, then further rules come into play. Companies must first meet certain conditions for issuing shares, additional disclosure rules begin to bite (as administered by the FSA via its Disclosure and Transparency Rules which implement requirements set out within the European Transparency Directive) and firms also need to comply with rules of the LSE itself (such as the LSE Admission and Disclosure standards and LSE Trading Rules).<sup>15</sup>
- 3.21 Other relevant rules that apply include those in relation to situations when a takeover or merger is in play (as administered by the Takeover Panel that enforces the requirements arising from the European Directive on Takeover Bids), issues of market abuse (for example, insider trading)<sup>16</sup> and specific rules that apply to hedge funds and other intermediaries.<sup>17</sup>

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<sup>14</sup> For example, companies have to maintain registers of, amongst other items, the company's shareholders, the directors and secretaries, the directors' interest in shares and a register of charges as well as a minute book, all of which need to be open for inspection by the shareholders.

<sup>15</sup> See Annex B (paragraphs B.5 to B.13).

<sup>16</sup> Insider trading refers to the event of an insider dealing, or trying to deal, on the basis of inside information. More specifically, it refers to the trading of a company's shares or other securities by individuals with potential access to non-public information about the company (insiders). Non-public information refers to sensitive information obtained during the performance of the insider's duties or otherwise in breach of a fiduciary or other relationship of trust and confidence

- 3.22 Finally, companies are also required to follow corporate governance rules, which governs both public and limited companies in the UK. These rules are discussed further in the section on interlocking directorships.
- 3.23 Full details of the various obligations on firms in light of the Companies Act 2006, the FSA Disclosure and Transparency Rules and other requirements can be found in Annex B.

### **Interlocking directorships**

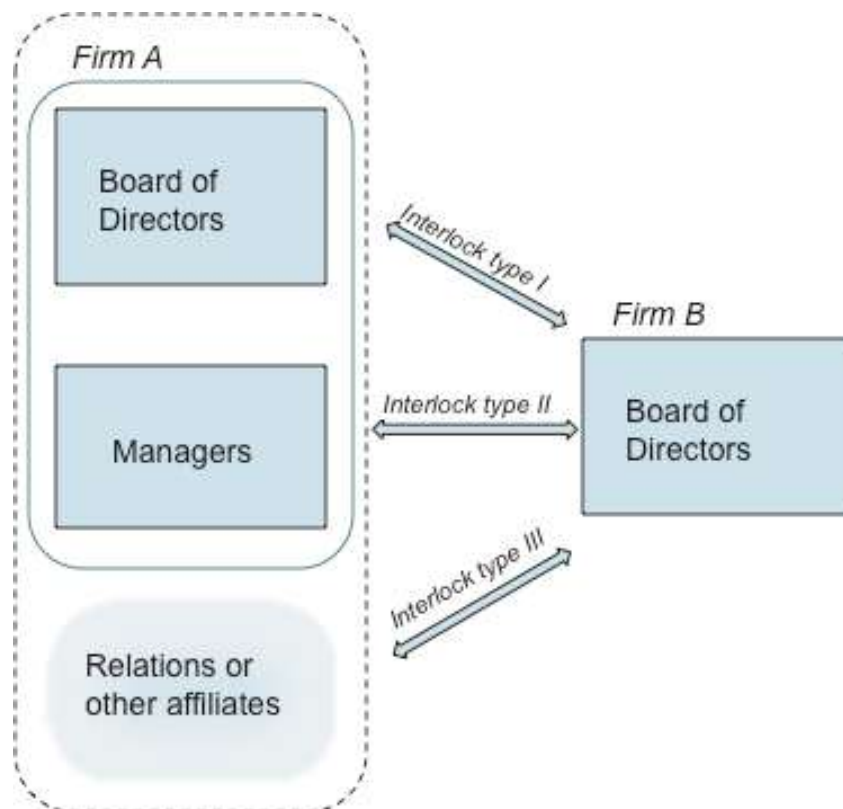
- 3.24 An interlocking directorship exists where an individual director or manager of a company – or a relative or associate of one – serves as a director for another firm. More generally, IDs refer to cases where executive or non-executive board members or managers of a company hold additional positions on one or more other company boards. Interlocks may also involve relatives or other associates of either board member or managers of a company, holding such a position on another firm.
- 3.25 In legal terms, non-executive and executive board members hold the same rights and are subject to the same obligations (differences only arise in practice in relation to the types of functions they fulfil). We, therefore, do not differentiate between these two types within our framework for analysis.
- 3.26 IDs may take many forms. Figure 2 below summarises the three main types of interlocks that might arise. Note that we do not include manager-to-manager interlocks as these do not involve directorships and, as a result, do not involve the powers and functions that arise in light of the position.

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or where the non-public information was misappropriated from the company. The FSA, since 2001, regulates and penalises insider trading through the Financial Services and Markets Act.

<sup>17</sup> See Annex B (paragraphs B.14 to B.15).

**Figure 2: Different types of interlocks**



Source: DotEcon.

- 3.27 Interlocks may also be vertical in nature, for example, relating to positions held by individuals in upstream suppliers or in downstream distributors. Where vertical interlocks arise, there may be additional concerns in relation to preferential terms and conditions that might be agreed and fostered through the interlock.

### **Duties imposed on directors**

- 3.28 Although interlocks of this nature are fairly prevalent<sup>18</sup> concerns may arise where interlocks relate to positions held by individuals on competing firms. The reasons for this may be that an individual on the board of a company will likely be in a strong position to influence the

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<sup>18</sup> We note for example that in 2002 in the US, such interlocks arose in a fifth of the 1000 largest US companies. See 'Anti-trust issues involving minority shareholding and interlocking directorates' OECD June 2009.

activities of that company or may be privy to information on the operations of the firm that might not otherwise be known to the competitor.

- 3.29 Nonetheless, duties imposed on a director of a company – be it through the Companies Act 2006, corporate governance rules or other laws – may serve to limit the extent to which a company director may act in a way to harm the interests of that company or use information gained in the capacity of a director to harm the interests of the firm.
- 3.30 Indeed, directors are subject to a wide range of regulatory obligations, summarised here and explained in further detail at Annex C. First, the Companies Act 2006 sets out a number of duties incumbent on directors, which broadly consist of promoting and ensuring the success of the company and avoiding conflicts of interests. Second, directors are required to comply with rules of the Insolvency Act 1986 and the Company Director's Disqualification Act 1986, through which they may be subject to personal liabilities (both civil and criminal). Third, the FSA's Listing Rules require firms to notify details in relation to a new director (name, position and function or responsibility), board changes, retirements, changes of directors' functions and responsibilities and the effective dates. Finally, firms also comply with corporate governance rules as specified by the UK Financial Reporting Council (FRC) whose Code sets out the principles of issues related with board appointments, the remuneration of board members, financial reporting, internal controls and relations with shareholders.
- 3.31 The three different types of interlocks are similar insofar as a position on the board of a competitor will create an interest in the competitor's performance<sup>19</sup> and provide access to information to the individual on the operations of the competitor that might not otherwise have been known.<sup>20</sup> Company rules, along with scope for disqualifications and

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<sup>19</sup> For the avoidance of doubt, the scope of our analysis is limited to cases in which the interlocking directorship does not afford the holder the ability to exercise material influence over the conduct of both competitors, but where such influence is exercised at most in relation to the behaviour of one firm.

<sup>20</sup> As noted above, interlocks may also involve a manager of a company or a relative or other associate of a director or manager of a company. Such an individual may have a detailed

criminal sanctions may act as a constraint on the behaviour of an interlocked director. However, information exchanges may still be valuable. As noted above, company laws do not explicitly restrict the provision of company information to a board member based on other directorships held. The rules simply require that disclosures identifying the directorship positions held be made.

## **Loans to competitors**

- 3.32 Advancing a loan to a competitor may take a variety of forms. We understand that there are two main ways in which loans may be granted. First, there may be a simple bi-lateral agreement between the firms involved. These will generally be subject to individual contract terms that are more often than not, confidential in nature.
- 3.33 The second way in which companies may lend to a competitor is through purchasing exchange traded company debt. For example, the LSE has a platform for the trading of debt issued by companies. Whilst government issued debt and bonds are also traded on such an exchange, these are not relevant for the purposes of this project.

### **Individual bi-lateral agreements**

- 3.34 Companies may look to lend to competitors and may do so through bi-lateral agreements with the company involved. Specific conditions under which the loan is issued will usually vary with the individual contract, and may relate to particular circumstances.
- 3.35 Contracts of this nature are mostly confidential but one would expect that in principle the terms specified in the contract might include:
- the amount of the loan

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understanding of their company, and indeed may have more knowledge of the day-to-day operations of the company than a board member might. As a result, a manager with a position on a competing firm's board may be able efficiently to assimilate information and understand the practical implications of issues arising. Nonetheless, a position on a board involves the various constraints outlined above. We do not consider further issues to arise in the case of relatives or close associates.

- the duration of the contract
- the payment terms and instalments for these
- the interest rate
- information provisions should risks materialise that may mean the repayment of the loan may be jeopardised.

### **Exchange-traded debt**

3.36 The LSE allows debt to be traded on both the Main Market and the Professional Security Market, although it must be listed in accordance with the LSE rules and the Listing Rules of the UKLA.<sup>21</sup> The LSE notes that the different types of issuers that can list their debt include corporate issuers, governments and their agencies, local authorities and multilateral institutions (such as supranational bodies, for instance the European Bank for Reconstruction and Development). For the purposes of this project, debt issued by local authorities and other government agencies are not relevant.<sup>22</sup>

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<sup>21</sup> Listing rule 2.2.3 states that 'to be listed, securities must be admitted to trading on an RIE's market for listed securities' (RIE is an recognised investment exchange). The FSA glossary definitions lists under 'security' – amongst others – the following investments: shares and debentures (debentures themselves being defined as debenture shares, loan shares, bonds, certificates of deposit and any other instrument creating or acknowledging indebtedness'. The Listing Rules set out more articles regarding the trading of securities, that is, Listing Rule 2.2.4 states that to be listed, securities must be freely transferable (this is in line with the Consolidated Admissions and Reporting Directive (CARD), which is the directive of the European Parliament and the Council on the admission of securities to official shares exchange listing and on information to be published on those securities).

<sup>22</sup> As an example of the information that is required in order to list debt, the LSE notes for example that for Eurobonds (including euro-denominated securities), the following rules are relevant: (i) Generally a two-year trading and financial record is needed, (ii) The Listing Documents need to be prepared in accordance the UKLA's listing and with the Exchange's Admission and Disclosure Standards, (iii) The debt securities subject to the listing must be freely transferable, (iv) The market capitalisation of the class of debt securities to be listed must be at least £200,000, (v) The application for listing must relate to all debt securities of that class, either issued or proposed to be issued (except for the securities already listed), (vi) There are

3.37 In addition to Listing Rules, issuers of debt must abide by certain disclosure rules. These are specified within the Disclosure and Transparency rules of the UKLA.<sup>23</sup> These rules cover a wide variety of issues in relation to information that must be disclosed and that must be disseminated. The rules also specify how different debt holders must be treated in the case of bankruptcy.<sup>24</sup>

## **Contracts for Differences**

3.38 In this sub-section we describe the features of CfDs, their prevalence within the UK and the regulatory obligations in relation to these instruments.

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additional requirements for convertible securities, and other programmes such as the Medium-term note programme. See LSE practical guide to listed debt in London.

<sup>23</sup> Of particular relevance are DTR 2 around the disclosure and control of inside information by issuers and DTR 6.3 around the dissemination of information.

<sup>24</sup> For example, DTR 6.1.3 (2) specifies that 'an issuer of debt securities must ensure that all holders of debt securities ranking pari passu are given equal treatment in respect of all the rights attaching to those debt securities'. This rule becomes relevant once bankruptcy is announced as it ensures via the 'pari passu' clause that all debt holders will be treated proportionately to their holding.

## Features of CfDs

3.39 CfDs are a particular type of over-the-counter derivative product<sup>25</sup> that allows buyers and sellers to take speculative positions on the future performance of an underlying financial instrument (for example, equity shares or commodity prices), earning the difference that arises between the buy and sell price (for example, the share price or the commodity price) of that instrument. Under a CfD, the buyer and the seller agree to settle at the close of the contract, the difference between the opening and the closing price of an underlying financial instrument (for the volume covered by the CfD). In one way, a CfD is similar to buying shares and selling them at a later date. If an investor believes prices are likely to rise, rather than buy shares now (to sell at a profit later), she may decide to open a CfD position and go 'long' on the current price. When she decides to close the position, she would benefit where the closing price was in fact higher than the opening price (but lose where it was not). However, CfDs also allow holders to bet the opposite way on the financial performance of an underlying instrument: an investor who

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<sup>25</sup> A derivative is a financial instrument whose value is 'derived' from the value of an underlying asset upon which it is contracted. Such underlying assets could be commodities, equity, bonds, indices or currencies. There are several types of derivatives traded in the UK, the most common being futures contracts and options.

Futures are forward contracts to buy or sell a specified asset (for example shares, currency, indices and interest rates) at a certain date in the future at the price determined by the market. When the underlying asset is equity, the seller has the obligation to deliver the shares to the buyer at that future date (known as the 'delivery date' or 'settlement date'). The futures contract gives the holder the obligation to make or take delivery of the underlying assets. To exit the commitment prior to the settlement date, the holder of a futures position would have to offset her position by either selling a long position or buying back a short position, effectively closing out the futures position and its contracts obligation.

Options confer the right but not the obligation to buy ('call option') or sell ('put option') a specific amount of a given shares, commodity, currency, index, or debt at a specified price during a specified period of time. Each option involves a buyer (the holder) and a seller (the writer). When the option is contracted on shares, the writer in fulfilling the terms of the contract delivers the shares to the holder. When the option is contracted on securities that cannot be delivered such as indices or currency the contract is settled in cash. If the holder does not exercise the rights, the option simply expires, no shares are exchanged, and the holder loses the amount spent in buying the option.

believes prices are likely to fall may open a CfD position and go 'short' on the current price. This is not dissimilar to selling shares with the expectation to procure them at a later date. When the investor decides to close the position, she will benefit if the closing price is in fact lower than the opening price (and lose where it is not). We will in the remainder of this document also use the terms to 'buy' or to 'sell' a CfD as shorthand to mean cases where the investor is opening a long and a short CfD position respectively. Full details of how CfDs operate in practice are set out in Annex D.

- 3.40 In essence, CfDs are designed to mirror the performance of an underlying instrument, allowing speculators to take positions without having to buy or sell the underlying instrument (or shares) first hand. As an over-the-counter product, CfDs do not need a one-to-one corresponding counterparty to contract with.
- 3.41 Moreover, positions have no fixed expiry (or settlement) date. These features are notably different to other derivative products such as futures and options where those contracts are based on the transfer of an underlying asset (albeit at a later date), and the price of the future or option is established by an intermediary or by the market based on the existence of a counterparty and other factors, rather than simply tracking the underlying asset's price (and relying on the broker to act as the counterparty).
- 3.42 CfDs originated in the UK in the 1980s (known at the time as 'equity swaps') and were created principally for financial institutions and banks to hedge their positions. Since 1999, however, CfDs have been open to retail investors and are now a widely traded over-the-counter product in the UK. The popularity of CfDs is likely to be linked to a number of reasons:
- First, a CfD holder does not purchase or sell an actual asset (for example, the underlying share). Not trading the underlying shares has notable advantages, namely in affording the ability to go 'short' on the shares. Moreover, as no underlying shares are traded, stamp duty is not paid on CfDs (however, other fees and commission charges for holding a CfD will apply). This has proved particularly

attractive to investors as the current stamp duty rate applicable on traded shares is 0.5 per cent.<sup>26</sup> In this way, CfDs differ from certain futures or options products where an underlying asset is being traded, albeit at a future date.

- Second, CfDs track the underlying share price of the asset allowing very tight spreads to be offered by brokers. Where other futures and options rely on a market price and involve a counterparty to fulfil the order, spreads offered to investors are generally wider.<sup>27</sup> Tracking the underlying share price is also very straightforward for an investor, unlike, for example, following the pricing of options.
- Third, CfDs operate on a leveraged basis. In other words, instead of funding the total cost of the underlying shares, an investor provides the CfD broker with an initial margin (or deposit), 'borrowing' the remaining funds from the broker. Trading on margin allows investors to hold significant positions on a large number of underlying shares with only a small initial capital outlay. This in turn has the potential to magnify profits although, of course, losses also. This feature is, however, common across other types of derivatives and, in the case of losses, brokers may also look to make margin calls where the investor is asked to provide additional funds to keep the position open.<sup>28</sup>

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<sup>26</sup> Of course, as the costs of holding CfDs are applied daily, there may come a point at which having held the underlying shares at a cost of 0.5 per cent will have proven more cost effective. This feature may support the view that CfDs are a short-term product. See Annex D (D.19 to D.21) for further details on the costs of holding CfD positions.

<sup>27</sup> For instance, futures are generally an exchange-traded product that require a buyer and seller for every transaction. If there is no counter party to fulfil the order, a market maker will step in to do so. To the extent that market makers cannot easily accumulate or dispose of net positions, they offer wide spreads to traders, in turn leading to more volatile movements in the price of the derivative.

<sup>28</sup> As the value of underlying shares changes, the risks faced by a broker in holding a position will also change. A specified margin may no longer be sufficient for the broker to hold the position for the investor. In this instance the broker will make a call to the investor for additional funds, that is, a margin call. See Annex D for further details.

- Fourth, CfDs can be entered into at short notice and with no fixed expiry dates. In this regard, CfDs differ from other futures or derivative products, which generally all have fixed termination or settlement dates.

3.43 In general terms, owning a CfD is not dissimilar to owning a share in that they track the underlying price of the share and all other developments in the shares also, for example, they allow the payment of dividends (discussed further below).

3.44 Moreover, CfDs have the potential – given certain circumstances – to be 'flipped' to allow the holder access to the underlying voting rights. This case may arise as a result of the manner in which a broker may hedge the risks associated with a CfD position, where a broker may hedge his risks using the underlying shares themselves.<sup>29</sup> It is largely for this reason that the FSA has now included CfDs as a holding that needs to be specified when disclosing holdings in a particular shares.

