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Recent developments in investment fraud and scams: Contracts for Difference ('CFD') spread betting and binary options and foreign exchange ('Forex') sometimes collectively known as 'forbin' – the UK experience.

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Abstract

This paper discusses investor trading schemes for CFDs, spread betting, binary options and forex, what are effectively financial derivatives, designed for investors to speculate on market movements. It is argued that it is not possible for investors to consistently 'beat the market' unless they have inside information and frequent trading will result in losses. It is also shown how these derivatives are used in scams and frauds designed to dupe naïve investors. The final section of the paper examines how the UK regulators, principally the Financial Services Authority (later the Financial Conduct Authority) have attempted to combat fraud and abuse and their prosecuting and preventative efforts.

Keywords

Stocks, shares, securities, contracts for difference, CFD, spread betting, binary options, forex, forbin, scam, fraud.

1. INTRODUCTION

Over recent years there have been efforts by the UK authorities such as the FSA/FCA,ⁱ the City of London Police and the Serious Fraud Office to prosecute and deter investment scams involving boiler rooms selling shares in fake companies, the perpetrators stealing investors' funds (Barnes, 2011b, 2013, 2016). As a result of this clampdown, fraudsters have looked to other types of 'investments' to sell, such as fine wines, carbon credits and foreign exchange but they have continued to sell investments in shares in different forms. That is, perpetrate scams involving well-known and established ways of profiting from share price movements without owning the shares through the use of what are effectively 'derivatives'. These include contracts for difference ('CFD'), spread betting and what are known as 'binary options' or 'binary bets'. These, together with foreign exchange ('forex') speculation, usually also by means of CFDs, are often referred to as 'forbin'. Put and call options are outside this grouping and not discussed. It is the purpose of this article to look at these types of 'investments', how they are marketed and whether they are scams in the same way as shares in fake companies and how the authorities attempt to regulate those involved. The article is arranged as follows, we first examine how these derivatives work and how they are priced. We then examine the potential profitability of trading strategies. Finally, we examine the law as it relates to these activities, how fraudsters may use these to defraud investors and the record of regulators to prosecute perpetrators and protect victims.

2. WHAT ARE CFDS, SPREAD BETTING AND BINARY OPTIONS, 'FORBIN'?

An individual may invest in, buy or sell stocks and shares, bonds, foreign currency or commodities (e.g. gold, precious metals and natural gas) subsequently referred to as 'assets' through a broker, bank or other type of financial institution handling this kind of business. An individual may also effectively bet on changes in the price of these assets without actually owning them by means of forbin. Forbin enables a 'punter' (this term is used rather than 'investor', because no money is being 'invested') to 'bet' (this term is used rather than 'invest', because that is what the transaction effectively is) on a rise or a fall in an asset's price, without going to the trouble and expense of owning the asset. If the punter forecasts or guesses correctly, he/she wins the bet but, if they lose, they also lose the money 'invested' (henceforward referred to as the 'stake').

Forbin are contracts between two or more parties based upon the asset or assets whose value is determined by, or fluctuations in, that asset. Their advantage is that the punter commits a minimum amount of money. In financial terminology, the deal is highly levered. Another advantage is that forbin

provide an easy way of betting on a fall in the share price – a much easier way, in the case of securities, than short selling which involves their ownership.

A CFD is an agreement between two parties (the broker and the punter) to pay the difference between the opening price and closing price of an asset. It enables a punter to trade on live market price movements ('spot' prices) without actually owning the asset concerned and to speculate on their future movement, whether rising or falling. Say a punter wishes to bet that a particular stock will rise when its current price is 140-140.5p and he/she places a trade to buy (i.e. 'goes long') 10,000 shares as a CFD. The punter is required to make a deposit (referred to as a 'margin') usually between 1% and 10% of the value of the trade. Say, the price rises to 145-145.5p and the punter decides to close his/her position. Let us assume that the commission on the trade is 0.2% and there are no financing charges. In which case, the punter makes a profit of £450 $[10,000(145 - 140.5p)]$ less the commission of £57.10 $[(£14,050 \times 0.2\%) + (£14,500 \times 0.2\%)$ as the selling price is 145p] net £392.90. There is also an implicit charge effectively paid to the broker: the 'bid-ask spread', the difference between the price the broker 'asks' for the stock (the 'ask price') here 145.5p, and the price the broker will buy the stock at (the 'bid price') here 145p.

Say instead, the punter wishes to bet that the stock will fall and places a trade to sell 10,000 shares as a CFD (i.e. 'goes short'). As we know, the stock's initial price was 140-140.5p and, say, the punter decides to cut his/her losses and close their position when the stock's price is 145-145.5p. In which case the punter makes a loss of £450 $[10,000(145 - 140.5p)]$ plus the commission of £57.10 $(£14,000 \times 0.2\%) + (£14,550 \times 0.2\%)$, a total cost of £507.10, again assuming there is no financing charge.

A few points about this: it would have cost the punter £14,500 to buy 10,000 shares but because he/she is using a CFD, they will only be required to make a deposit, say 5%, in which case £702.50 $(10,000 \times 140.5p \times 0.05)$. This means that a punter can make a much larger bet for the same amount of money using a CFD rather than purchase the stock. With a 5% margin, the punter may make a bet 20 times as large for the same initial payment. However, the risk is correspondingly increased and a loss could exceed the deposit. For example, in the second case, because the punter lost £507.10 the deposit carried forward has fallen from £702.50 to £195.40. In this illustration, there was no financing charge. This may not always be the case, especially if the contract is extended beyond the current day of trading when 'overnight' fee may be charged based on current interest rates and the length of the holding period.

Spread betting is similar. It enables the punter to trade on price movements of these types of assets without actually owning them, again, whether rising or falling. Say the punter wants to go long ('buy') shares which are currently trading at 548 - 550p and he/she decides to place a buy spread bet of £10 per point. This means that, for each penny the shares rise above 550p, the punter would make £10 profit. The value of the spread bet is £5,500 (£10 x 550p). The margin required, again, is typically between 1% and 10% of the value of the position, say 5%, in which case it would have been necessary to deposit £275 (£5,500 X 5%).

A binary option (sometimes referred to as an 'all-or-nothing option' or 'fixed-return option') is a financial option in which the payoff is either a fixed monetary amount (win) or nothing at all (lose). It is necessary to clarify the term: an 'option' is an agreed right to buy or sell an underlying asset at a specified price within a specified timeframe. As binary trading does not involve the right to buy an underlying asset, technically, it is not an option and, in this sense, the term is misleading and incorrect. A binary option is little more than a simple bet, hence the more appropriate term 'binary bet'. For example, a bet whether the price of an asset will rise above or fall below its current price. If the punter chooses the correct direction, he/she wins and receives typically between 70 % and 100% of the stake; if he/she is incorrect, they lose the entire stake. (This is referred to as a 'high/low binary option'.) Say a punter bets that the FTSE 100 would fall in 15 minutes and at the end of that period it is lower and the broker pays 85% of the stake on a win, he/she makes a profit of £37.50 (£50 X 0.85). However, say the FTSE 100 rose, the punter would lose the £50.

There are many variations to the bets available for the punter, e.g. 'one touch' binary options where the punter can bet that an asset price will (or will not) touch (or reach) a specified price, and 'zone binary options' or 'boundary trading', in which the punter can bet that an asset price will be within (or outside) a specified range up to the maturity of the option. Often, no commission and financial charges are made for binary options as the terms of the trade are sufficiently profitable for the broker. There may be no margin required, providing an incentive for the punter but increasing the risk considerably. A broker may also offer bonuses to punters to encourage them to trade. All of these trades have variations and some have substantial pay-outs (as high as 300%) for example, in order to achieve the pay-out in a 'one touch trade', the punter would need to opt for a price that would be hard to reach.

Bonuses have been an important marketing device for binary options attracting controversy. The offers of free money or matching deposits with bonuses are made not only because the broker expects

they will attract new business but also because they are unlikely to be paid out. Most importantly, the bonus is not a cash bonus but a leverage-based bonus, i.e. it is added to the deposit, thereby raising the amount available to bet, causing the punter to risk larger amounts of money and the initial deposit more quickly.

The motives behind these types of bonuses have been recognised by commentators and regulators, and punters have been urged not to take up the offers or, at least, study the terms and conditions. In some countries, e.g. France, brokers have been particularly aggressive, promising bonuses of up to five times the amount of a client's deposit to attract more traders. As a result of complaints, the European Securities and Markets Authority (ESMA) published a guideline in October 2016 mandating national regulators to withdraw the deposit bonus system. Whilst most regulated brokerage firms complied with the new requirements, others complied but offered unregulated products containing bonuses for clients to transfer their trading to, others started offering bonuses to clients from outside the EU.

Currency trading, commonly referred to as 'forex', is usually done by means of CFDs. Forex is the largest financial market in the world, with US\$1.5 trillion changing hands every day. The market is very liquid, meaning it is easy to buy and sell currencies, and the market is open 24 hours. In the UK to speculate in forex as an investment, an individual may open a CFD account with a CFD broker, or a spread betting account, rather than have buy and sell the currency. In the US, where spread betting and CFDs are not available, it is necessary to open a forex trading account with a specialist forex broker.

Finally, a note about some technical terms relating to forex. All forex is quoted in terms of one currency versus another, i.e. a 'base' and a 'counter' currency. For example, in the case of the Euro, EUR/USD, EUR is the base currency and USD (US dollar) is the counter currency and is expressed as the value of one Euro in US dollars. If the punter thinks the base currency will rise ('strengthen') and/or the counter currency will fall ('weaken') he/she will buy (i.e. 'go long') Euro. If he/she thinks it will weaken, he/she will sell (i.e. 'go short'). Most currencies are quoted to five decimal places where the change in the fourth decimal place (0.001) is referred to as a 'pip'. So, if EUR/USD moved from 1.33800 to 1.33920, it is said to have risen by 12 pips. A 'lot' (as in 'price per lot') is the standard trading term for an order of 100,000 units of the base currency. The term 'round term' refers to a single completed trade, i.e. both a buy and a sell, as opposed to half of the full trade, i.e. a buy or a sell.

Just a few other basics: spread-bets usually have a fixed timescale whereas CFDs do not. 'Long' CFD positions attract daily finance charges and 'short' CFD positions earn interest. But no time-related charge or benefit applies to spread-betting- Spread betting and binary trading wins are exempt from capital gains tax as they are classed as gambling and not taxable in the UK but CFD profits are liable to be taxed. On the other hand, spread-betting and binary trading losses are not deductible against tax, while CFD losses are. However, if that transaction is for commercial purposes (e.g. if it is made strategically as a hedge to offset the risks attached to direct investment in a security) any profits that arise from it may be regarded as part of a wider pattern of activity and taxable. Also, all three avoid stamp duty (the current rate for UK shares is 0.5%) as they do not involve actual share ownership. For comparisons, see Table 1. It is usually necessary to pay the broker within three days. However, this may be extended, typically to 5, 10, 20 or 25 days, known as a 'T' settlement system and referred to as 'T-5' and so on.ⁱⁱ This may have the effect of creating a CFD in which the punter is able to buy and sell before the pay date.

Table 1.

Forbin types and direct purchase/sale of assets compared

	CFD	Spread betting	Binary options	Direct purchase/sale
Commission	0.1% - 0.5% of the value of the trade.	0.1% - 0.5% of the value of the trade.	Depends on the option's terms; none may be required.	1% - 2% of the value of the trade.
'Bid-ask' Spread	implicit	Implicit	Implicit	implicit
Deposit or 'Margin'	Required. 1% - 10% of the value of the trade, typically 5%.	Required. 1% - 10% of the value of the trade, typically 5%.	Depends on the option's terms; none may be required.	None
Financial 'overnight' fees	[Annual or monthly LIBOR rate, or similar \pm , (depending on whether long or short) administration charge] X value of the trade	Daily funded bets ('DFB') charged by broker.	Depends on the option's terms; none may be required.	Not relevant
Tax on profits	Liable to capital gains tax	None	None	Liable to capital gains tax
Stamp duty	None	None	None	0.5%

Regulation	FSA/FCA, Financial Ombudsman	FSA/FCA, Financial Ombudsman	FSA/FCA, Financial Ombudsman, previously, UK Gambling Commission	FSA/FCA, Financial Ombudsman
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3. TRADING

A punter may make his/her own trading decisions, use the broker's expertise or even employ a professional. Brokers offer various levels of service. 'Execution only' is restricted to execution of trades without the client receiving any advice about the merits, risk or suitability of an investment. Alternatively, an advisory service may be provided by the broker at a cost in which the punter makes the final decisions but the broker offers advice. A discretionary service may also be available in which the broker manages the portfolio. It is assumed here that the investor makes the decision and this section discusses the strategies available.

Whilst a punter cannot theoretically out-perform the market in the long term (this is discussed later), he/she can adopt certain strategies to maximise their returns:

- (1) day trading where a punter buys if he/she considers the price to be relatively low or sell if they consider it relatively high. The concept of prices moving randomly between 'tramlines' is sometimes used to illustrate the point and explained later,
- (2) taking a more strategic holding if he/she thinks there is likely to be a major shift or correction (e.g. Brexit) and
- (3) by means of consistent buying or selling on a massive scale to affect a price and force it up or down.ⁱⁱⁱ

The problem with (1) for the non-professional is the transaction costs (the bid-ask spread plus fees and commissions) which may be large relative to the usual daily price changes. Having said that, even though, theoretically no one can consistently and significantly out-perform the market, an experienced trader may trade successfully assuming the transaction costs are minimised and an expert with an understanding of the economic factors relating to the asset in question (whether it be a company, commodity or currency) may be able to make an informed long-term forecast of likely price shifts and corrections.

Trading strategies.

There are two 'rational' approaches to buying and selling shares: computing what a share is theoretically worth (its 'intrinsic value') and comparing this to the market price. If the intrinsic value is significantly greater than the market price, the punter would buy the stock; if it is below the market price, he/she would sell. This is sometimes referred to a 'fundamental analysis'.