### **Prevalence of CfDs**

3.45 There is limited published data in relation to the prevalence of CfDs and their use by market players. However, in 2007, PricewaterhouseCoopers (PwC)<sup>30</sup> conducted a survey on behalf of the FSA for their discussion paper in relation to the disclosure of CfDs.<sup>31</sup> Whilst the survey only involved a sample of 13 market players, the findings are of interest given the otherwise limited amount of information available in relation to CfD trading.

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<sup>29</sup> See Annex D (paragraphs D.9 to D.18) for further details on the role of brokers and the hedging of risks.

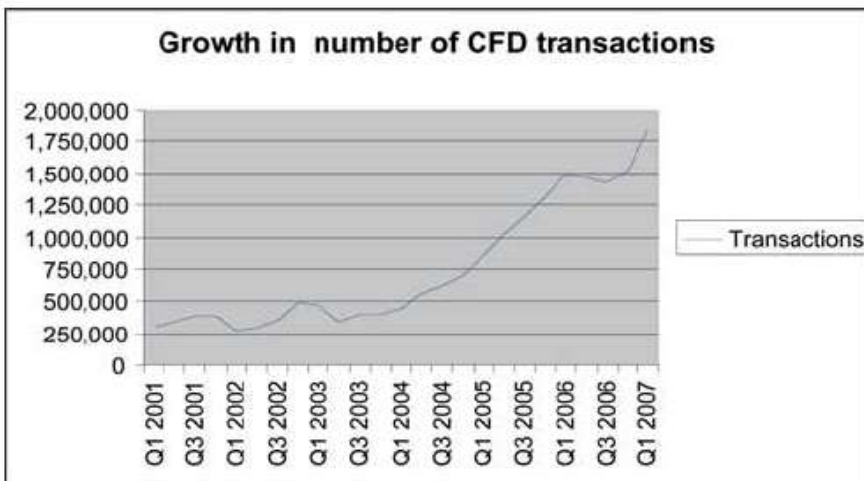
<sup>30</sup> PwC, Survey on Contracts for Differences Annex 4 of the Consultation Paper 07/20 of the Financial Services Authority on the Disclosure of Contracts for Differences, November 2007.

<sup>31</sup> The survey was run on a sample of 13 leading investment banks and CfD market participants. Besides the data gathered in the survey, PwC also conducted interviews with some market participants, which were generally heads of the compliance teams, disclosures teams and the business heads from Derivatives or CfD desks.

- 3.46 The general findings of the survey indicate that the main reasons investors entered into CfDs relate to the ability to gain leverage, the ability to pursue long and short strategies and the scope to acquire an interest without being subject to stamp duty. Some interviewed brokers believe that between 20 per cent and 40 per cent of turnover in the cash equities market was driven by activity in related derivative products.
- 3.47 PwC also collected data from the LSE and reported a growth in the number of transactions and in the value of the transactions involving CfDs for the period 2002-2007.

**Figure 3: Growth in the number of CfD transactions**

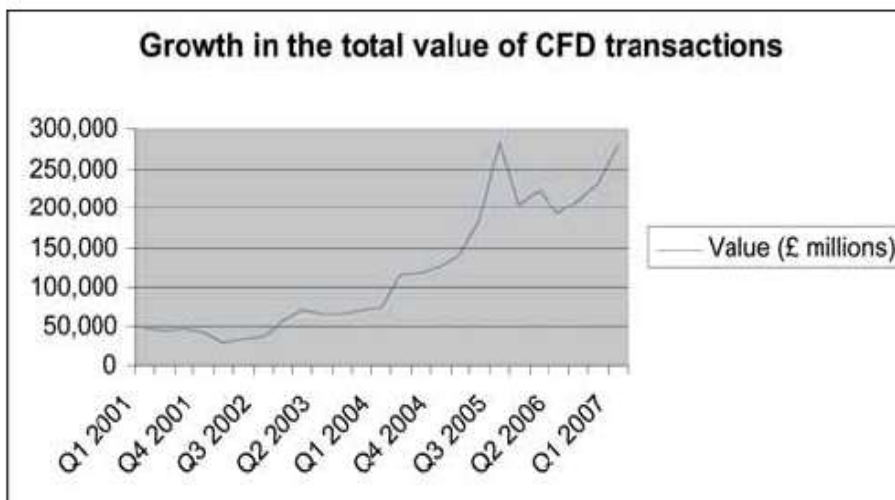
Chart 1



Source: PwC survey on CfDs for the 2007 FSA Consultation Paper 07/20.

**Figure 4: Growth in the total value of CfD transactions**

Chart 2



Source: PwC survey on CfDs for the 2007 FSA Consultation Paper 07/20.

- 3.48 The PwC survey revealed that CfD clients tended to be hedge funds, other financial institutions and firms, and that CfDs writers mostly offered the derivative to certain types of client. For example, small pure brokerage companies seemed to offer the product to more private clients than the larger investment banks (whose client base are usually big firms), as they can only take limited credit risk in one transaction and with one client due to their own size. The survey questioned brokers about their CfD volumes in an average month and found that contracts varied from 45-77,000 in volume terms, and valued at £30k to £1.3m on average per month, with the largest contract values ranged from £7m to £525m.

### **Legal framework and disclosure rules**

- 3.49 As discussed in relation to MSOs, the FSA enforces disclosure rules on companies. These include rules in relation to the disclosure around CfD positions. In relation to CfD long positions, the FSA establishes a number of important thresholds to dealing with disclosures required of parties: these disclosures have been most recently amended and are set out within '09/3 Disclosure of Contracts for Difference: Feedback on CP08/17 and final rules'. The rules came into effect on 1 June 2009.

They do not apply to intra-day holdings,<sup>32</sup> but only overnight holdings and require firms to disclose all holdings above 3 per cent be that through share holdings or through CfD holdings.<sup>33</sup>

- 3.50 In addition rules established by the Takeover panel apply for cases where mergers are in train. Again, the rules relate to long positions held and are triggered at a 1 per cent holding including normal shares and CfDs (Rule 8.3 of the Takeover Code).<sup>34</sup>
- 3.51 In relation to short selling, in light of the financial crisis, emergency measures were introduced in September 2008 and up until January 2009, short selling of financial shares was banned in the UK.<sup>35</sup> In addition to bans on short selling, the FSA introduced disclosure obligations for positions above 0.25 per cent of companies issued share capital of the UK financial sector or companies carrying out a rights issue. However, market makers are exempt from these obligations.
- 3.52 On 1 October 2009, the FSA published a consultation noting a proposal to have a disclosure threshold of 0.5 per cent on all shares across the

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<sup>32</sup> These are extremely short holdings where the contract is opened and closed within the same day.

<sup>33</sup> 'We [the FSA] concluded that our policy objectives would best be achieved by implementing a general disclosure regime of long CfD positions. These were: that holdings of CfDs should be aggregated with shares and the initial disclosure threshold should be maintained at 3% [per cent], and that there should be an exemption for CfD writers acting as intermediaries, to avoid requiring unnecessary disclosures of positions held simply as a result of client-serving transactions, which would be of no value to the market'. See FSA PS09/3: Disclosure of CfDs (March 2009).

<sup>34</sup> 'Under the provisions of Rule 8.3 of the Takeover Code (the 'Code'), if any person is, or becomes, 'interested' (directly or indirectly) in 1 per cent or more of any class of 'relevant securities' of – the offeror or of – the offeree company, all 'dealings' in any 'relevant securities' of that company (including by means of an option in respect of, or a derivative referenced to, any such 'relevant securities') must be publicly disclosed by no later than 3.30 pm (London time) on the London business day following the date of the relevant transaction'.

<sup>35</sup> This was put in place by the FSA, and the government is considering further powers to afford to the FSA through which to introduce bans if needed.

board, irrespective of sector.<sup>36</sup> However, the FSA has not put these rules into effect at present. The FSA is also awaiting the outcome of international developments.<sup>37</sup>

- 3.53 In practice, it may take a few days for the disclosure to be made public after notification. The reason for this is that the investor acquiring the position has to disclose information to the issuer within four working days. The issuer then has to disclose this to the market within three working days.

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<sup>36</sup> Feedback Statement 09/4 to short selling, (October 2009).

<sup>37</sup> For example, in June 2009, the International Organisation of Securities Commission (IOSCO) issued four principles for regulating short selling and, in July 2009, the Committee for European Securities Regulators (CESR) also consulted on pan-European short selling disclosure rules. These are similar to UK rules and proposals, but with an added suggestion of a confidential disclosure to regulators of positions of 0.1 per cent and increments thereto.

## 4 FRAMEWORK FOR THE ANALYSIS OF COMPETITION EFFECTS

4.1 In the remainder of this report we set out a framework for the analysis of the competition effects arising from minority interests in rivals and derive a set of hypotheses in relation to such interests that might be tested empirically. In doing so, we:

- assume that, in relation to the interests created by MSOs or CfDs the effects of stronger or softer competition are reflected in rivals' share prices and/or dividends. This may, of course, not necessarily be the case where rival firms are widely diversified across a number of markets, and where therefore their share price performance is not (or at least not strongly) affected by the intensity of competition in one of the markets in which they operate
- follow the usual route of distinguishing between unilateral effects (that is, the impact of minority interests on the incentives of firms to compete more or less aggressively taking the behaviour of competitors as given), and the effect that such minority interests can be expected to have on the likelihood or sustainability of collusion<sup>38</sup> (the so-called co-ordinated effects)

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<sup>38</sup> In this regard, there are two principal issues, namely the incentives of firms to reach a collusive outcome, and how sustainable such an outcome would be. Sustainability is affected by the strength of the incentives for deviation and punishment, with the latter being influenced by the degree of uncertainty that exists with regard to competitors' behaviour and the effects of punishment, as well as external factors such as the existence of countervailing buyer power, or the threat of entry. These external factors would seem to be unaffected by the presence of minority interests, and we therefore do not explicitly address them in the following discussion. The likelihood of being able to sustain a collusive outcome of course also affects the incentives for trying to reach a collusive outcome in the first instance, together with the gains that can be realised through collusion, which in turn depend on the nature of competition in the market. In addition, the likelihood of collusion can be expected to increase if it is easier for firms to co-ordinate, for example if there are mechanisms that provide for an exchange of information that would facilitate co-ordination, or that provide focal points for co-ordinated behaviour. The latter aspect would seem to be relevant mainly in relation to interlocking directorships rather than other forms of minority interests, and in relation to those forms we will focus on the incentives for collusion and the impact of the minority interests on sustainability.

- consider differences in the nature of competition in oligopolistic markets in terms of the strategic relationship between firms, which can be exemplified by the extreme cases of so-called Cournot competition, where the individual firms' strategic variable is the quantity they wish to offer, with prices then being determined in such a manner as to adjust demand to the quantity supplied, and Bertrand competition<sup>39</sup>, where the strategic variable is price, and quantity then adjusts to meet the demand at the given price.<sup>40</sup> Of course, competition in reality is likely to lie somewhere between these two extremes, but for the sake of expositional clarity, It is helpful to consider the extreme cases, while recognising that in reality the equilibrium outcomes in oligopolistic markets lie somewhere in between. All results presented in the following sections should be interpreted accordingly.

4.2 Through the remainder of this report, we illustrate our arguments with simple stylised examples in a number of boxes. The content of these boxes is intended to explain the mechanisms in a more formal framework, but is not essential for understanding the overall arguments. Readers unfamiliar with more formal approaches to modelling oligopolistic competition should feel free to skip these boxes.

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<sup>39</sup> Unless explicitly stated, when we refer to Bertrand competition, we refer to price competition with differentiated goods. It is well known that the unrealistic case of Bertrand (price) competition with homogenous goods suffers from various methodological difficulties (see for example Vives, 2001).

<sup>40</sup> Firms generally set the prices for their products and do not simply offer a given quantity, leaving the market to decide the price. However, as Kreps and Scheinkman (1983) have shown, where firms' investment decisions create capacity constraints that prevent them from expanding their output quickly, they can be regarded as competing in a Cournot framework. The crucial issue distinguishing Cournot and Bertrand competition is the ease and speed with which an individual firm's output can respond to changes in demand facing the firm in response to it changing its price. As a consequence, empirically one may need to differentiate between the two forms of competition by looking at capacity constraints in an industry: the more industries face capacity constraints, the more they should be considered to be competing in line with the Cournot model (versus competition in the manner of the Bertrand model): see for example Haskel and Martin (1994).

4.3 In general terms, we find that minority interests in imperfectly competitive markets can be used further to soften competition, and thus lead to higher prices and lower quantities to the detriment of consumers. However, the way in which firms have an incentive to use minority interests to affect competition depends strongly on the nature of competition, that is, whether competition takes place mostly in terms of quantities or prices.

## 5 MINORITY SHARE OWNERSHIP

### Unilateral effects

5.1 In order to analyse the unilateral effects of MSOs, it is helpful to consider the methodology for looking at the unilateral effects of complete mergers or takeovers used by Ivaldi et al. (2003b). The authors identify three effects in relation to a merger:

- first, the internal coordination effect of the merging firms
- second, the reaction of the remaining (competing) firms
- third, the feedback effect of the competitors on the merging firms.

5.2 The obvious difference between a takeover and an MSO is that the latter does not afford the holder control over the target firm. As noted above, MSOs covered in our analysis do not afford the holder the ability materially to influence the conduct of the target firm, and therefore imply that the first of these effects is absent. The minority shareholder is certainly not in position, for example, to determine the prices charged by the target firm, or its capacity decisions. Thus, the unilateral effects of MSOs must be analysed in terms of the impact on the decisions of all firms in the market place of there being a financial interest in the performance of a competitor, taking account of the reaction of competing firms and the feedback effects on the firm taking out an MSO.

5.3 As suggested in the literature,<sup>41</sup> a firm holding shares in a competitor may be expected to compete less aggressively because it benefits

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<sup>41</sup> See Gilo et al. (2006), Clayton and Jorgensen (2005) as well as the overview of literature by Buccirosi and Spagnolo (2007). In addition, OECD (2008) recently published a study that reviews much of the recent literature in relation to MSOs. The conclusions the OECD draws are firstly that MSOs may lead to a reduction of output and increase in prices and, secondly, that coordinated effects may arise, which is more likely if all firms invest in at least one competitor. The study states that these effects are likely to occur in oligopolistic markets where the barriers to entry are high and that the effects hold whether or not the interest is active (that is, with control rights) or passive (that is, purely financial).

financially from the success of its rival and suffers some of the detrimental consequences of taking away business from the rival: if Firm A holds an equity stake in a competing Firm B, and competes fiercely against it, the financial losses incurred by Firm B will affect the value of the investment of Firm A. Therefore, Firm A will have a reduced incentive to compete against the company in which it has invested.

- 5.4 Even though these costs and benefits are by definition smaller than the gains and losses enjoyed by the firm as a result of winning business from the competitor, they reduce the incentive to behave aggressively compared with a situation in which no financial interest in the performance of a competitor exists. Put differently, linking profits of competing firms increases incentives unilaterally to adopt behaviour conducive to joint profit maximisation.
- 5.5 However, while firms that are linked through minority ownership have an incentive to compete less aggressively, this does not necessarily imply that it is beneficial to acquire such a minority shareholding in a rival in the first place. As noted above, in the case of MSOs, there is no internal co-ordination in the same way as there would be in the case of a full merger. By definition, a shareholding of Firm A in Firm B below the level of control leaves Firm B as an independent competitor, and unlike in the case of a merged entity, the two firms will still act independently. However, any unilateral increase in price or any decrease in quantities of Firm A will trigger a reaction of competitor, including Firm B, which then impacts upon Firm A.
- 5.6 Considering explicitly these responses from competitors, including Firm B, highlights the fact that the benefits of competing less aggressively depend on whether competition in the market takes place mostly in prices (Bertrand competition) or in quantities (Cournot competition), and we set out those two cases individually below. We start our discussion by focusing on competition effects, that is, we assume that taking out a minority stake in another firm in the same market does not lead to efficiency gains or creates other benefits (such as, for example, improved information flows), and then relax this assumption where appropriate.

## Cournot competition

5.7 With Cournot competition, if Firm A reduces the capacity it offers, the optimal response of competitors is to increase their capacity<sup>42</sup> (albeit by less than the capacity reduction). As a result, total output in the market falls and price increases, and the market share of the Firm A falls. This means that consumers are worse off. Now assume that Firm A has a share in Firm B, but not vice versa. If Firm A were to compete less aggressively by decreasing its quantity, Firm B and the other competitors would optimally increase their quantity, which would result in an adjustment of Firm A's quantity, and so forth. This means that Firm A would lose at the expense of its competitors, and even though it benefits to some extent from its competitors gains (namely to the extent of its financial interest in Firm B), it does not pay to take a share in Firm B, which would then create an incentive to compete less aggressively.<sup>43</sup> Box 1 illustrates this with a simple model for the case of homogenous Cournot competition, which is helpful for identifying the principal logic, but does not, of course, reflect real world competition (the case of differentiated Cournot competition is addressed further below).

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<sup>42</sup> Put differently, quantities are strategic substitutes – if one firm reduces its output, it is optimal for other firms to increase theirs in order to gain a larger share of the benefits associated with the higher prices that result from this.

<sup>43</sup> This represents the general finding that in the case of strategic substitutes it does not normally pay off to be 'soft' in the sense of being prepared unilaterally to compete less aggressively. In the terminology of Fudenberg and Tirole (1984), one should optimally use a 'top dog strategy', signalling one's commitment not to reduce (or even increase) quantity, for example, as competitors would in response adjust their quantities downwards.

## Box 1: A MSO does not pay with Cournot competition

Assume that there are three firms in the market, labelled as firms A, B and C. Assume further that Firm A has a financial interest in Firm B, and that  $\alpha_B \geq 0$  is the size of this shareholding. Consider a two-stage decision in which Firm A first decides whether to acquire a stake in Firm B, and then the firms compete by determining their respective quantities. In the same way as Clayton and Jorgensen (2005), we assume throughout this paper that the price of that stake reflects the true value of the profit stream to which the stake entitles the purchaser, that is, we assume that capital markets are efficient in the sense that the purchase price of the share fully reflects the value of the stake. In such a setup, MSOs do not have a financial effect.

Assume that demand is linear as expressed by the inverse demand function  $p = 1 - \sum x_i$ , where  $x_i$  is the quantity produced by Firm  $i = A, B, C$ .