Calculating intrinsic values is not the only basis on which an investor may decide to buy or sell shares. An alternative is a 'behavioural' rather than a rational approach and known as 'technical analysis' or 'chartism'. A chartist is someone who studies charts of the movement of an asset's prices over time looking for patterns in the hope of predicting future price changes from previous trends. Chartists believe that all the important information about a company's performance is already reflected in a share price and represents what investors believe to be its intrinsic value. The study of price movements is, therefore, all that is necessary to make investment decisions. Chartists argue it is an art involving intuition, experience and skill; given the same graph, two chartists are likely to interpret it in different ways and make different buy and sell decisions.

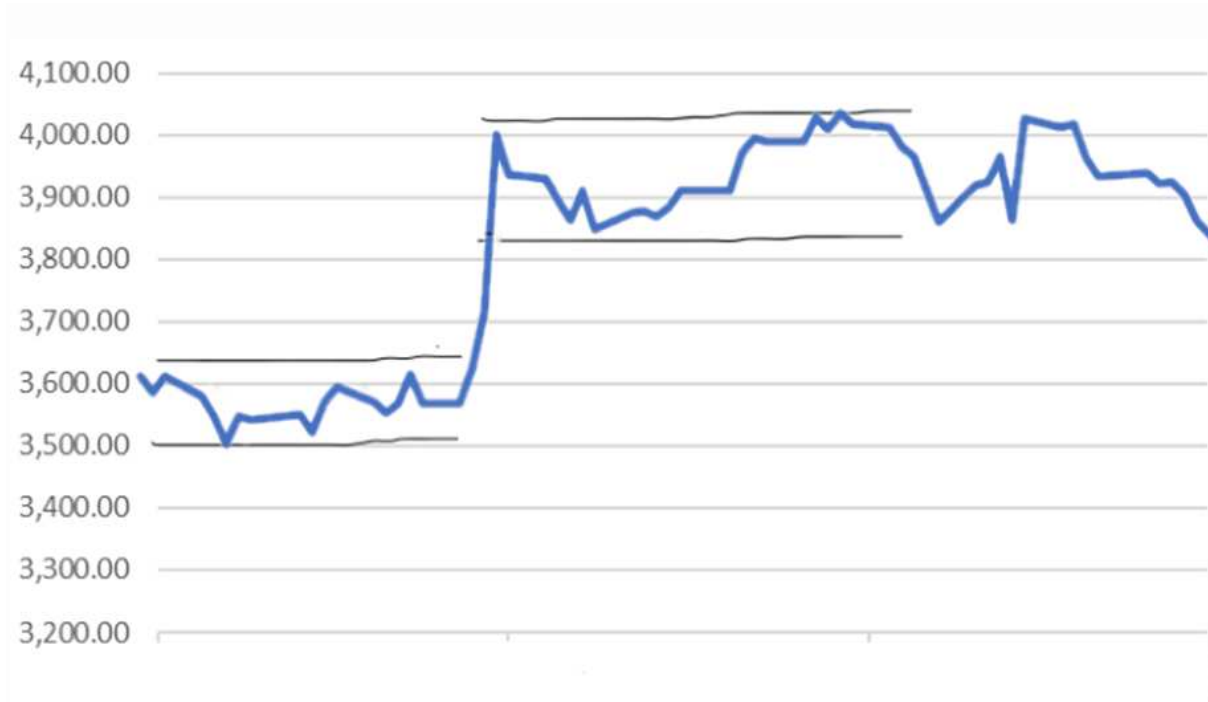
It is not possible to fully explain chartists' techniques here but we can examine some of the basic principles and tools. As mentioned earlier, rational investors buy or sell when the difference between a stock's market price and what they consider to be its intrinsic value is sufficient to cover the 'transaction costs' involved in buying and selling. Transaction costs will therefore help the price stay within those bounds. If the share price moves outside what are sometimes referred to as 'tram lines', this may be interpreted as a revision in investors' beliefs about the intrinsic value. See Figure 1 for an example.^{iv}

Chartists also believe that investors are conscious of the price at which they bought a share. Say a share has been traded around 100p over a long period during which many investors bought. Suppose the price fell to 80p. Chartists believe that those investors who had bought at 100p would not be prepared to take the loss but simply wait for it to rise to above 100p. As a result, the price of 100p becomes a 'resistance area'. Each time the share price falls below 100p again, the theory holds that the resistance level becomes even harder to cross as more investors will have bought at that price or above. An extension of this psychology is the 'support level' or 'support area'. A chartist may argue that those investors who sold shares when the market was low and saw the share price rise, would be keen to buy it again at the price at which they sold. If this is so, the original level (100p in the illustration) also becomes a support area which becomes stronger on each successive fall. Therefore,

if a share price drops to a support area and it then begins to rise, other traders may soon join in forcing the share price up leaving the resistance area behind.

Figure 1

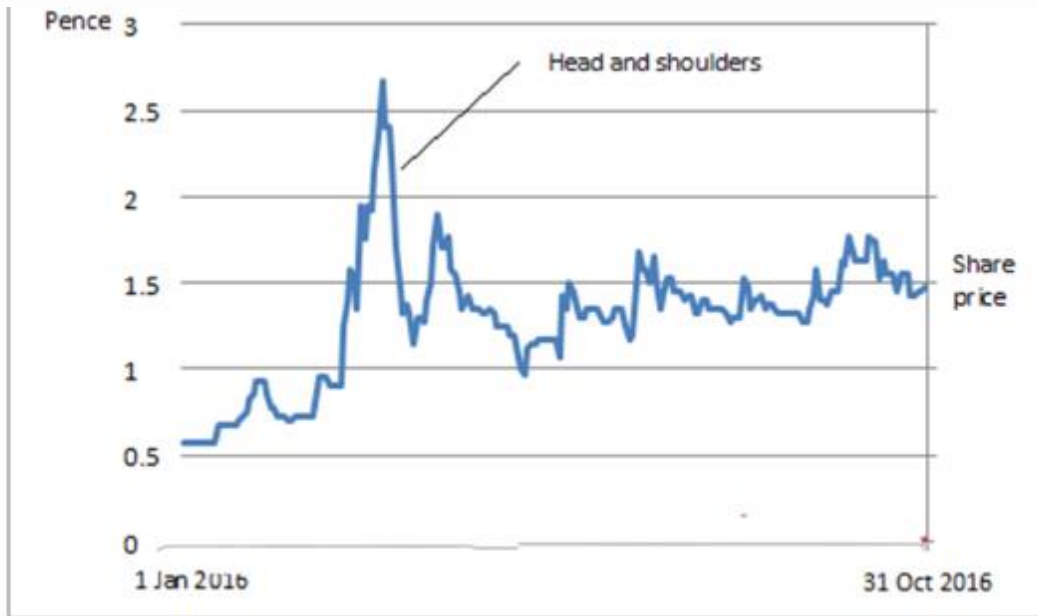
Daily share prices (pence) between 8 November 2017 and 8 February 2018 for Whitbread plc showing tramlines



So far, we have assumed that there is no change in the asset's intrinsic value, i.e. the 'tram lines' are horizontal. A share price may 'break out' of these, veering upwards or downwards. Let us say, the former; in which case, there will be pressure for it to continue in that direction and a rising tram line will be the result. There are other recognizable patterns. Probably the most famous is the 'head and shoulders'. This is a large price rise that is eventually halted, perhaps by profit taking by existing shareholders. As a consequence, the share price falls for a short period before continuing its steep rise. This is the first 'shoulder'. The rise cannot continue indefinitely and the price will eventually peak. A similar situation may occur on the way down. The shoulder in this case represents a temporary halt in the fall in the share price. Why should such patterns exist? There is one very good reason: if sufficient investors believe that a recognised pattern is developing and a second shoulder is expected, they will trade on that belief, causing it to happen. See Figure 2.