Assuming that Firm A faces a marginal cost of production of zero, its gross profit (that is, without taking account the cost of acquiring the stake in Firm B) can then be written as

$\pi_A = (1 - \sum x_i)x_A + \alpha_B(1 - \sum x_i)x_B$ , neglecting the price that Firm A might have had to pay for acquiring the shareholding in the first instance.

Solving for the optimal levels of output and the resulting price, we find that Firm A's profit-maximising quantity is  $x_A^* = \frac{1 - \alpha_B}{4 - \alpha_B}$ , and that each of B and C will produce  $x_{-A}^* = \frac{1}{4 - \alpha_B}$ . The resulting price is  $p^* = \frac{1}{4 - \alpha_B}$ .

It is then easy to check that:

- $\frac{\partial x_A^*}{\partial \alpha} = -\frac{3}{(4 - \alpha_B)^2} < 0$ , that is, taking out a minority shareholding in a competitor (or increasing the size of this interests) leads Firm A optimally to reduce the quantity it produces
- $\frac{\partial x_{-A}^*}{\partial \alpha} = \frac{1}{(4 - \alpha_B)^2} > 0$ , that is, other firms respond to Firm A taking out a minority shareholding in Firm B by increasing their quantities
- $\frac{\partial p}{\partial \alpha} = \frac{1}{(4 - \alpha_B)^2} > 0$ , that is, price increases with the magnitude of the shareholding.

However, with the purchase price reflecting the share of Firm B's profits to which Firm A is entitled (that is,  $\alpha_B x_B^* p^*$ ), Firm A's net profit is given by  $\pi_A = \frac{1 - \alpha_B}{(4 - \alpha_B)^2}$ , and it is easy to see that this is maximised for  $\alpha_B = 0$ , that is, it is optimal for Firm A not to take a share in Firm B.

- 5.8 This logic can be extended to the case of reciprocal shareholdings, that is, an instance where Firm A has a share in Firm B, and vice versa. In this case, Firm B also faces an incentive to reduce its quantity as it benefits from the corresponding positive impact on Firm A (and as shown in a simple set-up in Box 2 this dominates any incentive to increase quantity in response to Firm A's quantity reduction). The remaining firms will unambiguously increase their quantities, and it is never optimal for either Firm A or B individually to take shares in one another.

## Box 2: Reciprocal MSOs with Cournot competition

The model setup and assumption are the same as in Box 1 but in addition we assume that Firm B has a share in Firm A, with the shareholding denoted as  $\beta_A \geq 0$ . Solving for the profit-maximising quantities and the resulting price, we obtain:

- $x_A^* = \frac{1 - \alpha_B}{4 - 2\alpha_B\beta_A - \alpha_B - \beta_A}$
- $x_B^* = \frac{1 - \beta_A}{4 - 2\alpha_B\beta_A - \alpha_B - \beta_A}$
- $x_C^* = \frac{1 - \alpha_B\beta_A}{4 - 2\alpha_B\beta_A - \alpha_B - \beta_A}$  and
- $p^* = \frac{1 - \alpha_B\beta_A}{4 - 2\alpha_B\beta_A - \alpha_B - \beta_A}$ .

It is easy to check that  $x_A^*$  is decreasing in  $\alpha_B$  and increasing in  $\beta_A$ . The same holds for Firm B. The quantity supplied by firm C and the price are both increasing in both  $\alpha_B$  and  $\beta_A$ , which means that reciprocal shares increase prices further than if only one firm held a minority stake in a competitor.

The profits are:

- $\pi_A = \frac{(1 - \alpha_B)(1 - \alpha_B\beta_A)}{(4 - 2\alpha_B\beta_A - \alpha_B - \beta_A)^2}$  and
- $\pi_B = \frac{(1 - \beta_A)(1 - \alpha_B\beta_A)}{(4 - 2\alpha_B\beta_A - \alpha_B - \beta_A)^2}$ .

It can easily be checked that  $\pi_A$  reaches its maximum at  $\alpha_B = 0$ , and

$\frac{\delta\pi_A}{\delta\alpha_B} < 0$ , regardless of the share  $\beta_A$  that Firm B has in Firm A. Of

course, profits are increasing in the share a competitor B takes in Firm

A,  $\frac{\delta\pi_A}{\delta\beta_A} > 0$ . The same holds for Firm B.

- 5.9 A natural extension of this simple analysis is to look at the impact of product differentiation, which softens competition, as shown in the next Box.

### Box 3: MSOs with differentiated Cournot competition

The model set up is as in Box 2, but we assume that the products offered by the three firms are in some way differentiated. This will lead to different prices, with  $p_i = 1 - x_i - dX_{-i}$  for  $i = A, B, C$  where  $X_{-i}$  is the quantity supplied by firms other than  $i$ .

We can then calculate optimal quantities and the resulting prices, as well as the profits enjoyed by the three firms.

Solving for the value of symmetric cross-shareholdings between firms A and B that maximise joint profits, we obtain  $\alpha_B = \beta_A = 1 - d$ . This means that with homogeneous products (that is,  $d = 1$ ) it is not optimal for both firms jointly to acquire stakes in each other, but that in the presence of product differentiation a small cross-shareholding may maximise joint profits, and that the share of the optimal cross-shareholding increases with the degree of product differentiation. However, by including further firms, it is easy to show that it may no longer be optimal to engage in cross-ownership if the share of the market covered by outside firms becomes too large. For example, with four firms (of which two are independent), the optimal value of the cross-shareholding would be  $\alpha_B = \beta_A = \frac{2 - 3d}{2 + d}$ , which can only be positive for  $d < 2/3$ , that is, when products are substantially differentiated.

- 5.10 The logic underlying these results is similar to that driving the analysis of mergers in Salant et al. (1983): In a market where firms compete in line with the Cournot model, a merger that does not result in efficiency gains

will not be profitable unless the merging parties account for a large enough share of the market, because the subsequent quantity reduction is matched with an increase in quantity by the remaining firms. This logic can be extended to the case of minority share ownership. The fewer firms are competing in the market, the higher the optimal level of cross-ownership, and the more differentiated products are, the more beneficial it is to take shares in other firms.

- 5.11 This suggests that an industry with Cournot-like competition needs to be sufficiently linked through MSOs in order for MSOs to be beneficial for the firms involved. Moreover, even though it may be jointly profit maximising to take out minority shareholdings in competing firms, each individual firm would do better by selling its shares and thereby changing its incentives towards competing more aggressively (that is, pursue a 'top dog' strategy and go after a larger share of the market). Thus, without further commitment such a linked structure is inherently unstable.

### **Differentiated Bertrand competition**

- 5.12 We now turn to the case of Bertrand competition,<sup>44</sup> and again assume that Firm A has a share in Firm B, but not vice versa. In this situation, the optimal response of Firm B (as well as other competitors) to an increase in price of Firm A is to increase their respective prices as well. In turn, Firm A will have an incentive to raise its price even further (that is, there will be positive feedback effects).<sup>45</sup> Therefore, under these circumstances, it is beneficial for Firm A to take a share in Firm B, as shown in Box 4.

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<sup>44</sup> The differentiated Bertrand model is commonly used in the literature when modelling merger effects.

<sup>45</sup> Note that, as explained in Ivaldi et al. (2003b), this whole process – although broken down into various logical steps – is simultaneous. In other words, it is not necessary for a firm to observe its competitors' prices. All that is needed is for the firm to be aware of its residual demand curve, or at least to be able to adjust optimally on this residual demand curve through some tâtonnement process. See for example Vives (2001) for an extensive description of price oligopoly models.

#### Box 4: Cross-shareholdings with differentiated Bertrand competition

As in the previous examples, assume that there are three firms in the market  $i=A,B,C$ . Demand is linear and denoted by  $x_i = 1 - p_i + dP_{-i}$ , where  $x_i$  is the quantity produced by Firm  $i$ ,  $p_i$  the price it sets,  $d$  the level of product differentiation and  $P_{-i}$  the prices set by the other firms present in the market.

The gross profit of Firm A can then be written as  $\pi_A = p_A x_A + \alpha_B p_B$ .

Solving for optimal prices, we obtain:

- $p_A^* = \frac{2 + d + d\alpha_B}{4 - d(2 + 2d + d\alpha_B)}$  and
- $p_B^* = p_C^* = \frac{2 + d}{4 - d(2 + 2d + d\alpha_B)}$ .

It is easy to check that the prices of both Firm A and its competitors increase with the level of Firm A's shareholding.

The optimal share ownership is given by  $\alpha_b^* = \frac{2d(2+d)}{4-3d^2}$ , which is clearly positive.<sup>46</sup>

5.13 This result captures the more general insight that it is optimal under Bertrand to show oneself to be 'soft' in the sense of being prepared

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<sup>46</sup> Note that in order for firms to produce positive quantities,  $d$  must be smaller than  $1/(n-1)$  where  $n$  is the number of firms in the market.

unilaterally to compete less aggressively.<sup>47</sup> Of course, this reasoning extends to reciprocal cross-ownership, as shown in Box 5.

**Box 5: Reciprocal MSOs with differentiated Bertrand competition**

We assume the same basic setup as in Box 4, but with the total number of firms in the industry being equal to  $n$  and the degree of product differentiation being  $d$ .

Firms A and B choose their respective levels of cross-shareholdings  $\alpha_B$  and  $\beta_A$  simultaneously.

The equilibrium share ownership is given by  $\alpha^*_B = \beta^*_A = \frac{d(n-1)}{2-d(n-1)} > 0$ .

Clearly  $\frac{\delta\alpha^*_B}{\delta n} > 0$  and  $\frac{\delta\alpha^*_B}{\delta d} < 0$ , that is, the optimal level of cross-ownership increases with the number of competitors, and with the extent of product differentiation (which is reflected in a smaller level of  $d$ ).

- 5.14 A wider spread of cross-ownership makes this effect stronger. Therefore, under Bertrand competition, it is always beneficial to invest in competitors: this investment leads to an increase in prices of all firms and reduces consumer welfare.

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<sup>47</sup> In the terminology of Fudenberg and Tirole (1984), one should optimally use the 'puppy dog strategy' when competing in line with the Bertrand model. Indeed, with strategic complementarity (as is the case with Bertrand competition, where the optimal response of a competitor to other firms raising prices is to raise its price as well), one should optimally commit to being soft.

## Co-ordinated effects

- 5.15 In relation to assessing the co-ordinated effects associated with MSOs, it is helpful to distinguish between the potential gains from tacit collusion and the impact that minority stakes may have on the ease with which collusive outcomes can be achieved and sustained.
- 5.16 As we have set out in the previous subsection the presence of MSOs has the effect of softening competition under both Bertrand and Cournot competition, although the emergence of a web of minority stakes in competitors is difficult to explain in the case of Cournot competition as it would not be individually rational to enter into a minority shareholding arrangement, or maintain such a shareholding even if it were part of a web of MSOs that together maximise joint profits.
- 5.17 Where the presence of cross-shareholdings can be expected to lead to softer competition even in the absence of collusive behaviour, this would suggest that the incentives for engaging in collusive behaviour in the first instance are reduced, as the gains relative to the non-collusive outcome are smaller. At the same time, deviating from a collusive outcome becomes less attractive, while on the other hand the threat of punishment<sup>48</sup> of deviations from the collusive outcome would be less effective (for example, the 'competitive' outcome that would be reached if all firms reverted back to their non-collusive strategies would be characterised by higher prices and lower quantities as in the absence of the MSOs).<sup>49</sup> There are, therefore, two counteracting forces at work

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<sup>48</sup> One may of course argue that the effectiveness of punishment can be increased by the option of selling the rival's shares, which may reduce the rival's share price. The attractiveness of such a strategy would be increased if firms can buy back rivals' shares at the end of the punishment phase, which would reduce the cost of punishment. The extent to which this is a feasible option depends of course on the efficiency of capital markets and how market expectations are reflected in share prices, and it assumes that – contrary to the simplifying assumption in most theoretical models – punishment is temporary rather than permanent.

<sup>49</sup> In principle, firms might be earning the monopoly profit even without any collusive agreement. This occurs, for example, when firms compete on quantities and each owner owns  $1/n$  of all competing firms. The intuition for these results is straightforward (see Reynolds and Snapp, 1986). A partial cross-ownership arrangement changes players' payoff functions. A firm's owner's payoff with a financial interest in a rival depends also on the level of profit gained by the rival. Any decision that has a negative impact on the rival's profit (such as increasing output)

when considering the effect of MSOs on the internal stability of collusion.<sup>50</sup> MSOs would not seem to affect any of the external constraints on the sustainability of collusion (for example, they would not seem to affect the likelihood of entry, or the existence of countervailing buyer power), nor the ease with which firms could identify the appropriate form of co-ordination (as there would not seem to be any additional information flow between firms, and MSOs do not seem to create any focal points for co-ordination), although in markets where it would not be unilaterally rational to take out MSOs, they might be used to signal a general willingness to compete less aggressively and an invitation to other firms to respond by taking out reciprocal minority shareholdings.

- 5.18 Malueg (1992) shows that when firms compete in line with the Cournot model, the first destabilising effect may dominate the second collusion-enhancing effect. Thus, it is not clear whether firms can use MSOs for collusive purposes in Cournot markets. However, at the same time, one has to acknowledge that the presence of MSOs itself is difficult to explain in such markets. Therefore, in industries where competition is more likely to take place in quantities the presence of MSOs – in particular where they are reciprocal - may be an indication of collusive

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will be carried out up to the point where the marginal gain stemming from its own profits equals the marginal loss stemming from the reduction of profits of the competing firm. With completely separate ownership, competitive strategies entail private negative effects that are external. The acquisition of a financial interest partially internalises any external effects of aggressive competitive strategies. If all firms have an equal share of the profits of all firms in the market, the consequences of their market decisions are fully internalized and the monopoly outcome prevails. As we have noted above, there may, however, be a unilateral incentive for each firm to eliminate the minority ownership in a competitor and behave more aggressively, considering that other firms would respond by reducing their capacity – at least if products are sufficiently homogenous.

<sup>50</sup> The reasoning is clearly explained in Gilo et al. (2006): 'MSOs have an ambiguous effect on collusion. The ambiguity arises because MSOs have two conflicting effects. On the one hand, MSOs imply that firms internalize part of the losses that they inflict on rivals when they deviate. On the other hand, MSOs also soften product market competition following a breakdown of the collusive scheme and hence strengthen the incentives of firms to deviate. We believe that in practice, the first effect is likely to dominate the second, otherwise firms would have no incentive to invest in rivals.'

behaviour: such arrangements are optimal when the objective is joint profit maximisation, but with a strong individual incentive to deviate. Put differently, in Cournot markets, reciprocal MSOs may be a way in which collusive behaviour becomes manifest.

- 5.19 Turning to Bertrand competition, it may be helpful to consider first the (mainly theoretical) case of a market with perfectly homogeneous goods. In this case, the non-collusive outcome is one in which firms charge the competitive price and earn zero profits irrespective of whether or not they hold minority shares in each other. Whilst in this case the acquisition by a firm of some shares in a competitor may relax the incentive constraint for the acquiring firm (and for all the firms with an interest in the acquiring firm), as the benefits from reducing prices are larger, the models of Gilo et al. (2000, 2006) in essence show that such ownership arrangements affect the ability of firms to collude only if they affect the incentive constraint (that is, lower the critical discount factor) of the firm with the highest incentive to deviate, that is, the industry maverick.<sup>51</sup> If the maverick invests in competing firms, this increases the potential for collusion in that industry. If the maverick, on the other hand, does not hold equity interests in any rival firms, its incentive to deviate is not changed by other share transactions that may take place in the industry, and thus the sustainability of collusion is not affected.<sup>52</sup>

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<sup>51</sup> It might be thought that since MSOs allow firms to internalise part of the harm they impose on rivals when deviating from a collusive scheme, any increase in the level of MSOs in the industry will necessarily facilitate tacit collusion. This intuition, however, ignores the fact that MSO arrangements create link between the profits of firms that hold each other's shares, both under collusion and following a deviation from collusion. Consequently, MSO arrangements affect the incentive of each firm to collude in a complex and subtle way. Despite this complexity, Gilo et al. (2006) are able to prove that an increase in the stake of firm A in a rival firm B never hinders collusion. Moreover, they show that such an increase will surely facilitate collusion provided that (i) each firm in the industry holds a stake in at least one rival, (ii) an industry maverick firm (a firm with the strongest incentive to deviate from a collusive agreement) has a direct or an indirect stake in firm A and (iii) firm B is not an industry maverick. If either one of these conditions fails, the increased stake of firm A in firm B will not affect the incentive constraints for tacit collusion.

<sup>52</sup> Another consideration arises in relation to who holds the minority interest. As shown by Gilo et al. (2006) if firms are competing on prices and products are homogenous, if one further considers the possibility that decision makers (controlling shareholders) do not maximise the

- 5.20 This reasoning, however, hinges on the assumption that firms produce homogeneous goods, which means that the presence of MSOs does not affect the severity of punishment: with homogenous products, Bertrand competition completely eliminates economic profits, and thus the presence of MSOs does not affect the profits of firms during the punishment phase. If, however, one introduces some heterogeneity, the punishment phase in Bertrand competition is softened through MSOs, so that the reduction in the effectiveness of the threat of punishment can reduce the likelihood of collusion.
- 5.21 MSOs may further increase transparency<sup>53</sup> and facilitate monitoring of compliance with a collusive strategy to the extent that shareholders are afforded the benefit of access to information over and above that made available through public channels (for example, via the company's quarterly or annual filings with Companies House, or the reports filed by publicly listed companies). Access to information may be more valuable in cases where the company is not listed and there is no consequent obligation on it to make public information related to its operations. In these situations any information that is made available as a result of a shareholding may prove to be of value in sustaining collusive outcomes (for example, by better enabling a firm to discriminate between deviations and external shocks, allowing it to establish whether its own poor performance was the result of a competitor's deviation from the

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total value of the firm they control, but only that part of the firm they own, the use of MSOs is potentially more conducive to collusion. Indeed, by decreasing the interest in their own firm ('dilution'), decision makers care relatively more about the other firms in which they have MSOs, which therefore decreases the interest of controlling shareholders to deviate from collusion. This implies that even relatively small direct passive investments can raise antitrust concerns. However, this effect hinges crucially on the fact that when firms compete on prices and products are homogenous, the punishment phase is not influenced by the presence of MSOs. Otherwise, by diluting the interest in their own firms, controlling shareholders are also less inclined to punish deviating firms, which would reduce internal stability.

<sup>53</sup> See, for example, Kühn (2001) or Kühn and Vives (1995)

collusive outcome, or a consequence of an external demand shock affecting both itself and its competitor in a similar way).<sup>54</sup>

5.22 As noted above, while MSOs in themselves are unlikely to lead to efficiency gains, they may be motivated by efficiency reasons where they are used to assist in aligning the incentives of firms involved in alliances or joint ventures. Of course, such joint ventures themselves may lead to anticompetitive outcomes, since they may facilitate collusion<sup>55</sup> and it is possible that the combination of MSOs and joint ventures is more effective in facilitating collusion than either instrument alone, given that firms have now several 'meeting points'.<sup>56</sup> This idea is reminiscent of Bernheim and Whinston's (1990) theory of multi-market contact: firms that interact in more than one market are potentially able to sustain collusion more easily.

## Efficiencies

5.23 While in the case of mergers there may be (potentially strong) efficiency gains that would have to be taken into account, and that would counteract the detrimental impact of the response of competitors to any attempt by the merged firm to reduce output, it is less clear that such efficiency gains could arise in the case of minority shareholdings (even in

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<sup>54</sup> Conversely, where a publicly listed company is already required to disclose significant amounts of company information, then access to shareholder information as a result of a minority shareholding may not be as valuable to a rival.

<sup>55</sup> Joint ventures (JVs) may facilitate collusion in two ways. JVs may induce collusion through creating common assets – and therefore common interests – among participating firms and provide therefore a credible punishment mechanism (Cabral, 2000, Martin, 1995). JVs may further induce collusion when being used as a vehicle for the transmission of information to signal cooperative behaviour (Cooper and Ross, 2007).

<sup>56</sup> This would also mean that the joint presence of MSOs and joint ventures in a particular industry may indicate that in that industry (i) MSOs are partially used for efficiency reasons to solve the typical hold-up problem where firms may be able to work most efficiently by cooperating, but refrain from doing so due to concerns that they may give the other party increased bargaining power, and thereby reduce their own profits, or (ii), MSOs are partially used for collusive reasons. Therefore, joint ventures do not lead to conclusive evidence of the use of MSOs with regard to efficiencies or collusion.

the case where these are reciprocal). This is because MSOs merely create a financial interest in the performance of other firms in the market, without much scope for rationalisation or avoiding cost duplication.

- 5.24 One might of course argue that minority shareholdings allow firms to diversify risks by insuring against the fluctuation in the performance of individual firms (for example, one firm winning at the expense of another firm), which might be associated with lower costs (as firms face reduced uncertainty) so that minority shareholdings might be both profitable and have the effect of sharpening competition to the benefit of consumers.<sup>57</sup> However, one has to be careful with this efficiency rationale, as it would be limited to differential impacts on the performance of individual firms that are exogenous, that is, unrelated to their competitive behaviour, and would not have the effect of softening incentives to attract customers away from rivals.<sup>58</sup>
- 5.25 Although minority cross-shareholdings in their own right may not be an obvious source of efficiency gains, they might in principle be useful in aligning the incentives of firms involved in alliances or joint ventures when these projects require ex ante relationship-specific investments and the MSOs are long-term. Thus MSOs may be associated with potential efficiency gains in cases where they are complementary to other arrangements between competitors such as, for example, a research co-operation below the level of an R&D joint venture.<sup>59</sup>

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<sup>57</sup> For an analysis of such effects in relation to mergers see Banal-Estanol and Ottaviani, 2006.

<sup>58</sup> This might be the case, for example, where the performance of different firms is linked to some exogenous factor such as differential cost shocks such as changes in transport costs or the availability of raw materials that affect different firm in different ways.

<sup>59</sup> We are not aware of evidence of firms relying on MSOs as a way of complementing other agreements between them that might then result in efficiencies, though this would obviously need to be confirmed empirically. One test that might be appropriate in this regard is to check whether an industry where MSOs are prevalent also has a high prevalence of arrangements such as research joint ventures, even though this would not indicate that MSOs are used in order to protect or deepen research co-operation. However it is worth mentioning that, although MSOs might potentially alleviate the typical hold up problems of joint ventures, the joint occurrence of MSOs and joint ventures may also facilitate collusion.

5.26 Overall, the absence of obvious sources of efficiencies suggests that minority cross-shareholdings may be more likely than full mergers to be motivated by anti-competitive objectives

## Summary

5.27 We find that MSOs have the potential of reducing competition and increasing prices in both a Cournot and a Bertrand world. Assuming that there are no efficiency gains associated with such MSOs, they can lead to higher prices and lower volumes to the detriment of consumers<sup>60</sup> as they may:

- create incentives unilaterally to increase prices or reduce output
- facilitate tacit collusion.

5.28 Where firms are more likely to compete in line with the Bertrand model, competition concerns may be mostly related to unilateral effects. Firms benefit from taking out MSOs because this reduces their incentives to compete, and gives them an incentive unilaterally to increase prices.

5.29 By contrast, where competition would be more appropriately characterised as following the Cournot model, and products are fairly homogenous, even though MSOs have the effect of dampening competition, individual firms may not have a clear incentive to take out minority shareholdings as this could reduce their profits.<sup>61</sup> This is because the unilateral incentive to reduce output in such markets creates the opportunity for competitors partly to fill that gap, and thus benefit from higher prices while the firm that has initially reduced output loses. However, given that reciprocal MSOs in such markets increase joint

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<sup>60</sup> Of course, our reasoning is static in the sense that it abstracts from long-term innovative effects that could potentially be induced by a reduction in competition through MSOs. For example Aghion et al. (2005) find an inverted U-shape relation between the level of competition and innovation in industries. In other words, an intermediate level of competition may be best to stimulate innovation.

<sup>61</sup> See also Reitman (1994), who concludes by modelling the potential for collusion that holding MSOs is never individually rational. In more rivalrous equilibria than Cournot, there exist individually rational MSO arrangements.

profits, one might expect such a web of minority shareholdings to emerge from tacitly collusive behaviour. Thus, the presence of MSOs may in itself be an indication of collusion, in particular where shareholdings are reciprocal, and where other indicators suggest that collusion is sustainable.<sup>62</sup>

- 5.30 Where firms compete more in line with the Bertrand model, the presence of MSOs can be expected to increase the likelihood of collusion when products are homogenous, and when firms that are most likely to play the role of the industry maverick use MSOs. The greater the degree of product differentiation, the stronger the effect of the reduced effectiveness of punishment, and the less of an impact MSOs may be expected to have on the likelihood of collusion. However, the fact that both incentives for deviation and the effectiveness of punishment are reduced, is closely tied to non-collusive outcomes being associated with higher prices than would be achieved under competition. Put differently, in those cases where the effects of MSOs on the likelihood of collusion are ambiguous, the additional harm caused by collusive behaviour would be smaller and concerns about the additional loss of consumer welfare as a result of collusion would be more limited.
- 5.31 Where products are very differentiated, MSOs may or may not be an indication of collusion, but the anti-competitive effects of collusion and the competition impact due to unilateral effects in terms of higher prices and reduced consumer welfare would be relatively similar in any case. In any case, whether they be motivated by unilateral or co-ordinated effects - the presence of MSOs among competitors in the absence of efficiencies is likely to result in higher prices and lower quantities, and thus reduces consumer welfare.
- 5.32 Indeed, a number of empirical studies support our findings. Merlone and Salleo (2003) find a decrease in equilibrium output and an increase in profits, linking the magnitude directly to the extent of the stake. They

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<sup>62</sup> Ivaldi et al. (2003a) argue that markets more favourable towards collusion typically include (i) few firms, (ii) firms having symmetric market shares, cost structures and capacity constraints, (iii) a stable demand, (iv) a low level of innovation, (v) high entry barriers, (vi) multi-market contacts, and (vii) a low vertical product differentiation.

also show that the likelihood of collusion is greater. They validate their theoretical model by conducting an event study on a sample of American firms. Dietzenbacher, Smid and Volkerink (2000) use the Dutch financial sector as their empirical example to analyse the consequences of cross-shareholdings. They focus on firms with a minority interest in one another, which can be direct or indirect. The authors find a reduction of competition due to these shareholdings. Their findings show that comparing shareholding cases to non-shareholding cases, price-costs margins are estimated to be up to two per cent higher in a market characterised by Bertrand competition and at least eight per cent higher in a Cournot market.

## **6 INTERLOCKING DIRECTORSHIPS**

6.1 While MSOs work mainly through the financial interest they create in the performance of a competitor, which may affect a firm's behaviour, the effects of IDs are mainly based on the fact that they create scope for information exchange that would not have occurred absent the interlock. Such information might include operational details, product design or other sensitive information that would not have been made available otherwise and might not be subject to any disclosure obligation, or that might become available earlier than would otherwise be the case. In these cases, the interlock has the potential to reduce or eliminate competition between the firms involved by blunting the incentives to compete and by facilitating collusive outcomes. Unlike MSOs, IDs provide directors or managers with a particularly privileged level of access to information about the commercial activities of the firm. Such access may mean that deviations from collusive outcomes and reactions of the firm may be more readily observable than in the case of MSOs, and that both the deviation from a collusive outcome and any punishment might be much better targeted (for example, towards particular high-margin product lines or high-value customers).

### **Unilateral effects**

6.2 Unilateral effects from IDs may arise because even though a firm's shareholders have no financial interest in the performance of its competitors, the objectives of directors holding IDs may be affected by the fact that they are involved with competing firms. This means that they, considering the impact of decisions on all of the companies where they hold a directorship, may wish to compete less aggressively and thus may have a unilateral incentive to reduce competitive pressure. Such effects are potentially stronger than those associated with MSOs, for example, in the case where directors are remunerated through share options and share prices respond strongly to reduced levels of competition.

6.3 From a practical perspective, the way these unilateral incentives unfold is through the remuneration schemes offered by companies to their directors. If a director's remuneration is closely tied to company performance, then it may pay for the director to adopt decisions that

imply that the companies compete less aggressively with each other. For the reasons discussed in the previous chapter, this would again seem to be more likely in the case where competition takes place in strategic substitutes, and where therefore a decision to compete less aggressively benefits all firms, than in the case of competition in strategic complements, where the unilateral decision of one firm to compete less aggressively leads to other firms expanding their output.

- 6.4 If directors benefit from increased performance of some of the companies where they hold directorships without suffering from poorer performance of others (that is, if corporate governance structures in the different companies differ in terms of the effectiveness with which they align the incentives of directors with those of shareholders), interlocking directorships may make it individually rational for directors to limit competition even if this is not in the interest of the respective shareholders. This suggests that in the case of weak corporate governance in some companies within a market concerns about the potential anti-competitive effects of interlocking directorships may be stronger as the range of conditions under which restrictions of competition may be individually rational becomes wider.
- 6.5 The extent to which directors are able to pursue their own objectives rather than those of shareholders depends of course on the effectiveness of the corporate governance mechanisms in place (in addition to the fiduciary duty owed by directors, which limit the extent to which a director or manager may harm the interests of one of the firms that he/she represents). Effective corporate governance putting in place appropriate mechanisms to curb the ability of directors to act in ways that are detrimental to shareholder interests should, address some of these concerns, though even with perfect alignment of the incentives of managers and shareholders concerns about interlocking directorships having the effect of dampening competition will remain in the case where the underlying competition between firms is more likely to be in prices rather than quantities. Indeed, in this case the more high-powered the incentives faced by directors, the more concerned one might be about the unilateral effects from IDs.

## Co-ordinated effects

- 6.6 While in relation to unilateral effects the incentives of directors and shareholders may diverge, and therefore the effectiveness of corporate governance may have a bearing on the extent to which IDs should raise competition concerns, with co-ordinated effects the incentives of directors acting for a number of companies to soften competition in a collusive manner should be well aligned with shareholder objectives.
- 6.7 Improved access to information through IDs, in particular in relation to information that might not normally be made available has the potential of increasing the scope for collusion.
- First, it might make it easier to reach a collusive agreement, as directors serving on the boards of different companies provide a conduit for information that can assist in developing a common understanding of the specific aspects on which behaviour should be co-ordinated.
  - Second, as highlighted by Green and Porter (1983), uncertainty about demand conditions makes it more difficult for firms to establish a tacitly collusive outcome. The information flows associated with IDs may also help to overcome this type of uncertainty.
  - Third, both deviation and punishment may be made more effective if they can be targeted at high-margin products or high-value customers. The overall effect of this is ambiguous, as it would affect both the incentives to deviate and the effectiveness of punishment.
- 6.8 Competing firms face uncertainty about the demand and, in the absence of information sharing, firms cannot observe each other actions. This makes it difficult to establish whether low market prices or low levels of demand for a firm's product are the result of a demand shock affecting all firms in the market places, or an indication of deviation of competitors from a tacitly collusive outcome. To sustain collusive outcomes firms

enter phases of price wars whenever low prices are observed.<sup>63</sup> Although collusion can be sustained, average prices are lower than they would be if demand were certain because of the periods of price wars.

- 6.9 With IDs, the flow of information between firms may be improved and the uncertainty that is responsible for the periodic price wars in the Green and Porter framework may be reduced.
- First, firms' exchange of private information about demand reduces the uncertainty of demand. In a second paper, Porter (1983) shows that the highest price that can be sustained approaches the full information price as uncertainty is reduced. More precise information about demand will strictly expand the set of equilibria making more collusive outcomes possible (see Kandori, 1992).
  - Second, detection of deviations becomes easier implying that the expected length of price wars can be shortened. This implies that consumers are worse off and welfare is reduced with an increase in the information exchanged.
- 6.10 In the extreme, if firms can actually observe the total output of their competitors after every period, no punishments would ever be carried out, as such observations provide sufficient information to detect whether some firm has deviated.

## Efficiencies

- 6.11 While IDs may cause competition concerns, in particular in relation to the potentially increased risk of collusion (and potentially as a result of unilateral effects if corporate governance is weak), they may be more likely than MSOs to generate efficiencies, and may therefore be motivated by reasons other than a desire to soften competition.
- 6.12 First, information sharing in an oligopoly market may reduce market uncertainty, which not only has an impact on the likelihood and

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<sup>63</sup> Such behaviour is actually not punishment for deviating, but firms understand that the lack of public observability of the behaviour of other firms makes it necessary to have periods of price wars when demand is unexpectedly low.

effectiveness of collusion, but may also help to improve business decisions and so, in some circumstances, increase consumer and social welfare. The welfare effects depend however in a complicated way on the main features of the market (see Kuhn and Vives, 1995), namely:

- the type of decision variable (price or quantity),
- the type of uncertainty (common demand versus idiosyncratic costs),
- the characteristics of the goods (substitutes or complements, homogeneous or heterogeneous products).

6.13 In vertical relations, IDs can improve contracting relationships with suppliers, and customers (Schoorman et al. 1981). In addition to reducing uncertainty concerning inputs or outputs, a vertical interlock may also create a more efficient method of dealing with customers and suppliers. A common director might be in a better position to obtain a critical input, for example. Firms sharing a common director and thus information can also reduce search and information costs and contracting complexity, thus reducing transaction costs.

6.14 Efficiencies are not restricted to vertically related firms. IDs can also improve informational links with financial institutions (banking and insurance). Asymmetric information between customers and financial institutions may lead to severe inefficiencies and even market breakdown. In such markets information exchange may have a large scope for welfare improvements since it may significantly reduce the problems of asymmetric information that are associated with debt financing. Of course, concerns may arise where powerful firms who have directors in several up- or downstream firms who themselves are horizontal competitors, that is, creating 'indirectly interlocking directorships' (Buccirossi and Spagnolo, 2007). These directors can be informed of the long-term strategies of these horizontal competitors and possibly coordinate their strategies. This is also an issue with regard to loans, where large banks lend to several competitors, and we return to this point below.

6.15 Furthermore, through ongoing experience with, and involvement in other organisations, outside directors may have information and skills that might not be obtainable in any other way, and can add to the reputation

of the firm, which in turn may be helpful in order to overcome informational asymmetries.<sup>64</sup> Finally outside directors can act as signalling devices.<sup>65</sup>

## Summary

6.16 In summary, our discussion of IDs suggests the following hypotheses:

- Like MSOs, IDs can affect the incentives of firms to compete more or less aggressively. To the extent that the effectiveness of corporate governance varies across the firms that share directors, the decision to compete less aggressively may be taken even if this harms the shareholders of one firm (though benefits those of the other).
- Concerns about the competition effects of IDs are perhaps strongest in relation to the contribution of IDs towards the increased likelihood and effectiveness of collusion as a result of an improved flow of information, which would facilitate reaching a collusive outcome and monitoring compliance with it.

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<sup>64</sup> A firm's reputation can be affected by who serves on the board of directors and to whom it is seen as being linked. Thus, having prestigious people on the board can provide confirmation as to the value of the firm to various stakeholders, such as investment banks and auditors, but as to signal financial attributes of the firm (Pfeffer and Salancik, 1978). Moreover, outside directors with different reputations can provide assurance regarding various nonfinancial attributes, for example, environmental responsibility, ethical conduct (Deutsch and Ross, 2003).

<sup>65</sup> Further references that deal with efficiencies are Atkin et al. (1981), who state that the ID principally reduces uncertainty, creates a more efficient method of procuring outside inputs (for instance, better prices, payment terms, delivery schedules) and reducing searching costs: the authors also state that improving contracting relationships with suppliers and customers may generate efficiencies and are most probably present in the case of vertical IDs. Vives (1984), Gal-Or (1985, 1986) and Shapiro (1986), among others, state that information in an oligopolistic market may reduce market uncertainty so as to improve business decisions and may increase consumer welfare. Buccorosi and Spagnolo (2007) affirm that vertically related firms are more likely to pursue efficiency goals through such arrangements. Costs efficiencies may also be attained through IDs when the practice confers benefits such as expertise, legitimacy and risk sharing.

- The scope for efficiencies is greater, and the threat of anti-competitive behaviour is weaker in relation to vertical IDs than horizontal IDs. Thus, vertical interlocks, insofar as they do not create indirect interlocking directorships among horizontal competitors are likely to be pro-competitive as they could generate a number of efficiency gains without raising significant concerns about unilateral or coordinated effects.