Figure 2

Daily share price chart between 1 January 2016 and 31 October 2016 for Kolar Gold plc showing 'head and shoulders'.

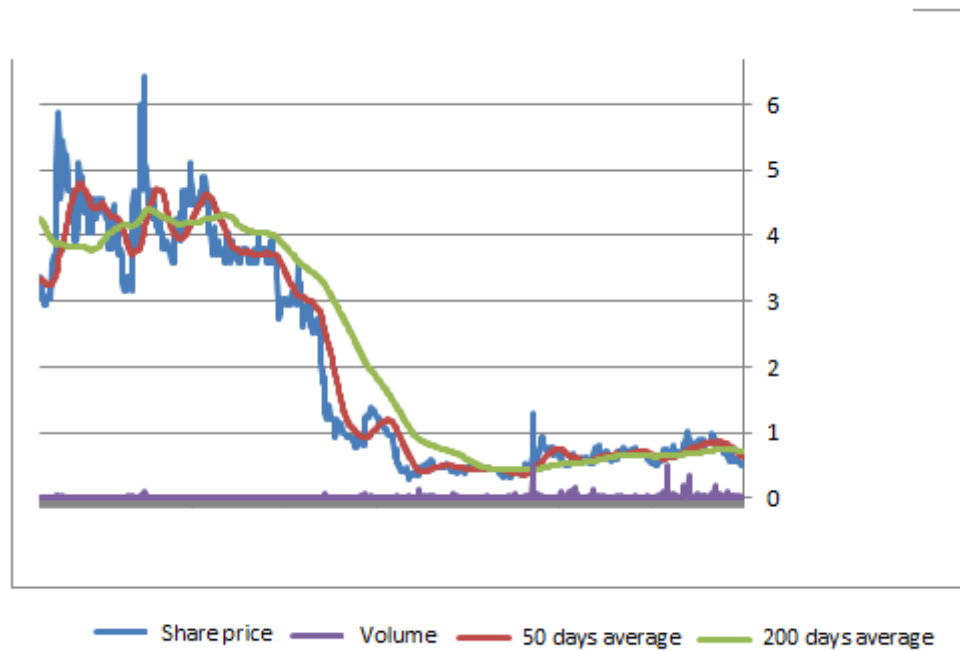


In retrospect, of course, the head and shoulders pattern is recognisable. It may not be so during its formation (say mid-way through the price hike when in Kolar's case the price was about 2p) and chartists who were presented with the graph at that time may have disagreed about its likely outcome. Some may have recognised it as a developing head and shoulders whilst others may have not.

Some people have suggested various strategies to out-perform the market. For example, 'Bollinger bands' (<https://www.bollingerbands.com>) named after their inventor, Jon Bollinger, refer to upper and lower limits in terms of the distance of the current price from its simple moving average. This simple moving average may be based on a specified length of period, e.g. over the past week. They are set at above and below this moving average at a distance depending on the volatility of earlier price changes. Typically, this is set at two standard deviations of the average of earlier price volatility and should identify conditions in which an asset is under- or over-priced. Some traders wait for volatility to narrow to help identify 'breakouts'. See Figure 3.

Figure 3

Daily share price chart between 2 December 2010 and 31 October 2016 for Scotgold plc showing Bollinger bands



Another trading 'strategy' is the use of the 'Golden Cross' to indicate bullish behaviour prompting the punter to bet on further price rises. Typically, this uses the 50-day simple moving average and a corresponding 200-day moving average. If the former crosses over the latter, this suggests sustained upward pressure on the asset's price. See Figure 3. In a similar way, the 'Death Cross' indicates bearish activity when the 50-day simple moving average falls below the 200-day moving average, prompting the punter to bet on further price falls.

There is very little empirical evidence for chartists being able (or unable) to outperform the market and earn above average returns in this way. One reason for this is because chartists do not necessarily use mechanistic buy and sell rules but their skill and intuition in making such decisions. It is, therefore, not possible for a researcher to know and model a chartist's decision making. As a result, it cannot be said conclusively that chartism does not work and remains an open question.

4. WHY IT IS NOT POSSIBLE TO PROFIT IN THE LONG TERM FROM THESE SCHEMES

The principles discussed above in the context of stocks and shares equally apply to foreign exchange and commodity markets as daily price changes are determined by supply and demand and market

makers need to balance their books. These markets are 'efficient' as in order to achieve this, market makers need to adjust their prices immediately to new information. This means that no one can outperform the market (in the sense of getting a significantly and consistently higher return for their investment) without inside information or is able in some way to influence the market. It also means that at any point in time no one knows which way a price will move next as they don't know what the next piece of news affecting prices and supply and demand will be. As a result, prices are said to follow a 'random walk', i.e. one price change is uncorrelated with the next price change and is just as likely to move in one direction or the other. The first person to draw attention to this in respect of commodity prices was Kendall (1953), a statistician but the idea was first put forward by Bachelier (1900) and, probably the first person to notice the random nature of commodity prices was Working (1834). The random nature of share prices and the reasons for this became a popular topic of discussion in the 1960s for both statisticians and finance academics (see, for example, Cootner, 1964, and Brearley, 1969). For an authoritative modern review of the evidence see Brearley and Myers (2016) chapter 13. Because this is no longer an interesting empirical question there have been no recently published statistical studies. However, in the case of the three companies whose share prices are studied in this paper for other reasons, I have computed correlation statistics between a share price change on one day and the change the following day. These are shown in Table 2. It will be seen that the estimated correlation coefficients are very small and not significantly different to zero, strongly indicating that, as expected there is no correlation. (Correlation coefficients range from -1, indicating a negative relationship, to +1, a positive relationship; and 0 no relationship where the numbers are independent of one another). There is therefore no support the proposition that past price changes can be used to forecast future price changes.

Table 2

Correlation coefficients measuring the correlation between the share price change during one day and the share price change during the following day

Company	Correlation coefficient	Share price trading period
Kolar Gold plc	-0.00359	1 January 2016 to 31 October 2016
Whitbread plc	0.07919	1 January 2010 to 31 October 2016
Scotgold plc	-0.00617	2 December 2010 to 31 October 2016

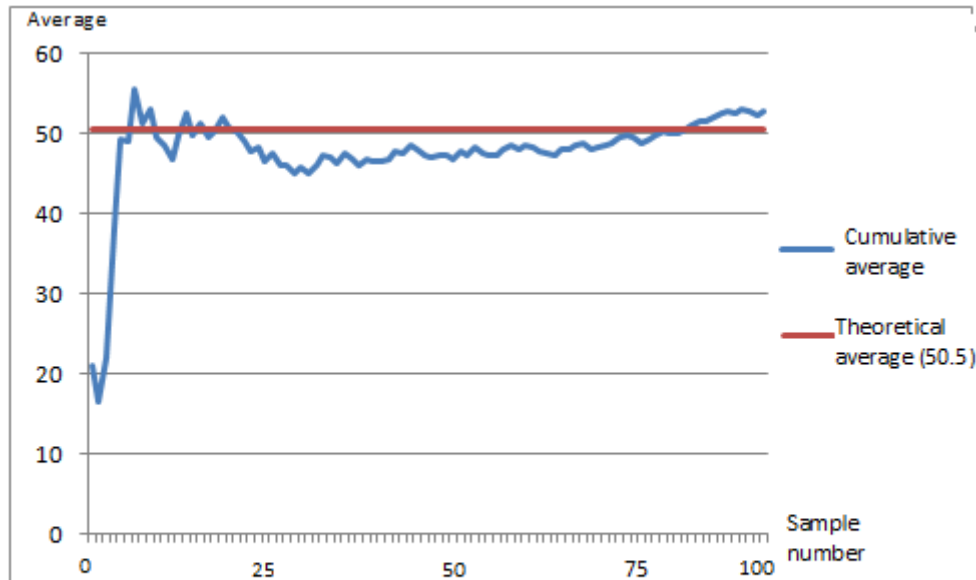
Daily price changes may not simply be in response to changes in supply and demand but small revisions of expectations about a company's prospects as they affect its future earnings and dividends. The price implications of a new piece of news may not be immediately obvious to the market. Not all the information may come out immediately. Take for example, the election of Donald Trump as US President in 2016. Not only did the market not expect this, it had little knowledge of the likely implications and so the immediate change in prices to this information would be preliminary. Only later would we learn what his economic and other policies would be and the implications become clearer. Prices would then adjust to a more realistic and considered assessment. A less dramatic example, the likelihood of a takeover bid or the winning of a new contract for a company. Theoretically, the price should change with the probability of the outcome. Say a takeover bid, if it came, would cause the target's share price by 30%. Until the final announcement and publication of the terms, the share price would only partially adjust to this as it was uncertain. So, if it were 50% likely, the cumulative price increase in response to the news so far would be around 15%. When the final announcement is made, the price will adjust to the actual terms. It could, be that the bidder decides not to make the bid and when this is known or realised, the price will fall back to what it was originally reflecting the change in the probability.

Regression to the mean

In statistics, regression to the mean is a principle (or law) that states that the variation in the average of a variable (or number) will decrease as the population increases. Take the tossing of a coin; the probability of turning a head is 0.5, as is the probability of turning a tail. If you toss a coin, say twice, the probability of getting one of each is quite low but if you tossed the coin many times the number of heads and tails would soon converge on 50:50, although not necessarily precisely; if it were tossed 100 times, it is unlikely that you would get precisely 50 heads and 50 tails. As an illustration, I obtained 100 random numbers between 1 and 100 from a random number database. As will be seen from Figure 4, their average quickly converges on the theoretical average (50.5) although not precisely. Here, it is 52.96.

Figure 4

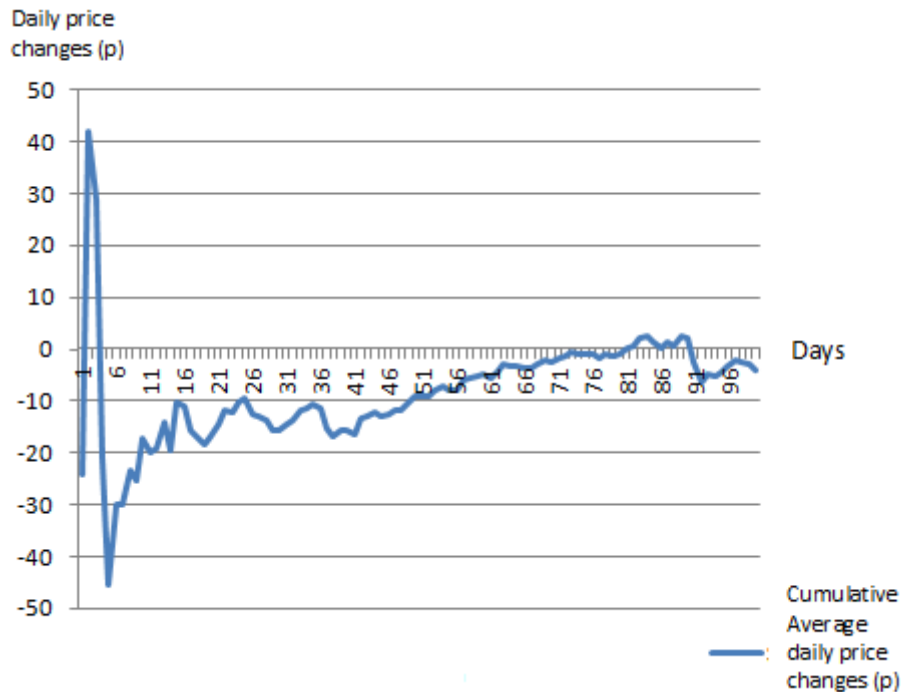
Chart of the average of 100 random numbers between 1 and 100 (average 50.5) as the sample ('cumulative average') is increased to 100 (The first random number was 21, the second 12).



In finance, regression to the mean, has particular relevance; for example, in time series data such as earnings per share and price movements. We would expect the standard deviation of average returns or daily share price movements to decline with the length or size of the sample; in other words, to follow a random walk. See Figure 5 which shows the rapid regression to the mean of cumulative average daily share price changes for Whitbread for the 100 days between 15 June and 31 October 2016.