## 7 LOANS

7.1 Loans given to a competitor differ from MSOs in that they do not create a financial interest in the competitor's performance except for the case where the competitor faces the risk of bankruptcy and there is thus a probability that the loan might not be fully recovered.<sup>66</sup> In these cases, the lender may have an incentive to behave less aggressively in order to avoid pushing the borrower into bankruptcy and thus losing all or part of the repayment. Unlike IDs, providing a loan does not normally lead to improved information flows, although there may be certain requirements in relation to board presentation or debt covenants attached to the loan that might provide more information or clearer signals than would otherwise be available. It is therefore not surprising that, as discussed in the literature review, Kaiser (2004) concludes that

- debt investment is less effective in sustaining anti-competitive outcomes
- loans differ markedly from the case of MSOs
- debt investment may indeed be efficient.

### Unilateral effects

7.2 Giving out loans to competitors may lead to similar anti-competitive effects as taking an MSO in the case where likelihood with which the creditor will be repaid depends on the intensity of competition. Put differently, in order to affect competition, offering a loan to a competitor must change the creditor's behaviour towards competing less aggressively with the debtor. The creditor will only have an incentive to do so where a reduction in competition from the creditor reduces the likelihood of the debtor becoming insolvent, which would create the risk of defaulting on the creditor's loan.

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<sup>66</sup> Obviously, the effects of lending to a competitor are the same regardless of what form such lending takes, that is, whether it is a loan extended to a competing firm or a firm purchases corporate bonds issued by a competitor, that is, exchange traded debt.

- 7.3 Competing less aggressively in order to protect a competitor is potentially less attractive in the case of Cournot competition, where the creditor by reducing its quantity may indeed prevent the competitor from going bankrupt, but will suffer at the expense of the competitor (and other firms) who will optimally increase their quantity in response (see above). So in this case, the potential gains from avoiding having to write off all or part of the loan need to be balanced against the loss of profits suffered as a result of unilaterally reducing quantity. The individual rationality arguments developed in the discussion of MSOs above apply in a similar way, and therefore concerns about loans given in order to soften competition may be more likely to be relevant in markets where competition takes place in prices rather than quantities.
- 7.4 More generally, one may ask why a firm might wish to lend to a competitor who faces substantial financial difficulties. If there is a strong likelihood that the firm may indeed become insolvent (even if competition is weaker than it might otherwise be), the expected cost of extending a loan that might not be repaid needs to be considered. In addition, one has to ask what the benefits are from keeping a competitor who might otherwise fail in the market. The decision to do so – in particular given the potentially substantial costs involved – could signal that the firm offering the loan expects that the exit of a competitor would trigger the entry of another, perhaps more efficient firm (whose entry might have been facilitated by the ability to acquire the assets of the failed competitor at a low price), which could result in more vigorous competition.<sup>67</sup> In this regard, the fact that a firm is prepared to provide credit to a competitor in financial difficulties might in itself raise concerns about restricted competition.

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<sup>67</sup> The ability to pick one's competitors can be valuable. As Kamphorst et al. (2009) show in a different context, a firm might be prepared to facilitate entry of a competitor if this prevents the entry of another, potentially more efficient firm. Similar considerations may apply to the decision to keep a competitor in the market in order to prevent the entry of a more efficient firm that might follow exit.

## Co-ordinated effects

- 7.5 Whether a loan given to a competitor enhances or decreases the potential for collusion critically depends on how debt influences the payoffs of deviation from the tacitly collusive outcome.<sup>68</sup> It is, however, worth stressing that those cases where a loan might lead to unilateral effects – that is, in cases where the recipient is facing financial difficulties – firms are likely to be very different in terms of their performance. This in turn suggests that firms are not symmetric, and that for this reason the likelihood of tacit collusion is potentially already small.
- 7.6 If a firm faces the prospect of going bankrupt in response to retaliation from its competitors, then it might have a stronger incentive to deviate as the threat of punishment is reduced. In this case the deviating firm captures all industry profits during the deviation period, but does not suffer the subsequent full losses over the course of the punishment phase, since an aggressive response by its competitors leads to bankruptcy, which, given limited liability, leads to no real punishment effect (Maksimovic, 1988). This suggests that offering debt to a competitor reduces the effectiveness of collusion. It might be further argued that when a direct competitor acts as lender, then loading a rival with debt reduces the incentives for this creditor to retaliate in a potential punishment phase, which makes debt even less desirable as a collusive device.
- 7.7 However, the idea that bankruptcy curtails the effectiveness of punishment ignores the fact that decisions are made by managers who face the risk of losing their jobs if the firm goes bankrupt. Thus, rather than making the threat of punishment less effective, an increased risk of bankruptcy may make the punishment more effective in preventing deviation. Indeed, deviating managers would be 'punished' by losing their jobs in the punishment phase because of the bankruptcy of their firm (Spagnolo, 2004). Shareholders can thus credibly commit against

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<sup>68</sup> It is worth pointing out that the presence of a direct relationship between the firms in the case of a bilateral loan arrangement (as opposed to exchange traded debt) may facilitate overt collusion.

strategic default by hiring a 'conservative manager' who is particularly concerned about losing their job. However, in order for this mechanism to work, contracts between the creditor and debtor need to be such that resulting managerial contracts cannot be easily renegotiated, which is only achieved through a series of rather stringent conditions (see Spagnolo, 2004, for details).

- 7.8 There is another potential effect of debt as a collusive device. Powerful 'informed lenders' often exert control on their borrowers, for example, by ensuring a seat on the debtor's board. This board member can then be informed of the debtor's long-term strategies, and possibly coordinate the lender's own strategies with those of the debtor. This suggests that concentrated debt stakes in the hands of third parties, such as banks or funds, may enhance collusion as was common at the turn of the century in the US.<sup>69</sup> Even when credit markets are competitive and firms have multiple lenders, by choosing at least one common lender, or a common set of allied lenders, oligopolistic firms can credibly commit to form and sustain collusive agreements that would not be otherwise feasible.<sup>70</sup> A very similar pro-collusive effect may be obtained through other common or related stakeholders, such as industry-wide trade unions.<sup>71</sup> However, conditions to achieve this kind of collusive outcome are again rather stringent (see Spagnolo, 2004, for details).

## Efficiencies

- 7.9 As in the case of IDs, improved information flows may have efficiency benefits as they may help to overcome problems of asymmetric information. Indeed, lending amongst firms in the same industry – and thus lending amongst competitors – may be efficient in cases where outside investors may be much worse informed about the risks facing the businesses, and market insiders may therefore be prepared to lend

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<sup>69</sup> Cantillo (1998) studies how the change in control of private banks on railroads and industrial firms the early 1900s made firms to lose value that came

<sup>70</sup> However, the conditions for this 'hub-and-spoke' system to facilitate collusion are again rather severe (Spagnolo, 2004).

<sup>71</sup> See Spagnolo (2001).

on more attractive terms and more widely, whereas outside lenders may engage in credit rationing to manage the perceived risks.

## Summary

7.10 In summary, our discussion of the competition effects of loans suggests the following:

- Loans given to competitors share some of the features of MSOs – namely in the case where the recipient of the loan is potentially close to bankruptcy and therefore the lender may have a unilateral incentive to compete less aggressively in order to avoid pushing the borrower into insolvency with the associated repayment risk.<sup>72</sup>
- In relation to co-ordinated effects, the likely market asymmetry between the debtor and the lender (as well as other firms) in combination with the less effective threat of punishment for deviating from a tacitly collusive outcome suggests that co-ordinated effects should be of less concern.
- Loans also share some of the features of IDs – namely where the lender through granting the loan may obtain information about the borrower’s business that might otherwise not be available.
- With regard to the latter, networks of credit arrangements amongst competitors, or attempts to seek to borrow from a common lender may be of particular concern.

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<sup>72</sup> The considerations developed above with regard to the difference between Cournot and Bertrand competition apply in a similar fashion.

## 8 CONTRACTS FOR DIFFERENCES

8.1 Like MSOs, long positions through CfDs give the holder a financial interest in the performance of the firm on whose share values the contract has been taken out, but no control. Therefore, one would expect similar concerns to arise in relation to CfDs as have been expressed above.<sup>73</sup>

8.2 However, there are two important differences:<sup>74</sup>

- First, CfDs allow firms to go 'short' as well as 'long', because the firms can sell as well as buy CfDs. This means that firms can benefit directly from their rivals' poor performance. While this might suggest that CfDs could be used in order to sharpen the incentives for competing aggressively, it may also raise concerns about increasing the risk of exclusionary behaviour.
- Second, CfDs may be considered to be a more flexible instrument, given that positions can be cancelled or even reversed at relatively short notice. At the same time, firms only need to place an initial margin and not the full underlying value, thus allowing CfD users to leverage a smaller investment, but potentially facing an ongoing cost of extending CfD positions over the longer term in the form of overnight fees, margin calls etc.<sup>75</sup> Thus, while the leveraged nature of CfDs may lead to a stronger impact on the incentives of the firms

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<sup>73</sup> It is worth stressing that the effects associated with CfDs may also flow from other derivative products such as futures or options, even though their specific incentive properties may differ in some details

<sup>74</sup> In addition to these differences, it is worth emphasising that – at least in relation to short positions - disclosure requirements on CfDs were weaker, meaning that they used to be a less transparent means of achieving a financial interest in the performance of a competitor. Such reduced transparency requirements may continue to exist for other financial derivatives that could in principle have the same effect as CfDs.

<sup>75</sup> See PwC, Survey on Contracts for Differences Annex 4 of the Consultation Paper 07/20 of the Financial Services Authority on the Disclosure of Contracts for Differences, November 2007: also see Figure 10 above.

involved,<sup>76</sup> they may be less effective as a commitment device owing to the ease with which they can be reversed.

## Unilateral effects

- 8.3 Given that like MSOs, CfDs taken out on equity shares of another firm carry financial interests but no voting or control rights, the unilateral effects of buying CfDs (that is, taking a long position) are, in principle, similar to those of MSOs.
- 8.4 As mentioned above, when buying CfDs, firms only need to place an initial margin and not the full underlying value. The leveraged nature of CfDs implies that a greater financial interest in the performance of a rival can be created through CfDs with a given investment (which moreover would still be considered to be a minority interest, as CfDs do not provide the holder with voting rights or other ways of influencing the policy of the firm on whose shares the CfD has been taken out). This means that the effects of CfDs could potentially be much stronger than those associated with MSOs.
- 8.5 On the other hand, however, the holder of CfDs faces ongoing costs for maintaining an open position (such as overnight fees) and may be responsible for substantial margin calls if the value of the underlying shares falls. For this reason, CfDs may be unsuitable for maintaining a financial interest in the performance of a rival firm continuously over a long period of time. Given the potentially sizeable ongoing cost of holding CfD positions, and the ease with which such positions can be reversed compared with MSOs,<sup>77</sup> the inherent shorter-term nature of

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<sup>76</sup> However, it should be noted that CfD writers will generally hedge bets in a corresponding position (either on the same shares or in relation to a portfolio of shares), thus limiting the cumulative effect of the instrument. It may also be the case that holding certain positions may not be feasible, for example where a CfD writer is unable to secure sufficient corresponding positions. CfD writers may also initiate margin calls on positions that they consider untenable.

<sup>77</sup> In particular where the size of the MSO is substantial, it may not be possible to sell shares without having some price impact, not least because the sale of shares by a firm in the same market may be seen as conveying some information about the future prospects of firms in that market.

CfDs may mean that they are less suitable than MSOs to affect competition, in particular where the positive impact of reduced competition on a rival's share price takes some time to materialise (even though the available leverage can substantially increase the magnitude of the financial interest in a rival's performance, and thus pay off at smaller share price movements).

- 8.6 For this reason, the use of long CfD positions to soften competition may be more likely in those circumstances where strategic interaction occurs in discrete (non-continuous) times – that is, where firms compete for the market, as opposed to competition within the market. One obvious example for such a case is competition in markets with bidding processes, where competitors bid for contracts to supply a particular customer.
- 8.7 'Going short' (that is, speculating on the fall in the target's share price), in the first approximation, is the mirror image of 'going long', and should thus be expected to have the opposite effect. We again consider the effects separately for the case of Cournot competition and Bertrand competition.

### **Cournot competition**

- 8.8 Where MSOs and long positions in the case of Cournot competition will lead to higher prices and lower quantities, but may not necessarily benefit the firm taking that position, 'going short' can be both individually rational and a way of sharpening the incentives to compete.
- 8.9 More specifically, suppose that Firm A has sold a CfD in Firm B ('going short'), but not vice versa. As a first direct effect, Firm A has an additional incentive to increase its quantity in order to decrease the price and thus lower Firm B's profits. In response, firm B and the other competitors have an incentive to reduce their quantities. This generates a positive feedback effect on Firm A, which will increase its quantity even further, to a greater extent than it would have done without the reaction of the competitors. Overall, quantities should increase and prices go down.
- 8.10 However, here, Firm A benefits from competing more aggressively, and a short position can provide an incentive to behave more aggressively in

the market. This is easy to see using the example in Box 1, but allowing the financial interest of Firm A in Firm B to be negative (that is, Firm A would benefit from a fall in Firm B's profits and hence the value of its shares). Given that Firm A's profit decreases in the size of its financial interest, it should have an incentive to 'go short' and take out a CfD speculating on a fall in Firm B's profits and share value.

- 8.11 Of course, Firm B should have incentives to take a short position on Firm A as well. Indeed, firms might have unilateral incentives to use short CfD positions in order to benefit from being more 'aggressive' even if this runs counter to their common interest. The option of using CfDs to sharpen incentives to compete more vigorously creates a prisoners dilemma situation which makes firms worse off but benefits consumers through higher quantities and lower prices. The incentive to 'go short' exists regardless of whether such short positions would be taken out simultaneously or sequentially (that is, where Firm B takes out a short position on Firm A in response to the latter having taken a short position on Firm B).

### Box 6: Simultaneous and sequential decisions to 'go short' with Cournot competition

The model setup is as described above in Box 3, but the difference is that both  $\alpha_B$  and  $\beta_A$  can be negative, indicating that the firm taking out the CfD benefits from a reduction in the other firm's profits.

Solving for optimal shares with three firms and  $d = 1/2$ , we obtain:

- $\alpha_B^* = \frac{6 + 3\beta_A}{6\beta_A - 13}$
- $\beta_A^* = \frac{6 + 3\alpha_B}{6\alpha_B - 13}$

Therefore, optimal shares are symmetric and decreasing in the share of the competitor (downward sloping), that is, the smaller (in absolute terms)  $\beta_A$  the higher (in absolute terms)  $\alpha_B^*$ , and vice versa.

With both firms determining the extent of their interest in the other firm's value simultaneously, we obtain  $\alpha_B^* = \beta_A^* = -\frac{1}{3}$ . The corresponding profits are

$$\pi_A(\alpha_B^* = \beta_A^* = -\frac{1}{3}) = \pi_B(\alpha_B^* = \beta_A^* = -\frac{1}{3}) = \frac{27}{250} = 0.108. \text{ By comparison}$$

without either firm going short on its competitor, profits would be

$$\pi_A(\alpha_B' = \beta_A' = 0) = \pi_B(\alpha_B' = \beta_A' = 0) = \frac{1}{9} = 0.111.$$

Therefore, profits are lower when both firms optimally choose their reciprocal level of going short compared with a situation in which they would not take out CfDs. The resulting price is 3/10, compared with 1/3 in the case without CfDs.

If firms were to choose sequentially, the leader chooses a larger interest (in absolute terms) in its competitor's performance, and the follower a smaller interest (in absolute terms) compared with the simultaneous case. Both firms, however, still optimally choose to go short. Assume for example, that Firm A first determines  $\alpha_B$ , and then Firm B sets  $\beta_A$ . Firm B's choice is defined by the above equation

$$\beta_A^* = \frac{6 + 3\alpha_{A,B}}{6\alpha_{A,B} - 13}. \text{ Firm A will choose the optimal level anticipating this}$$

reaction of Firm B. As a result it will choose  $\alpha_B^* = -0.641$  and therefore Firm B will choose  $\beta_A^* = -0.241$ . Both firms still choose to go short but Firm A takes a more negative position than before and Firm B a less negative one. The profit of firm A is higher as a result, and the profit of firm B is lower than in the simultaneous case. The price charged by Firm A is lower, but the price of Firm B remains unchanged. Thus, prices decrease further if shares are chosen sequentially.

- 8.12 This creates a prisoners' dilemma situation in relation to taking out short positions: although all firms would be better off if none were to use such a position to commit to competing more aggressively, it is in each individual firm's incentive to do so – and it is perhaps only the ongoing cost of maintaining open positions (or some common understanding of the mutual benefits of refraining from doing so – which would be a tacitly collusive outcome) that prevents firms from doing so other than in those situations described above where competition is for rather than in the market.

## **Bertrand competition**

- 8.13 Given that it is unilaterally profitable under Bertrand competition to invest in MSOs, and therefore also to hold long positions in CfDs, it is obvious that 'going short' cannot be individually optimal. Doing so would lead to lower prices and lower profits for all the firms, but would also harm the firm that were to enter into such a position in the first place.

## **Co-ordinated effects**

- 8.14 As in the case of MSOs, holding long positions in CfDs may be an indicator of collusive behaviour in Cournot-type markets, where it would not be individually rational for firms unilaterally to take out such positions. Moreover, given the incentives for individual firms to go short on their competitors leading to more aggressive competition, the reversal from short to long positions may signal that firms have achieved an understanding on how to soften competition between them.
- 8.15 Long positions have a similar impact on the incentives for deviation and the effectiveness of the threat of punishment as MSOs – but owing to their more shorter-term nature are less effective in terms of committing market participants to certain behaviour. It may, however, be the case that taking long positions could help achieve co-ordination in the first place where taking out such positions is highly transparent and might therefore serve as a signal of firm's intention to compete less aggressively.
- 8.16 Given that 'going short' implies more aggressive competition, there is no obvious case for doing so in a collusive setting. Moreover, 'going short' will increase the gains from deviation, as the fall in profits suffered by competitors will provide an additional benefit to the firm deviating from the collusive outcome – but the incentives to use a short position to amplify the benefits from deviation may depend on disclosure obligations with regard to such short positions being weak. This is because taking a short position could be seen as a signal of a firm's intention to deviate, which, if visible, could trigger swift retaliatory action by other firms. At the same time, the option of 'going short' may reduce the cost of punishment, for example, if the firm punishing rivals for deviation simultaneously takes a short position on their shares. Unlike in the case

of deviation, here the firm has a clear interest in taking the short position being clearly visible, as this may increase the effectiveness of punishment. Thus, the change in disclosure requirements on short position may have subtly shifted the balance from making such positions a very tempting option for supporting deviation from a collusive outcome towards increasing their effectiveness in relation to punishment.