Figure 5

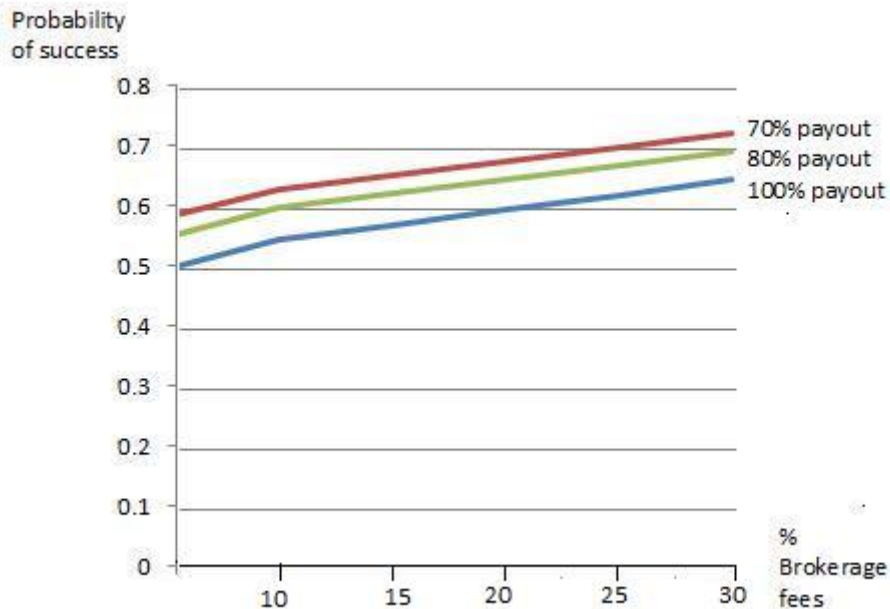
**Cumulative average daily price changes for Whitbread plc
15 June 2016 to 31 October 2016 (100 days).**



There is also the matter of transaction costs affecting an investor's returns from trading. Even though the chance of winning on a binary option may be as high as 0.5, it must be remembered that the punter needs to do better than that to cover the broker's costs which may be considerable. What is the required success rate to at least break even? This may be calculated as follows where the probability of winning is p , the broker's costs are y and the stake is x . In which case, where there is a 100% pay-out on success, the break-even point is $p(1 - y)x = (1 - p)(1 - y)x$ which simplifies to $p = (y + 1)/2$. However, where the pay-out is not 100% (70% is common) the above needs to include the pay-out percentage, z , and becomes $P = (y + 1)/(z + y + 1 - zy)$. In which case, where $z = 0.7$ and $y = 0.1$, the required probability of success rises from 0.5 to 0.636. See Figure 6 which shows the required probability of success to break even depending on percentage brokerage fees and pay-out percentages.

Figure 6

Diagram showing the required probability of success to break even depending on percentage brokerage fees and pay-out.



5. IRRATIONALITY

I have argued that it is only possible to out-perform the market if an investor is able to forecast better than the market as a whole or has inside information. In order to protect or maximise his/her returns, it is also necessary for the investor to forecast, not what the market should, but what it is likely to believe as the market is not always rational but has fads, fashions, moods and susceptible to the herding instinct.

Large price rises followed by collapse, often referred to as 'bubbles', and its irrationality more generally, are nowadays a recognised feature of the financial markets. The term 'irrational exuberance' is also used to describe the phenomenon but, although a recent term, does not represent a new theory or offer a new understanding of the reasons for the occurrence.^v The phenomenon was first recognized by Charles Mackay writing in 1841 who cited various examples, the most famous case being 'tulipmania' in Holland. The story of tulipmania begins in 1559 when the first tulip bulbs were brought from Constantinople to Holland and Germany, and people fell in love with them. Soon tulips became a status symbol for the wealthy, their bulbs hard to get. Although early buyers were people who truly prized the lovely flowers, later buyers primarily considered their bulbs an investment. Soon speculators became involved and tulip bulbs began to be traded on the local exchanges. By 1634, the

craze of owning tulips had spread to the Dutch middle classes and merchants and shopkeepers vied with one another for single tulip bulbs. At the height of tulip mania in 1635, a single tulip bulb was worth £20,000 in today's prices. Tulip bulbs were traded on the Amsterdam Stock Exchange and other exchanges in Europe. Trade grew so rapidly that tulip notaries and clerks were appointed to record transactions and public laws and regulations were developed to control the tulip craze. However, in 1636, people began to sell their holdings and the price of tulip bulbs began to weaken, slowly at first, and then rapidly. Confidence was soon destroyed, and panic seized the market. Within six weeks, prices had fallen by 90 per cent and defaults on contracts and liens on owners were widespread. At first the Dutch government refused to interfere but later was forced to act. All contracts prior to November 1636 were declared null and void but prices continued to fall. In Amsterdam, judges unanimously refused to uphold tulip contracts and treated them as gambling activities and no court in Holland would enforce payment. The price of tulip bulbs eventually fell to, in real terms, less than their price today. Perhaps the final word should be left to Isaac Newton who, like Jonathan Swift, had lost money on the South Sea bubble (circa 1720) when he remarked 'I can calculate the movement of the stars, but not the madness of men'.

Keynes (1936) was the first to develop an explanation of this behaviour: what is referred to as his 'biggest fool' theory. He argued that investors do not estimate an asset's intrinsic value mentioned earlier to compare with the market price. Instead, he said, investors are more interested in whether other investors think a share will rise in price. In Keynes' opinion, this was rational; a company's intrinsic value is irrelevant. He used the analogy of attempting to forecast the winner of a beauty contest. Around that time, it was common for London newspapers to run competitions requiring readers to choose a set of six faces from 100 photographs of women that were the 'most beautiful'. The names of those who picked the most popular faces were then entered into a raffle for a prize. The most obvious strategy would be to choose the six faces that, in the opinion of the reader, are the most beautiful. Keynes said that a better approach would be to attempt to identify those faces most likely to be chosen by the public. This could be carried one step further to take into account the fact that other entrants would also be making their decision based on knowledge of public perceptions. The strategy could be extended to the next order and so on, at each level attempting to predict the eventual outcome of the process based on the reasoning of others.

Keynes believed that the stock market behaved in a similar way. People priced shares, not on what they thought their fundamental values were, but on what they thought everyone else thought they were worth. If an investor thought that the price of a share price would rise and that other investors

would buy it, he/she would also buy, increasing the demand for the stock and forcing its price up further. Eventually, the price would be so far removed from reality that investors realise this and stop buying. The process would then go into reverse where people think the share price will fall and decide to sell. The person who bought at the top of the market was described by Keynes as the 'biggest fool'. Although Keynes used the theory to explain the role of interest rate movements in the economy (Keynes, 1936) his understanding derives from his own dealings on the stock market on behalf of his Cambridge college which were very successful earning it millions of pounds.

The irrationality of the markets as an important factor in financial history is well known and well documented. Kindleberger and Aliber (2011) argue and present examples to show that financially fuelled boom-and-bust cycles frequently occur. They extend the notion of irrationality of financial markets to whole economies and economic sectors. They cite Minsky's Financial Instability Hypothesis ('FIH') (Minsky, 1977, 1982, 1989) which builds on Keynes' theory (Minsky was a student of Keynes and very much influenced by him) as the principal theory to underpin their observations. The FIH attempts to explain the irrationality of financial markets during periods of extreme boom and bust and leading to a financial crisis. According to Minsky, the cycle takes the following form: boom - overestimation of expected returns - euphoria and band-wagon effect - profit-taking - the recognition that earlier expectations were unjustified. In the final stage as losses occur, panic sets in (the irrational herding instinct) together with revulsion and the overall discrediting of the subject of the boom in the first place. See Figure 7. The theory may apply to any asset and even a whole economy. As expansion develops, optimism increases and beliefs about the proper level of debt and risk change. Here, prices of financial assets rise and the general level of speculation increases. ('speculation' refers to attempts by investors to bet on the future direction and psychology of the market, Minsky, 1975, pp.120-23).

Figure 7

Keynes' 'Biggest Fool', Minsky's Financial Instability Hypothesis: FTSE 100 1 December 2017 to 2 February 2018



6. REGULATION

The law

CFD, spread betting and forex brokerage firms in the UK are regulated by FSA/FCA. Brokers are either authorised by FSA/FCA under Section 19 FSMA 2000, or ESMA. The ESMA authorised status is given to firms that are authorised in another European Economic Area ('EEA') state and given a 'passport' by FSA/FCA to provide cross border services to UK citizens according to the Markets in Financial Instruments Directive 2004/39/EC ('MIFID'). These firms are regulated in their home country, and not by the FSA, but must comply with standards agreed across all EEA countries.

Until January 2018, binary options in the UK were effectively regulated by the Gambling Commission but, from 3 January 2018, UK firms offering these products are required to be authorised by the FCA. This means that firms will be supervised by the FCA and binary options will be subject to the regulatory regime for investment products and complaints will be handled by the Financial Ombudsman Service.

In the EU, binary options are regarded regulated as investment products. Under EU financial services law, brokerage firms that are legally established and authorised in an EEA country may do business in

any other EEA country once certain procedural safeguards are met.^{vi} The EEA includes all EU countries plus Norway, Lichtenstein, and Iceland. Some nations began to introduce regulations but it was the Cyprus regulations operated by the Cyprus Securities and Exchange Commission ('CySec') that was adopted across Europe. CySec registration is now the standard that most reputable binary options brokers will hold. This means that firms offering binary options trading which operate as financial services firms in other EEA countries are able to do business in the UK and, as a result, appear on the FCA's Register of financial services firms (<https://register.fca.org.uk>).

Although investment in binary options is popular in the UK and the EU, it is a grey area in the US. Binary options (known there as 'Fixed Return Options') are only legally available to those who purchase them using the American Stock Exchange, Chicago Options Exchange and Nadex.^{vii} It is not legal for US citizens to purchase binary options from any other source.

In the UK, FSMA 2000 Sections 205 and 206 state that If the FSA/FCA considers an authorised person has contravened a requirement imposed on it under the 2000 Act, it may publish a statement to that effect, known as a 'Decision Notice' or 'Public Censure' (Section 205) and, if there has been a contravention the Act, it may impose a penalty (Section 206). The criteria used by the FSA/FCA when deciding if an authorised business' or individual's conduct has been proper and satisfactory are contained in their 'principles of business' listed in Table 3. FSMA 2000, Section 118 defines market abuse as behaviour which (a) gives, or is likely to give, a false or misleading impression as to the supply of, or demand for, or the price of a qualifying investment, or (b) secures the price of such an investment at an abnormal or artificial level.

If a provider is authorised by the FSA/FCA and fails, closes down, or goes into liquidation and there is a deficiency in the client money bank account, customers are likely to be covered by the Financial Services Compensation Scheme ('FSCS') although the maximum it would pay out per client is £50,000.

Table 3

FSA/FCA Principles of Business

1. Integrity: A firm must conduct its business with integrity.
2. Skill, care and diligence: A firm must conduct its business with due skill, care and diligence.
3. Management and control: A firm must take reasonable care to organise and control its affairs responsibly and effectively, with adequate risk management systems.
4. Financial prudence: A firm must maintain adequate financial resources.
5. Market conduct: A firm must observe proper standards of market conduct.
6. Customers' interests: A firm must pay due regard to the interests of its customers and treat them fairly.
7. Communications with clients: A firm must pay due regard to the information needs of its clients and communicate information to them in a way which is clear, fair and not misleading.
8. Conflicts of interest: A firm must manage conflicts of interest fairly, both between itself and its customers and between a customer and another client.
9. Customers: relationships of trust: A firm must take reasonable care to ensure the suitability of its advice and discretionary decisions for any customer who is entitled to rely upon its judgment.
10. Clients' assets: A firm must arrange adequate protection for clients' assets when it is responsible for them.
11. Relations with regulators: A firm must deal with its regulators in an open and cooperative way and must disclose to the appropriate regulator appropriately anything relating to the firm of which that regulator would reasonably expect.

Common scams and frauds*Forex and CFDs*

These include:

Misappropriation of money from managed accounts by a fraudulent broker or agent.

Manipulation of bid-ask spreads which involves a dishonest broker using fraudulent prices rather than market bid-ask prices, i.e. charging a higher ask price and/or lower bid price compared to the market price.

Commingling which is the fraudulent pooling of customers' contributions into a single fund.

Ponzi or pyramid schemes where high returns from a small initial investment are promised. However, the investment does not actually exist and the initial returns are funded by money paid

in by other members of the scheme. The scheme continues until the fund is unable to fund withdrawals and collapses.

Boiler room operations. This is where individuals are pressured into buying shares in a worthless investment on the promise that the returns will be high; the fraudsters disappearing with investors' money.

Churning. A broker usually receives a commission from a client each time a security is bought or sold. Churning refers to the excessive buying and selling of securities by a broker or an employee to generate excessive commissions. They would be guilty of churning if the amount of trading is excessive compared to the amount of money invested. In order to establish this, it would be necessary to examine and count the number of transactions, calculate the annualized rate of return necessary to cover the commissions charged and compare this to the actual net return on the account.

Front Running. It is quite possible that an order to buy or sell a security submitted by a customer, if sufficiently large, will affect the price of the security. Front running is the illegal practice of a broker executing an order on a security for its own account taking advantage of inside knowledge of the pending order from its customer.

Unauthorised trading and 'cloning'. As mentioned earlier, firms offering forex, CFDs, binary options and similar products in the UK need to be authorised by the FSA/FCA. However, unauthorised firms, claiming to be based in the UK and authorised, sometimes attempt to sell these services. Some, referred to as 'clones', attempt to copy the name and details of an authorised firm.

'Layering'. This is high-frequency trading involving the placing of large orders by a broker at just above or just below the best quotes on the order book that they never intend to execute in order to influence the market price.

Binary options

Action Fraud, the UK's national reporting centre for fraud (<https://actionfraud.police.uk>) stated on 18 October 2017 that 2,065 people had reported to them of being victims of binary options fraud since 2012 and had lost almost £60m, the average person losing £22,811. Action Fraud also reported that in the first half of 2017, 697 people claimed to have lost over £18m.

In addition to the forex and CFDs frauds mentioned above, the National Fraud Intelligence Bureau and Action Fraud state that dishonest firms offering binary options:

- Offer a higher than average return on an investment.
- Refuse to credit customer accounts.

- Break all contact with the customer.
- Manipulate software to distort prices and pay outs.