- 8.17 Moreover, the punishment phase may be harsher as firms may have an incentive to go beyond reverting to their normal competitive behaviour (that is, their non-collusive equilibrium strategies), in particular where CfD positions are shifted from long to short. Thus, 'going long' on competitors during the collusive phase, and 'going short' in the punishment phase increases the potential for collusion. Indeed, by 'going long' on rivals in the collusive phase, a firm increases its interest in these rivals having high profits, that is, to comply with the collusive strategy. If a firm then deviates, firms may then decide to convert their long positions and enter into short positions with their competitors, thereby making the punishment phase harsher, by having an interest in rivals earning lower profits. Put differently, CfDs would mimic the 'positive' part of MSOs (making it easier to sustain collusion), without suffering from the 'negative' part of MSOs (reducing the incentives for carrying out punishment). The ease with which CfD positions can be reversed is of particular importance in this regard.
- 8.18 Even though 'going short' would also make deviation more attractive, and the overall effects are therefore ambiguous (perhaps more so when, where disclosure requirements in relation to short positions are weak), one may therefore be particularly interested in changes in the position taken by firms in their rivals through CfDs.
- 8.19 Having noted above that CfDs may be of relevance in cases where competition takes place for the market, it is worth pointing out that CfDs may be used to sustain collusion in bidding processes by dividing the gains from collusion among the members of a bidding cartel (McAfee and McMillan, 1992).<sup>78</sup> The gains from collusion in a procurement

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<sup>78</sup> Failure to share the gains from collusion in a way that is acceptable to all members of a bidding cartel is the main de-stabilising force: indeed, more than half of the bidding rings

auction, for example, are maximised if the lowest-cost bidder wins at the highest possible price (that is, the reservation price of the buyer).<sup>79</sup> Allowing this to happen<sup>80</sup> is in the interest of all bidders provided that the gains from maximising the seller's surplus are appropriately shared between the bidders, for example, through side payments. Such side payments however are likely to be transparent and create the risk of making the bid-rigging attempt explicit. 'Going long' with CfDs provides an alternative way of sharing the gains from eliminating competition: by going long on the lowest-cost bidder, a losing (higher-cost) bidder benefits from the fact the lowest-cost bidder wins the item auctioned. Thus, 'going long' on could replace explicit side payments and thus give rise to tacit collusion (replacing overt collusion).<sup>81</sup>

- 8.20 Last but not least, the fact that CfDs allow the taking of a highly leveraged position where a substantial financial interest can be achieved for a relatively small up-front investment, they may allow individuals to take an interest in the performance of firms far beyond what they could achieve through MSOs. This may, for example, create opportunities for

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investigated by Eckbo (1976) were discovered because one of its members, dissatisfied with the sharing of the extra benefits, acted as a whistleblower.

<sup>79</sup> This requires, of course, that the members can identify the lowest-cost bidder. We assume that this is the case.

<sup>80</sup> This is supported by Konrad (2006). The author introduces silent minority shareholdings to the concept of all-pay auctions (that is, everyone pays their respective bid, independent of winning or not), which leads to asymmetric externalities. If the strongest firm holds the interest in the second strongest firm, they might alter their bidding incentives, leading to the prize being allocated less efficiently.

<sup>81</sup> A recent case in the US involving electricity capacity auctions and an equity swap contract (a derivative used in the US, not dissimilar to CfDs), highlighted such competition concerns. In February 2010, the DOJ proposed to fine KeySpan Corporation \$12m for infringing US antitrust law by entering into an agreement that 'restrained competition in the New York City electricity capacity market'. The DoJ's settlement was based on the fact that, in January 2006, KeySpan entered into an agreement with a financial services company that gave it a financial interest in the electricity capacity sales of its largest competitor, Astoria. The DOJ stated that the financial derivative agreement likely resulted in a price increase for retail electricity suppliers and, in turn, an increase in electricity prices for consumers (see DoJ Press Release of 22/02/10 available at [www.justice.gov/atr/public/press\\_releases/2010/255503.htm](http://www.justice.gov/atr/public/press_releases/2010/255503.htm))

managers to acquire a sizeable financial interest in their rivals, which in turn may exacerbate problems resulting from the misalignment of manager and shareholder incentives. A full analysis of these effects goes beyond the scope of this research, but it is worth noting the potential problems for corporate governance arrangements that can result from the use of CfDs.

## **Exclusionary behaviour**

- 8.21 The fact that CfDs allow firms to benefit from poor performance of their rivals may not only have the effect of sharpening competition, but may also be used to support exclusionary strategies aimed at forcing rivals out of the market or deterring new entry.
- 8.22 There are two potential situations where Firm A can use CfDs for exclusionary practices (see, for example, Motta, 2004, for an overview on exclusionary behaviour).
- First, if Firm B is already in the market, Firm A can take a short position on Firm B, which induces Firm A to compete more aggressively against Firm B, and may eventually push Firm B out of the market.
  - The second situation is where Firm A goes short on potential entrant Firm B, thereby effectively signalling that if Firm B enters the market, Firm A is committed to compete aggressively against Firm B.
- 8.23 Of course, exclusionary conduct is only effective and profitable under certain circumstances.<sup>82</sup> However, when these conditions hold, short CfDs positions can be an attractive option for supporting such conduct. More specifically, taking a short position on a rival can have two effects:
- First, in the case of exclusionary behaviour, 'going short' on a rival firm (Firm B) reduces the short-term losses suffered by the firm

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<sup>82</sup> For further discussion of the assessment of exclusionary behaviour see, for example, the European Commission's Guidance on enforcement priorities in applying Article 82 of the EC Treaty (now Article 102 TFEU) to abusive exclusionary conduct by dominant undertakings, Official Journal C 045 , 24/02/2009.

engaging in such behaviour (Firm A). Provided that the markets perceive such a strategy to be harmful for Firm B, and consequently Firm B's shares lose value, Firm A benefits from the harm inflicted on Firm B which partly offsets its own losses.

- Second, the mere ability of 'going short' on a potential entrant may increase the effectiveness of deterrence (so that an incumbent may not even have to do so in order to signal an intention<sup>83</sup> of inflicting losses on the firm) and thus discourage entry.<sup>84</sup>

8.24 In relation to the first case, one might ask whether the prey could use a corresponding strategy – that is, 'go short' on Firm A and benefit from Firm A's short term losses – in order to defend itself. However, there is a potential asymmetry which goes beyond the first mover advantage that exists in the case of Cournot competition, as shown above: to the extent that Firm A's market valuation is driven by an expectation that the behaviour will be successful, the Firm A's share value should be expected to rise, and thus Firm B should take a long position. If market valuation is driven more by the actual losses suffered during the phase of exclusionary behaviour, share values should go down, and Firm B would benefit from taking a short position. Uncertainty about the market perception creates a risk for Firm B that Firm A does not face (unless an unsuccessful attempt to force a rival out of the market leads to an

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<sup>83</sup> Any lack of transparency in relation to short positions as a result of weaker disclosure obligations means that CfD positions may not be sufficiently observable to signal a firm's intentions. This of course implies that increased transparency in relation to positions held may have a detrimental effect of improving the ability of firms to signal their intentions to others within the market, reinforcing reputational effects and deterring entry by potential players.

<sup>84</sup> The obvious case in which the use of a short position in order to discourage entry would not pay off is where the potential entrant's share price increases as a result of its decision not to enter the market. In any case, trying to fight off a new entrant might be costly even with the added benefit of a short position, and therefore the threat of inflicting losses might therefore not be seen as credible. However, where the incumbent faces a stream of (successive) entrants who are not perfectly informed about the market conditions (that is, there is asymmetric information), competition with early entrants can create a reputation for being 'strong', and discourage entry from later entrants (Kreps and Wilson, 1982), and in that case taking a short position will support exclusionary behaviour even if the entrant fails to believe in the incumbent's intention to inflict losses post entry.

increase in Firm B's share price). Even if the markets might see the taking of a short position as an indication that Firm B is confident that it will survive the exclusionary behaviour, and therefore discount the possibility that Firm A might succeed, the initial short position taken by Firm A will still pay off as even in that case the share value of Firm B will not go up.

- 8.25 Moreover, once the uncertainty is resolved, the possibility for Firm B to fight back by taking a short position on Firm A depends on its survival or on its ability to do so (for example, if Firm B has been marginalised after the attack). Moreover, markets might penalise Firm B even further seeing that it launches itself into another price war (that is, there is a second mover disadvantage).

## **Efficiencies**

- 8.26 As in the case of MSOs, there is no obvious source of efficiency gains associated with the use of CfDs other than the potential use of these instruments to reduce uncertainty and the associated costs of dealing with risk. One may also argue that the extent to which CfDs soften competition in bidding situations might contribute towards the reduction of winner's curse problems, although this would be valid only to the extent that bidders pursue naïve strategies that do not include appropriate adjustments of bids in order to take account the fact that the winning bidder (in a procurement auction) is the bidder with the lowest cost estimate.

## **Summary**

- 8.27 Our analysis of the differences between MSOs and CfDs suggests the following:
- As in the case of MSOs, CfDs can be used to soften competition, leading to higher prices and lower output. They affect the unilateral incentives to compete aggressively, and have an impact on the likelihood of (successful) tacit collusion.
  - The leverage nature of CfDs suggests that the effects of a given investment in acquiring a financial interest in a competitor can be much stronger if CfDs are used compared with the underlying shares

being purchased. On the other hand, however, the ongoing cost of maintaining open CfD positions makes CfDs unsuitable for maintaining such an interest over a long period of time.

- 'Going short' on competitors can increase the intensity of competition. Pursuing such a strategy can be individually rational in markets where competition follows the Cournot model, even though this leads to lower firm profits and higher consumer welfare.
- Compared with MSOs, the extra flexibility of CfDs and the possibility to 'go short' on rivals means that their effect on the likelihood of collusion is unclear.<sup>85</sup> It may, however, be interesting to consider situations in which firms convert positions from long to short, or vice versa.
- The ease with which CfD positions can be closed or even reversed, together with the ongoing cost of maintaining an open CfD position, is likely to make CfDs a shorter-term instrument than MSOs. This would suggest that they are more suitable tools for strategically affecting competition in cases where competition takes place mainly over short, well-defined periods (that is, in cases where competitors fight for lumpy, discrete projects through bidding processes).
- The use of CfDs by managers in their own name rather than on behalf of their firms may exacerbate concerns about corporate governance arrangements.
- Short CfD positions can be used to support exclusionary behaviour, both in terms of reducing the cost of exclusionary behaviour and discouraging entry. Target firms may be in a worse position to use similar instruments to defend themselves against exclusionary behaviour.

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<sup>85</sup> One could in principle address these countervailing effects in a model on collusion. However, as is in general the case with models on collusion, which effect dominates will depend on specific parameters, which makes conclusions model-specific.

## 9 CONCLUSIONS

9.1 The OFT has commissioned DotEcon to undertake research into the impact of minority interests in competitors on the intensity of competition. In this report we have first summarised our understanding of the operations of these instruments and the regulatory obligations incumbent on firms in relation to minority interests. Based on our review of the literature, we have then developed a theoretical framework for the assessment of the competition effects arising through MSOs.

9.2 Our findings can be summarised as follows:

### Minority interests

9.3 We consider a minority interest to relate to cases where a party has an interest in the financial performance of a firm – be it through holding shares, holding of derivatives such as CfDs, an interlocking directorship or through other means such as advancing a loan – but no control over the conduct of that firm. In some cases, the holder of a minority interest may receive some additional information about the operation of the company that would not be available to an outsider.

9.4 Minority interests can arise in a number of ways:

- MSOs will involve ordinary non-deferred shareholdings in a firm below the level that would afford the holder the ability materially to influence the conduct of the firm. MSOs may involve a one-way direct stake in a rival or may be reciprocal in nature, where two competing firms hold shares in one another (or indeed amongst many competitors). Minority shareholdings may also be indirect in nature, that is, arise through a third firm.
- IDs arise where an individual director or officer of a company – or a relative or associate of one – serves as a director for another firm. More generally, ID refers to cases where executive or non-executive board members or other officers of a company hold additional positions on one or more company boards.

- A minority interest may arise from a loan given to a competitor, either through a simple bi-lateral agreement between the firms or through the purchase of exchange traded company debt.
- CfDs are a particular type of over-the-counter financial derivative product that allows buyers and sellers to take positions on the future performance of an underlying financial instrument (for example, equity shares), earning the difference that arises between the price of the underlying instrument at the opening and the closing date. CfDs differ from MSOs in that they permit an investor to bet on a share price falling, that they do not involve the purchase of the underlying asset (that is, the shares) and that they may be traded on a leveraged basis (allowing investors to hold significant positions).

## **Our analysis of the competition effects**

9.5 In order to analyse the impact that such minority interests might have on competition, we have drawn on the academic literature and our understanding of the instruments and have:

- followed the route of distinguishing between unilateral effects (that is, the impact of minority interests on the incentives of firms to compete more or less aggressively taking the behaviour of competitors as given), and the effect that such minority interests can be expected to have on the likelihood or sustainability of tacit collusion (or co-ordinated effects), and
- considered differences in the nature of competition in oligopolistic markets in terms of the strategic relationship between firms, which can be exemplified by the extreme cases of Cournot competition, where the individual firms' strategic variable is the quantity they wish to offer, with prices then being determined in such a manner as to adjust demand to the quantity supplied, and Bertrand competition, where the strategic variable is price, and quantity then adjusts to meet the demand at the given price.

9.6 Our main findings in relation to the unilateral and co-ordinated effects of the various instruments as well as the associated efficiencies are summarised in the following table:

Instrument	Unilateral effects	Co-ordinated effects	Efficiencies
MSOs	<p>Create incentives to compete less aggressively</p> <p>Taking out MSOs is individually profitable in the case where competition in the market is more likely to correspond to the (differentiated) Bertrand model</p>	<p>Existence of reciprocal MSOs potential indication of tacit collusion in markets where competition is more likely to correspond to the Cournot model and products are not substantially differentiated</p> <p>Concerns about co-ordinated effects less pronounced in Bertrand markets – but this is because MSOs in this case already give rise to higher prices and lower quantities in the non-collusive market outcome (and are individually profitable)</p>	<p>No obvious source of efficiencies</p> <p>Potentially reduction in uncertainty and associated costs of dealing with risk – but confined to exogenous shocks that would affect different market participants in opposite ways</p>
IDs	<p>Create incentives to compete less aggressively</p> <p>May do so even in cases where shareholders are harmed (for example, in the case of a Cournot market where the firm that reduces quantity suffers a</p>	<p>Potentially strong concerns about impact on reaching a collusive outcome and maintaining a collusive equilibrium as IDs improve information flow and thus facilitate monitoring of compliance with collusive behaviour</p>	<p>Efficiencies arising from improved information flows and the opportunity for exchanges that might not happen without personal connections between firms</p> <p>Perhaps strongest in the case of vertical IDs, where</p>

	loss) in the case where effectiveness of corporate governance varies across firms		competition concerns are also least pronounced
Loans	<p>Have similar effects to MSOs in cases where debtor is in financial difficulties and creditor faces the risk of non-repayment of loan in the case where the debtor becomes insolvent</p> <p>Incentive of firm to keep a potentially failing competitor in the market may in itself create concerns about restricted competition to the extent that this suggests that firm believes that exit of competitor might trigger potentially leading to stronger competition</p>	<p>Implies a certain degree of asymmetry amongst firms and potentially reduced effectiveness of threat of punishment, reducing concerns about co-ordinated affects</p>	<p>Efficiencies may arise as a result of access to finance that would otherwise be limited by information asymmetries between lender and borrower: these asymmetries may be smaller if the lender is active in the same market as the borrower</p>
CfDs	<p>'Going long' has similar effects to MSOs</p> <p>Leverage implies that effects are potentially stronger, but ongoing costs of maintaining open</p>	<p>Overall effects are similar to MSOs</p> <p>Situations in which positions are reversed (from long to short or vice versa) may indicate reaching a collusive</p>	<p>No obvious source of efficiencies</p>

	<p>position suggest that CfDs are a means of affecting competition mainly in cases where success/failure is rapidly reflected in prices of underlying shares, that is, in cases where competition is for rather than in the market (for example, in markets characterised by bidding processes)</p> <p>'Going short' can sharpen competition, and doing so can be individually profitable in Cournot markets</p>	<p>agreement or deviation or punishment</p>	
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9.7 In addition to these effects, CfDs through allowing firms to benefit from poor performance of competitors can also be used to support exclusionary behaviour, or assist in entry deterrence. Targets of such behaviour may be limited in their ability to retaliate by similarly opening a short position as they face fundamental disadvantages relative to the firm that has used a short position in order to support an attempt to exclude its rival.

# Annexe(s)

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## **B SUMMARY OF OBLIGATIONS ON UK COMPANIES**

### **Companies Act 2006**

- B.1 The Companies Act 2006 governs both public and private limited companies in the UK, reforming many of the provisions specified in the earlier Act of 1985. The 2006 Act provides a code of company law for the UK by amongst other things, codifying certain common law principles, such as those relating to directors' duties, implementing the European Union's Takeover and Transparency Directives and introducing various new provisions for private and public companies.
- B.2 The Act specifies what should be included in the articles of association of a company (the Act provides Model articles for companies). Companies are also required to have a memorandum of association that governs the relationship between the firm and the outside world, communicating issues such as the company's purpose.
- B.3 As noted above, the Act sets out in detail thresholds for exercising rights by shareholders (including veto rights), and highlights provisions in relation to the share capital of the company and such issues as how dividends are to be paid out. Although any shareholder has the right to vote, the right to attend the general meetings and the right to a dividend if one is declared, the Act grants greater rights to an individual as the size of their shareholding increases.
- B.4 Information that is available to shareholders is that information shared in advance of and during meetings (such as the AGM) and other performance information that is deemed relevant for shareholders. However, the latter is mainly specified in annual reports or published on the website of the firm. Indeed, the new rules also specify that all important information, notably in relation to votes cast, are to be published on the web in any case.

## Disclosure and Transparency rules

B.5 The principle of 'equality of shareholders treatment' as referenced by the Transparency Directive (TD)<sup>86</sup> specifies that the information available to a shareholder of a single share must be equal to that of holders of larger shares in the company. More specifically, the equality principle lays out in the Disclosure Rules and Transparency Rules (DTR) 6.1<sup>87</sup> that 'an issuer of shares must ensure equal treatment of all holders of shares who are in the same position' (see DTR 6.1.3). In turn, the TD states that the principle of equal treatment does not prejudice the issue of how many voting rights may be attached to a particular share. The FSA summarises the TD equality of treatment rules as follows (see Box 7 below).<sup>88</sup>

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<sup>86</sup> Directive 2004/109/EC on harmonisation of transparency requirements. To be found in the Official Journal L 390, 31/12/2004, p. 38-57.

<sup>87</sup> DTR Rule 6.1, 'Information requirements for issuers of shares and debt securities'.

<sup>88</sup> FSA Transparency Directive (2005).

## Box 7: Treatment of shareholders under the Transparency Directive

Issuers must ensure equal treatment for all holders of shares that are in the same position. Issuers must ensure that all facilities and information needed to enable shareholders to exercise their rights are available and that shareholders are not prevented from exercising their rights by proxy. The issuer shall:

- provide information on the place, time and agenda of meetings
- make available a proxy form on paper or electronically, together with the notice of the meeting or on request after the meeting is announced
- designate a financial institution through which shareholders may exercise their financial rights, and
- publish notices or distribute circulars concerning the allocation and payment of dividends and the issue of new shares.

B.6 In addition, the United Kingdom Listing Authority ('UKLA')'s Principle 5 of the Listing Rules 7.2.1 states that 'a listed company must ensure that it treats all holders of the same class of its listed equity securities that are in the same position equally in respect of the rights attaching to such listed equity securities'.<sup>89</sup>

B.7 Finally, rule 20 of the UK Takeover Code specifies the equality of information right to all shareholders in the context of takeovers, noting in particular that 'information about parties to an offer must be made equally available to all offeree company shareholders and persons with information rights as nearly as possible at the same time and in the same

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<sup>89</sup> See the UKLA LR.

manner'. Events such as media interviews, meetings, information published by associates (for example, brokers) must also be notified to all shareholders.<sup>90</sup>

- B.8 This suggests that the informational advantage of being a shareholder rests more with the voting rights conferred than with any information that may be afforded through the holding, given that very little additional information is provided to shareholders than is made available otherwise (although there is a 16 day window in which shareholders may have knowledge ahead of the public as this is the timeframe within which such information needs to be made public).<sup>91</sup> Aside from this, companies have to maintain registers of, amongst other items, the company's shareholders, the directors and secretaries, the directors' interest in shares and a register of charges as well as a minute book, all of which need to be open for inspection by the shareholders.

## **Listing and disclosures**

- B.9 Companies listed on the LSE – note that companies listed are held on an official list maintained by the UKLA, a function currently fulfilled by the FSA – must also comply with UK Listing Rules (as developed by the FSA) and with the LSE's Admission and Disclosure standards and LSE Trading Rules.
- B.10 The UKLA's core rules are divided into: the Prospectus Rules, relating to the admission of securities to trading on a regulated market, the Listing Rules, applying to listed companies, and the Disclosure and Transparency Rules, ensuring the adequate transparency, access and information to UK financial markets.
- B.11 The Listing Rules set out the minimum requirements for the admission of shares to be listed, the content, scrutiny and publication of listing particulars, and the continuing obligations on issuers after admission.

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<sup>90</sup> UK Takeover code by The Takeover Panel (2009).

<sup>91</sup> BIS, Department for Business Innovation & Skills, FAQ to the Companies Act 2006, 'Shareholder Rights'.

- B.12 The Disclosure and Transparency Rules incorporate the rules outlined in the European Transparency Directive (2004)<sup>92</sup> which requires shares issuers to produce periodic financial reports, shareholders to disclose major shareholdings, issuers to disseminate regulated information and the provision of central mechanisms for sharing regulated information.
- B.13 The LSE Admission and Disclosure standards set out rules and responsibilities in relation to a company's admission to trading (and to ongoing disclosure obligations) for companies seeking admission, or already admitted, to trading on the market. The LSE Trading Rules specify rules for firms in trading their shares on the exchange, and for market makers and brokers in their dealings on the exchange.<sup>93</sup>

### **Takeover and Market Abuse Rules**

- B.14 As noted above, additional rules apply in various circumstances. For instance, during takeovers and mergers, additional rules set by The Takeover Panel apply. The Takeover Panel is an independent body, whose main functions are to issue and administer the 'City Code on Takeovers and Mergers' and to supervise and regulate takeovers. It enforces the regulations and provisions arising from the EC Directive on Takeover Bids (2004).<sup>94</sup>
- B.15 Finally, the FSA also enforces, primarily through the DTR, the provisions arising from the Market Abuse Directive.<sup>95</sup>

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<sup>92</sup> Directive 2004/109/EC on harmonisation of transparency requirements. To be found in the Official Journal L 390, 31/12/2004, p. 38-57.

<sup>93</sup> LSE (2010), Rules of the London Stock Exchange.

<sup>94</sup> Directive 2004/25/EC on Takeover Bids. To be found in the Official Journal L 143, 30/04/2004, p. 12-23.

<sup>95</sup> Directive 2003/6/EC on insider dealing and market manipulation (market abuse). To be found in the Official Journal L 096, 12/04/2003, p.16-25.

## **C REGULATORY CONSTRAINTS ON A DIRECTOR**

C.1 Directors of a company are appointed at the time of the registration of the company and subsequently.<sup>96</sup> On appointment, a director is required to provide personal information to Companies House, such as in relation to his/her name, address and other directorships held. In general, companies will appoint a board of directors with a chairman and either a managing director or chief executive responsible for the performance of the company in line with the board's overall strategy. The responsibilities of such a board of directors are to:

- determine the company's strategic objectives and policies
- monitor progress towards the achievement of those
- appoint senior management
- account for the companies' activities to relevant parties, in particular to shareholders.

C.2 In other words, directors are responsible for the management of the company and may in doing so exercise all the powers of the company, subject only to certain constraints such as those arising through the Companies Act 2006 and the articles of association of the company. Essentially, directors are required to 'act collectively as a board to bind the company'.<sup>97</sup>

C.3 Alongside exercising their functions with due care and skill to ensure they meet the objectives above, directors of a company are also subject to significant statutory duties. As noted in particular, these duties and obligations are mandated by the Companies Act 2006, which now codifies common law and equitable principles and highlights seven general duties on directors, which include to:

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<sup>96</sup> The company's articles of association will typically provide for the board of directors to appoint and fill vacancies up to a maximum number specified by the articles.

<sup>97</sup> 'The duties, responsibilities and liabilities of directors', Institute of Directors factsheet.

- act within powers, in other words according to the company's constitution
- promote the success of the company, whilst, amongst other things, having regard to the consequences of decisions, interests of employees, fostering relations with suppliers and customers, and considering impact on the community
- exercise independent judgment, in other words in the interest of the whole company and not in relation to a single shareholder
- avoid conflicts of interest, in three particular cases (transactions to which the company is not a party, proposed transaction and existing relationships)
- not accept benefits from third parties, and
- declare interests in proposed transactions with the company.

C.4 The provisions in relation to conflicts of interest are particularly noteworthy. Sections 175(1) and 175(2) of Companies Act 2006 provide that:

- '(1) A director of a company must avoid a situation in which he has, or can have, a direct or indirect interest that conflicts, or possibly may conflict, with the interests of the company.
- (2) This applies in particular to the exploitation of any property, information or opportunity (and it is immaterial whether the company could take advantage of the property, information or opportunity)' .<sup>98</sup>

C.5 In relation to other laws, the obligations on a director may be wide ranging, including such rules as are set out in the Insolvency Act 1986 and the Company Director's Disqualification Act 1986.<sup>99</sup> Individually,

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<sup>98</sup> Companies Act 2006 (Chapter 46), 175(1) and 175(2).

<sup>99</sup> The Insolvency Act 1986 addresses cases where a company has gone insolvent and before that liquidation took place the director knew, or ought to have known, that there was no reasonable prospect of that being avoided. In such case the director may be made to make a

directors are responsible for disclosing to the board interests in dealings with the company, including in dealings in shares or options on shares on the company. Directors may also incur personal liabilities, (both civil and criminal) when acting as a director. Such personal liabilities may serve as a significant deterrent to directors from seeking to harm the interests of the company they represent.

C.6 Directors are also responsible for ensuring that the company itself fulfils statutory duties incumbent on it, and directors may be liable to penalties should the company fail to carry these out. The main statutory duty relates to the preparation of accounts and the report of the directors. In other words, the directors must ensure that the company maintains full and accurate accounting records and that reports are made in due time.

C.7 Companies may also appoint non-executive directors to provide 'a creative contribution to the board by providing objective criticism'.<sup>100</sup> However, there is no legal distinction between executive and non-executive directors, and so non-executive directors have the same legal duties, responsibilities and potential liabilities as other directors. In the main, non-executive directors might be used to provide general advice on matters, for example, where they have specialist knowledge of the area, or be used to bring to bear wider experience from other areas. Non-executives may also be used to fulfil an audit function reviewing the work of the board of executives. Given there are no legal distinctions between executive and non-executive directors, it is likely that exactly

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personal contribution. Similarly, the act covers fraudulent trading, where a director carried on the business with the intent to defraud creditors.

The Company Director's Disqualification Act 1986 may lead to the disqualification of a director in cases where the director has been guilty of three or more defaults in complying with companies legislation, is or was a director of a company that has become insolvent and that his/her action makes him/her unfit to manage a company, or has been found guilty of fraudulent or wrongful trading.

Other rules related such as the Health and Safety at Work Act 1974, make directors personally liable for health and safety, and the Corporate Manslaughter and Corporate Homicide Act 2007, which covers cases where senior management are a substantial element of a gross breach of the duty of care owed to employees or to members of the public.

<sup>100</sup> 'The role of the non-executive director', Institute of Directors factsheet.

the same issues arise for the case of interlocks involving non-executive directors.

C.8 Moreover, in order for a company to be listed on the LSE, it must also comply with additional Listing Rules, as issued by the FSA. Amongst other things, the rules require additional notification to the market on directors' details and on board changes. Listing Rules 9.6.11 specifies that a listed company is obliged to notify a Regulated Information Service ('RIS') about the appointment of a new director (name, position and function or responsibility), the retirement of a director, important changes to the role, functions or responsibilities and the effective dates. This disclosure is to be made as soon as possible and at the latest at the end of the business day following the decision.<sup>101</sup>

C.9 Finally, firms must also comply with corporate governance rules as specified by the UK Financial Reporting Council (FRC). In its current Code – which applies to all accounting periods beginning on or after 29 June 2008 – the FRC notes that corporate governance rules seek to 'contribute to better company performance by helping a board discharge its duties in the best interests of shareholder[s] [...]. Good governance

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<sup>101</sup> In addition, LR 9.6.13 states that within five dates of the new appointment of a director additional information has to be disclosed including:

a) 'Details of all directorships held by the director in any other publicly quoted company at any time in the previous five years, indicating whether or not he is still a director.' (LR 9.6.13 (1))

b) 'Details of any receiverships, compulsory liquidations, creditors voluntary liquidations, administrations, company voluntary arrangements or any composition or arrangement with its creditors generally or any class of its creditors of any company where the director was an executive director at the time of, or within the 12 months preceding, such events.' (LR 9.6.13 (3))

c) 'Details of receiverships of any asset of such person or of a partnership of which the director was a partner at the time of, or within the 12 months preceding, such event.' (LR 9.6.13 (5)).

Moreover, LR 9.6.14 states that a listed company must, in respect of any current director, notify a RIS as soon as possible as the information noted above changes and as soon as any new directorships are held by the director in any other publicly quoted company.

should facilitate efficient, effective and entrepreneurial management that can deliver shareholder value over the longer term'.<sup>102</sup>

C.10 In this way, the Code seeks to ensure that directors act in the best interest of the company. The Code sets out particular principles with respect to such issues as the appointment of the board, chairman and chief executive, the balance of executive and non-executive directors, the remuneration of board members, financial reporting and internal controls, arrangements for auditors, and relations with shareholders. Whilst the Code is not a rigid set of requirements, the Listing Rules require that UK companies listed on the Main Market of the LSE describe in their annual report and accounts compliance with corporate governance principles.<sup>103</sup>

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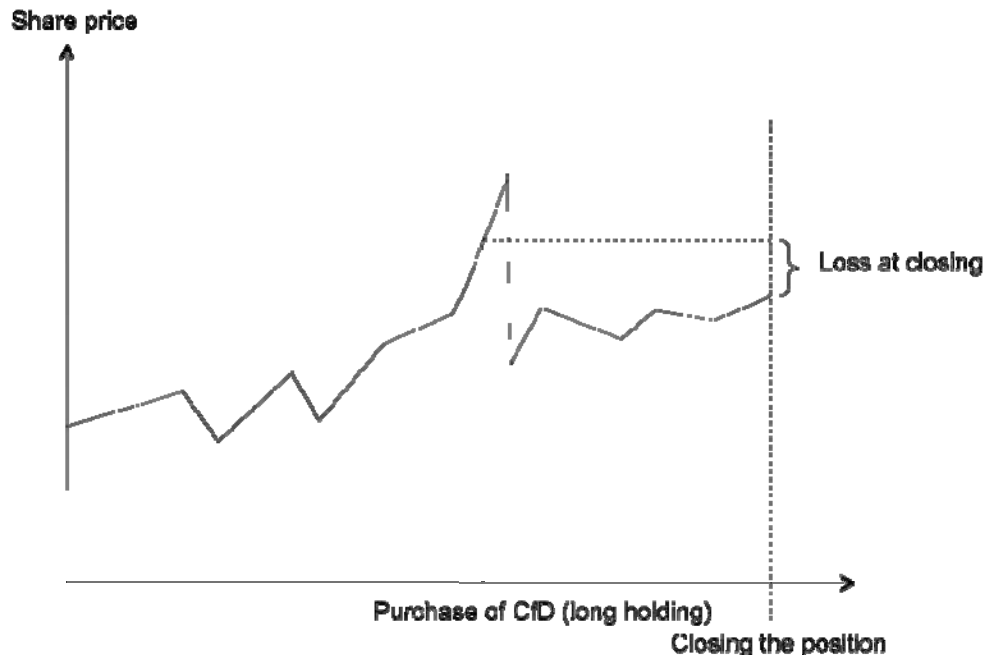
<sup>102</sup> 'The Combined Code on Corporate Governance' ('the Code'), the Financial Reporting Council, June 2008. The Financial Reporting Council (FRC) is the UK's independent regulator responsible for promoting confidence in corporate governance and reporting. There are several operating bodies within the Financial Reporting Council. Amongst others, these are, the Accounting Standards Board (ASB)<sup>102</sup> and the Financial Reporting Review Panel (FRRP).

<sup>103</sup> The Code requires the report is from two points of view: the first, dealing with their adherence to the Code's main principles, and the second, dealing with explanations for non-compliance with any provisions. In other words, the LR requires UK listed companies to 'comply or explain'.



D.3 Closing a long position (that is, 'selling') at a later date when the shares had instead fallen below the purchase value would lead to a loss for the holder of the contract. This is summarised in Figure 6 below.

**Figure 6: Loss on closing a long position**

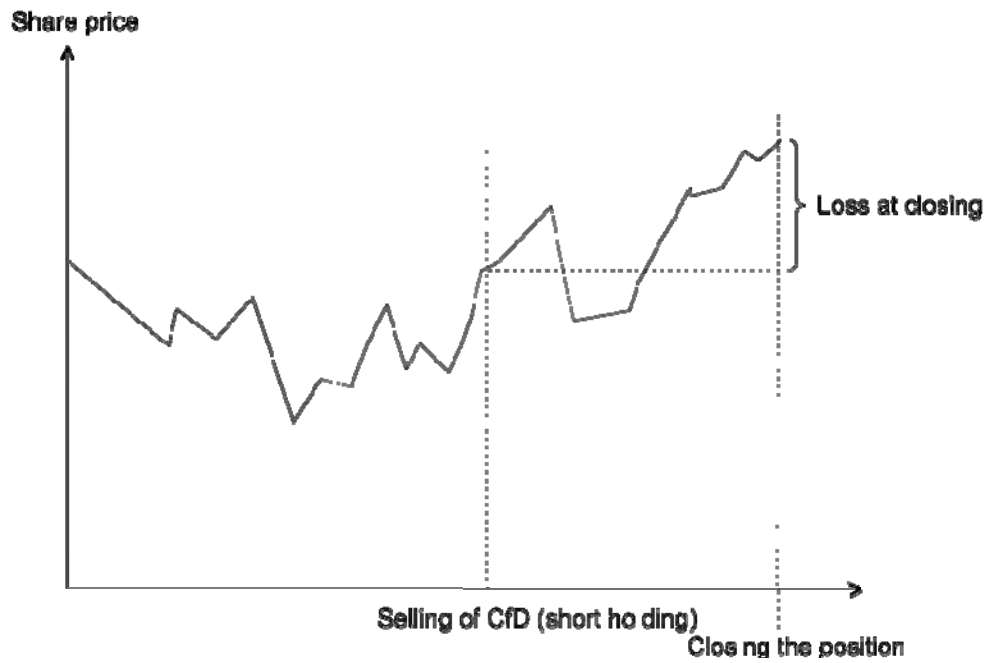


Source: DotEcon

D.4 Taking a 'short' position would relate to speculation that a firm's underlying shares are expected to fall in value. In other words, an investor would open a short position essentially akin to 'selling' shares with the intention to 'buy back' the shares at a later date when they had fallen in value.

D.5 Thus, closing a short position at a later date when the share price was above that at the time of opening the position would lead to a loss for the investor. This is summarised in Figure 7 below.

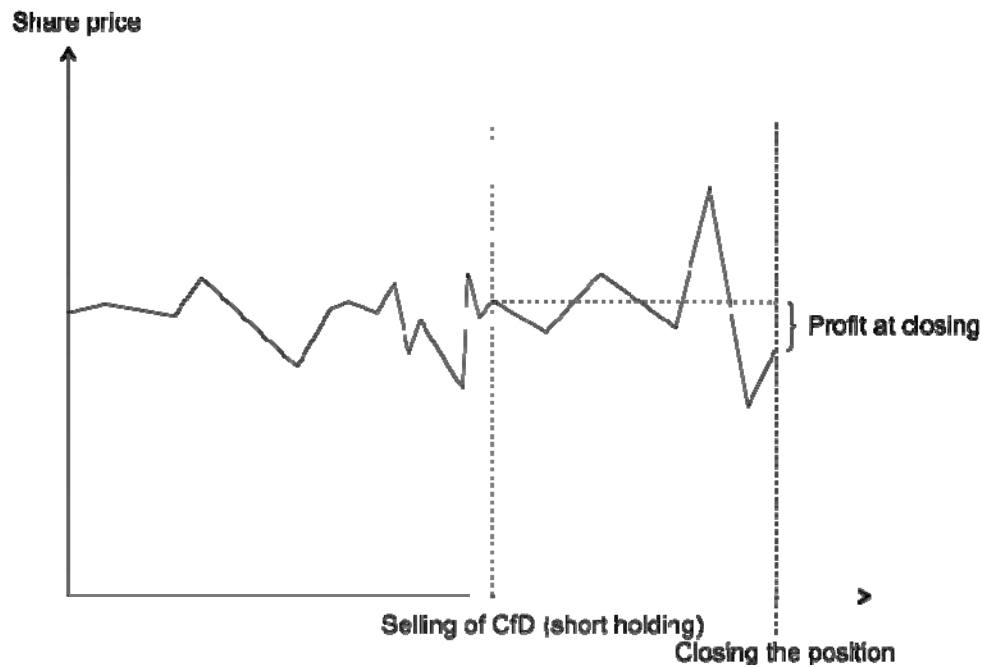
**Figure 7: Loss on closing a short position**



Source: DotEcon.

- D.6 Closing the short position at a later date where in fact the shares had fallen in value, would bestow a positive return for the investor. This is summarised in Figure 8 below.

**Figure 8: Profit on closing a short position**



Source: DotEcon.

- D.7 When 'going long', the floor that restricts losses is a share price of zero. In other words, if a speculator considers a share price is expected to rise and thus opens a long position, the worst he may do is that the share price actually plummets to zero. However, there is no cap on the gains associated with holding a long position: this is because share prices may rise without limit.
- D.8 Conversely, there is a cap to the gain that may be earned in opening a short position, insofar as the lowest that a share price may fall to is zero. On the other hand, losses on opening a short position may be uncapped where the share price continues to rise. Given the potential for significant losses, either on opening a long or a short position, some brokers offer investors risk management services that cap losses.<sup>104</sup>

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<sup>104</sup> For example, investors may place a 'Stop Loss Order', where one is automatically taken out of a position when a predetermined value is hit. This may go both ways by limiting losses or locking in profits. Investors may also rely on 'Guaranteed Stops' where a position is cancelled at a certain predetermined level.

## Trading on margin

- D.9 As noted above, CfDs are traded on margin. This is similar to the way in which over-the-counter financial products are traded via brokers. An investor places an initial margin – or deposit – with the broker that is used to open a position with the broker as counterparty. Margins, commissions and other charges are in essence used to cover the risk a broker faces whilst acting as the counterparty to the transaction. Margins vary widely, and may be as low as a few percentage points depending on the broker.
- D.10 As with other financial instruments, a broker is generally only prepared to open positions for an investor where he is able to cover the risks of doing so. In basic terms, if investor A opens a long position with a broker, and investor B through the same broker opens a corresponding short position, then the broker will have two positions that in theory would pay out to one another on closing the trade. In this way, the broker would face no risk and may be prepared to open both positions at little cost. In reality, however, the likelihood of a broker receiving two instructions that counter one another exactly is very low. An alternative may be for the broker to go to market to find a corresponding buyer or seller to act as counterparty. Indeed, with exchange-traded financial products, brokers are required to find a relevant counterparty before they are able to open a position for a client (or a market maker takes on the obligation).
- D.11 In the case of over-the-counter CfDs, however, brokers take on the role themselves of playing counterparty to a position. In general terms, the broker will use the margin, commission and other charges raised to secure the counter position. Whilst in theory, brokers may do so through purchasing a wide variety of shares, borrowing shares or hedging risks across a portfolio of positions (rather than seeking out a single counter position), at present, we understand that many CfD brokers appear to hedge transactions through the same underlying shares. This practice was one of the main reasons for the FSA looking to increase transparency in relation to the holding of CfD long positions.
- D.12 By way of example, if an investor were to submit an order to purchase 20,000 CfDs in Shares A (that is, 'go long' on Shares A), the broker

would simultaneously go to market and purchase 20,000 shares in Shares A as a hedge for his own corresponding short counter position, whilst writing the CfD to the investor at the price paid. In other words, if the share price were to then rise and his client were to close the position, the broker would have the underlying shares to sell and realise that increase to pass back to the investor. If instead the share price fell, the investor would have to pay out to the broker as counterparty any loss incurred and the broker would simply sell the shares back to market at the lower price. In both scenarios, the broker will not have lost out by holding the underlying shares and will have earned a return from his commission and other charges levied. Brokers may also turn to shares-lending institutions to borrow shares to fulfil the various orders. In this way, CfDs have become a convenient and easily entered into instrument that requires simply an investor and a broker (rather than other market players or external counter parties) and may also provide an investor with access to the underlying shares.<sup>105</sup>

D.13 Importantly, though, investors are aware of this common hedging practice, where brokers buy the underlying shares to hedge their position. Indeed, when it comes to closing a position, the holder in a CfD long position may actually ask the broker for the underlying shares instead of a cash-settlement. In other words, the CfD could be 'flipped' to convert them into the underlying shares at any time. This has been one of the main reasons behind the FSA recently amending disclosure rules in order to ensure that CfD holdings are now notified as these were being used in a number of cases to build up hidden shares in companies before hostile takeovers.<sup>106</sup> For example, we understand that such

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<sup>105</sup> In the 2007 PwC survey, all participants responded that they hedged their CfD exposures. Some respondents hedged in more than one way, for example, 85 per cent said they sometimes hedge with the underlying asset, 46 per cent with offsetting positions and 15 per cent in some other way. During the interviews most participants said they apply various, direct holdings in the underlying shares, as well as various other derivative contracts.

<sup>106</sup> In the 2007 PwC survey, brokers were asked whether their standard CfD sale documents contained any provision with regard to settlement of the contract in the underlying shares to which all responded no. Brokers affirmed that only in rare occasions had they entered into a side agreement in relation to voting rights (when these contain an option to acquire the underlying hedge). In responding to how often were CfD positions closed out with physical of the underlying shares, 54 per cent responded never, 46 per cent said 1-20 per cent of the time. In

'hidden acquisition of corporate control' was used in the UK in 2004 by Philip Green in his acquisition bid for Marks and Spencer, and by BAe Systems in its takeover bid for Alvis.<sup>107</sup>

## Figure 9: Examples of brokers fulfilling order

Example: Fulfilling a long order



Example: Fulfilling a short order



Source: DotEcon

- D.14 Initial CfD margins differ from broker to broker and vary depending on the underlying instrument on which the position is being taken out on. For example, some commodity or treasury CfDs may be traded at a margin of a few percentage points, whilst some individual shares may trade at margins of 10 per cent upwards, depending on the market capitalisation or the volatility of the shares involved. In general, if a share is more volatile, a higher margin may be required.

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responding to whether there had been any instances where their standard sale documents had been amended to include provisions with regard to control of voting rights on any underlying physical holding or whether side agreements had been entered into which include such provisions, 85 per cent said no and 15 per cent said yes. Those who answered yes explained that on limited occasions they had entered into agreements with clients whereby they agreed to exercise the voting rights attached to the underlying hedge position in accordance with the clients' instructions. Finally, in responding to whether parties that were beneficiaries of an interest through a CfD ever sought to exert influence over voting rights in their physical holdings in the underlying, 69 per cent said yes and 31 per cent said no.

<sup>107</sup> In the academic literature, Black and Hu (2006a and 2006b) analyse the so-called 'new vote buying' strategy in corporate governance and conclude that such an instrument affects, in effect, voting outcomes. They report that these strategies have been pioneered by hedge funds and later used by outside investors and insiders to acquire control or significant influence a firm's decision.

- D.15 Whilst a position is open, a situation may also arise where the market moves against the investor to the extent that their cash balance is too low to maintain the position. In these instances, the broker will revert to the investor with a 'margin call', requesting that the investor provide more funds to keep the position open. Indeed, such margin calls are widely employed, and depending on the volatility of the underlying shares, may occur frequently over the course of a holding. In extreme cases, the broker may even close the position directly where the risk associated with it is too high and the margin is not met.
- D.16 From an investor's perspective, trading on margin affords the opportunity to invest on a leveraged basis. The investor does not pay the full underlying value of the shares to enter into the contract, but 'borrows' from the broker (at some percentage point above base rate) the remainder to cover the position. In this way profits earned, or losses incurred, on a CfD holding in relation to the initial deposit placed are likely much higher than if investing in the underlying shares.
- D.17 As an example, where an investor had £1,500 to invest in Company A's shares currently trading at £15 a share, the investor would be able to invest in 100 shares. Should the value of these shares rise to £16 each, then selling the shares at that later date would give rise to a profit of £100 for the investor (that is, a profit of approximately 6.67 per cent). However, if the same investor were to look to open a long position using a CfD premised on the belief that the value of the shares would increase to £16, then on a 10 per cent margin basis the investor may be able to purchase 1,000 shares (that is, a £1,500 investment covering 10 per cent, and leverage of £13,500 covering the remaining 90 per cent). If the investor were then to close the position at £16, the investor would make a profit of £1,000 (that is, a profit of approximately 66.67 per cent). Whilst losses may be equally magnified, the leverage opportunities afforded by CfDs make them an attractive instrument for investors.
- D.18 Another way to consider the profits that may be earned (and losses incurred) through a CfD are set out in Table 2 and Table 3 below. These examples show the profits and losses that may arise both by opening a long or short position, and in the cases of the underlying share price both rising and falling.

**Table 2: CfDs with underlying share price rising**

	Shares	CfD long position	CfD short position
Share price when opening	£1.00	£1.00 (mirroring share price)	£1.00 (mirroring share price)
Amount bought	1,000	1,000	1,000
Underlying value	£1,000	£1,000	£1,000
Initial investment  (in the case of CfD this is the deposit)	£1,000	£100  (assuming a 10 per cent margin)	£100  (assuming a 10 per cent margin)
Share price when closing	£1.10	£1.10	£1.10
Difference in share prices of opening and closing	£0.10	£0.10	£0.10
Absolute profit or loss	Profit of $£0.10 * 1000$ = + £100	Profit of $£0.10 * 1000$ = + £100	Loss of $£0.10 * 1000$ = -£100
Percentage return (profit or loss) on initial investment	10 per cent profit on investment	100 per cent profit on investment (= leverage effect)	100 per cent loss on investment (= leveraged loss)

Source: DotEcon.

**Table 3: CfDs with underlying share price falling**

	Shares	CfD long position	CfD short position
Share price when opening	£1.00	£1.00 (mirroring share price)	£1.00 (mirroring share price)
Amount bought	1000	1000	1000
Underlying value	£1,000	£1,000	£1,000
Investment  (in the case of CfDs this is the deposit/margin)	£1,000	£100  (assuming 10 per cent margin)	£100  (assuming 10 per cent margin)
Share price when closing	£0.90	£0.90	£0.90
Difference in share prices of opening and closing	-£0.10	-£0.10	-£0.10
Absolute profit or loss	Loss of $£0.10 * 1000$ = -£100	Loss of $£0.10 * 1000$ = -£100	Profit of $£0.10 * 1000$ = +£100
Percentage return (profit or loss) on investment	10 per cent loss on investment	100 per cent loss on investment	100 per cent profit on investment

Source: DotEcon.

## Holding CfDs versus holding shares

- D.19 As noted above, what makes CfDs an interesting case to review is that these bear similarities to holding shares, without actually holding them. CfD prices track the underlying share price. In addition, despite the fact that CfDs do not involve trading in the underlying asset, when actual dividends are paid on the underlying share, holders of long CfD positions generally also qualify for a proportional payout whilst holders of short CfD positions pay an amount equal to the full (gross) dividend paid on the underlying share.<sup>108</sup> We understand the rationale for this to be as follows: at the point where dividends are paid out, shares prices go down as the new owner of the shares is unable to claim those dividends, hence decreasing her valuation of the shares. As it is common knowledge that the shares will go down in value as soon as dividends have been paid out, simply going short on the shares the day before could result in significant returns to an investor in CfDs. However, if the investor holding the short CfD position were required to pay dividends to the investor holding the counter position (normally the broker), then opening a short CfD position simply to take advantage of the effects of dividend payments is no longer attractive.
- D.20 As with dividends, CfDs mirror underlying shares in most respects, following a wide variety of corporate actions. For example, if shares were being split from a former value of £2 to £1 (with shareholders being awarded twice as many shares), an investor holding 1,000 CfDs at a value of £2 each, would then hold 2,000 CfDs at a value of £1 each.
- D.21 One important feature of CfDs that has contributed to their attractiveness is that as no assets are traded, CfDs are not subject to stamp duty. This is a significant cost saving where stamp duty at present is 0.5 per cent on traded shares (however, capital gains tax is applied on profits earned through CfDs). There are nonetheless some

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<sup>108</sup> This is well explained by, among others, Sucden Financial Commodity, one of the leading brokers in the UK. See <http://www.sucden-smart.co.uk/EN/cfds/conditions.asp> As an example, these particular conditions note that If the investor holds a long CfD, she will be credited the value of the dividend on the ex-dividend date (the ex-dividend date is the first date when buying a shares does not entitle the new buyer to the declared dividend). When holding a short position, the investor will be debited the dividend on the ex-dividend date.

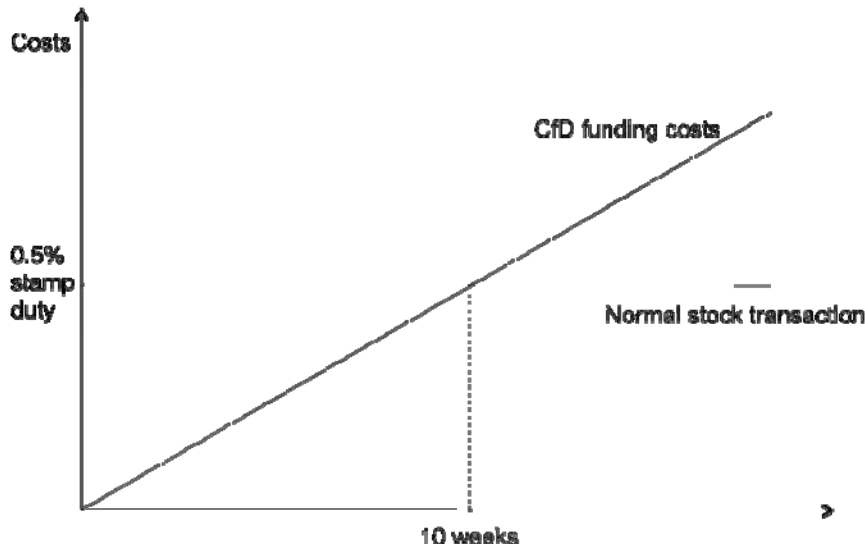
costs associated with CfD holdings. Aside from broker commissions, there are funding costs associated with carrying CfD positions overnight. If the position being held is long, the investor pays interest, if the position is short, the investor receives interest.<sup>109</sup> Comparing the two costs (stamp duty versus CfD funding costs), it has been noted that CfD holdings are generally more cost effective if the intention were to hold the contract for up to approximately 10 weeks. Beyond that, it would appear to be more cost effective to have bought the underlying shares (see Figure 10 below).<sup>110</sup> Note, however, that the PwC survey asked brokers to specify the maturities of the CfDs that they generally entered into. In response, CfDs with three to six months maturity were most widely used and those 'over 12 months' were least used (see Figure 11 below). Figure 11 illustrates in a graph the response to the answer 'What maturities of CFD do you enter into? (Please tick all that apply)'.

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<sup>109</sup> The interest is generally calculated as LIBOR plus a percentage varying by broker (for example 3 per cent) for the yearly fee, applied as a daily rate (that is, as 365th of the yearly rate). For example, for a long position with shares worth £110.00, LIBOR (for example 2 per cent) plus 3 per cent is £5.5. The daily rate is a 365th of that, that is,  $\pounds 5.5/365 = \pounds 0.015$ . In the case of a short position, interest would be calculated as LIBOR (for example 2 per cent) minus 3 per cent. A daily equivalent would amount to £0.003.

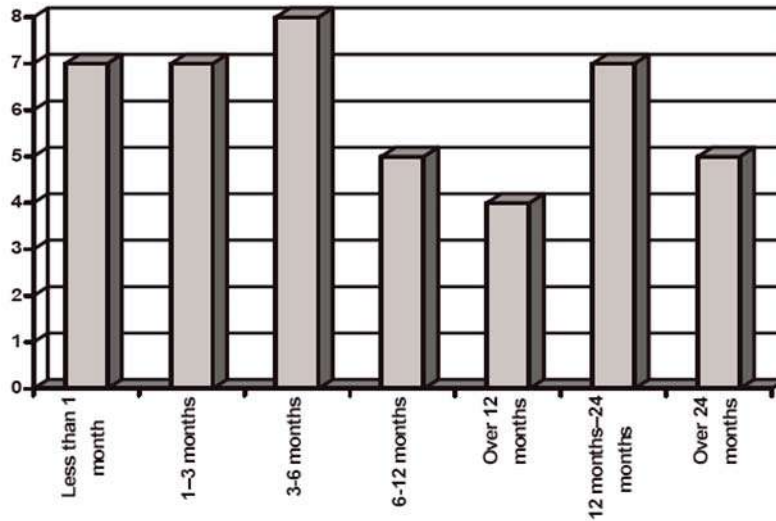
<sup>110</sup> This graph can be interpreted as a cost-benefit analysis: it not only takes into account the costs involved but also opportunity costs (based on the leverage effect) which allows for an adequate comparison between shares and CfDs.

**Figure 10: Cross-over point between shares and CfD holding**



Source: Replicated from [www.contracts-for-difference.com](http://www.contracts-for-difference.com)

**Figure 11: Maturity of CfDs**



Source: PwC survey on CfDs for the 2007 FSA Consultation Paper 07/20.