They also remark about the way binary options are marketed. Social media websites and apps are often used to attract young people to binary options and (as the victims allege) defraud them. Whilst a traditional investment may take months or years to mature, a binary option trade can be done quickly and the punter can see an immediate return. This attracts a section of society previously unavailable. Victims are predominately from the UK, a third of who are under 30 years old and 9% under the age of 20. This compares with victims of traditional investment scheme frauds who are typically over 60 years old. Action Fraud say that fraudsters set up fake profiles on popular social media websites. They purport to be successful binary options traders, often adding photographs of themselves in exclusive locations such as high-class restaurants or posing with luxury items such as valuable cars, clothes and watches in order to give the appearance of wealth and success. They may also include ‘testimonials’ from happy customers in the form of text messages or email conversations. These are usually fake. The fraudsters will then seek out potential victims, offering them the chance to ‘invest’. Frequently the fraudster will tell a victim that their ‘trading’ has been successful and then request more money be sent. In some instances, the fraudsters also request further funds in order to release the victim’s money.

Table 4

FSA/FCA actions against forbin brokers

Date	Brokerage	Action
5/5/10	Alpari (UK) Limited	Under FSMA 2000, Section 206 fined £140,000 for breaches of Principle 3 of the Principles for Businesses https://www.fca.org.uk/publication/final-notices/alpari.pdf .
15/3/11	ActivTrades	Under FSMA 2000, Section 206 fined £85,750 for breaches of Principles 3 and 10 of the FSA’s Principles for Businesses www.fca.org.uk/publication/final-notices/activtrades.pdf
14/6/11	B.M. Alexander	FSA order prohibiting Mr Alexander from performing any regulated activity. Fined under FSMA 2000 Section 118(5) (a) and (b) £700,000 in respect of market abuse and ordered to pay restitution of £322,818 to the firms which suffered a loss. http://www.fsa.gov.uk/pubs/final/alexander_barnett.pdf
28/1/13	Canada Inc trading as Swift Trade	Fined £8m for engaging in manipulative trading activity known as ‘layering’, a form of market abuse under FSMA 2000, Section 123(1) www.fca.org.uk/publication/final-notices/7722656-canada-inc.pdf

26/02/14	Forex Capital Markets Ltd and FXCM Securities Ltd.	Fined £4m for allowing FXCM Group to withhold profits worth £6m that should have been passed on to FXCM UK's clients. www.fca.org.uk/news/press-releases/financial-conduct-authority-fines-fxcm-uk-%C2%A34-million-making-%E2%80%98unfair-profits%E2%80%99-and
20/5/15	Barclays Bank PLC	Fined £284m for failure to control its London trading operations in the forex market, with the result that traders were advantaged over other market participants. www.fca.org.uk/publication/final-notices/barclays-bank-plc-may-15.pdf
26/5/16	Quick Pay Forex Ltd	Registration cancelled for its unwillingness to comply with its ongoing regulatory obligations. www.fca.org.uk/publication/final-notices/quick-pay-forex-limited.pdf .
20/6/16	Banko FX	Warning that it is providing financial services or products including forex and CFDs in the UK without FCA authorisation www.fca.org.uk/news/warnings/banco-fx-banco-fx
20/6/16	CFD-1000	Warning that it is providing financial services or products including forex and CFDs in the UK without FCA authorisation https://www.fca.org.uk/news/warnings/cfd-1000-limited
12/7/16	Limited Binary	Warning that firm was providing financial services or products in the UK without authorisation. www.fca.org.uk/news/warnings/limited-binary
1/11/16	CT Option	Warning that it was providing financial services or products not authorised by FSA. As a binary option provider, it should have been licensed and regulated by the UK Gambling Commission
7/4/17	Worldspreads Ltd	Two employees fined, £11,900 and £105,000, for engaging in market abuse and permanently banned from performing regulated activity. https://www.fca.org.uk/news/press-releases/fca-bans-and-fines-two-individuals-market-abuse .
4/7/17	McClure Watters (FGS), Lanyon Astor Buller Ltd (LAB)	Compliance officer fined £75,000 for failing to exercise due skill, care and diligence at FGS and LAB. https://www.fca.org.uk/news/press-releases/fca-fines-compliance-oversight-officer-pension-transfer-failings

7. CRIMINAL CASES AND PREVENTATIVE ACTION

Cases

The cases brought in the UK against forbin brokers since 2009 are listed in Table 4. There have been remarkably few in comparison with the number of complaints. Many cases that were reported to Action Fraud did not result in criminal action as they did not constitute fraud or even a scam and no claim would be possible with the FSCS. They were simply the result of an aggrieved punter losing

his/her money and looking for someone to blame. The problem is that forbin is effectively gambling but sold as an investment in which punters think they can participate and make profits.

Prevention

The FSA/FCA has concerns that customers are buying and trading these products they do not adequately understand. In December 2016, it published the results of a study of a sample of CFD firms' client accounts. It found that providers of rolling forex and CFDs held £3.5bn of clients' funds for these transactions of which 82% of clients lost money. The FCA has recently issued a consultation paper proposing a package of stricter measures to help protect consumers by limiting the risks of these products and raising their awareness.^{viii} These include:

1. Introducing standardised risk warnings and mandatory disclosure of profit-loss ratios on client accounts to illustrate the historical performance and the risks of these products.
2. Setting lower leverage limits for inexperienced retail clients who have less than 12 months' experience of active trading in CFDs, with a maximum of 25:1.
3. Capping leverage at 50:1 for all retail clients and introducing lower leverage caps across different assets according to their risks. (Some levels of leverage currently offered to retail customers exceed 200:1).
4. Preventing providers from offering bonuses or other benefits to promote these products.

The FCA has also recently published its concerns about binary options in which customers typically lose money, in many cases large amounts.^{ix} It has also raided a number of premises in the City of London where it was thought unauthorized firms operated from, and published a list of 94 firms that do not have authorisation but are believed to be offering binary options to UK consumers in breach of Section 19 FSMA, 2000.^x In a statement issued on 15 December 2017,^{xi} ESMA indicated that it was considering measures that would ban the sale of binary options to retail investors in response to concerns about the sale of binary options.

8. CONCLUSION

It has been argued here that whilst these markets and instruments are not intrinsically fraudulent or misleading, they may be open to abuse and exploitation by fraudsters. Most importantly, whilst at first glance they may appear to the punter to be profitable they do not constitute sound investments and are little more than foolish betting where the odds are stacked against and not understood by punters and the transaction costs are so high as to make gains virtually impossible. In most cases, these markets involve 'zero sum' gains, in which for one trader to make a profit, another will make a

loss. It should also be remembered that currency and stock market movements are the result of the actions of large financed institutions and banks who are better informed about the markets than the individual trader.

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ENDNOTES

ⁱ The Financial Conduct Authority ('FCA') replaced the 'the Financial Services Authority ('FSA') in 2013. As this article is referring to both over the period 2001 to data, 'FSA/FCA' is used.

ⁱⁱ See <http://www.thesharehub.com/2011/01/14/library-t20/>

ⁱⁱⁱ The famous example of this is 'Black Wednesday' in 1992 when George Soros was able to force down the price of the pound which led to its devaluation

https://is.muni.cz/el/1456/podzim2011/MPF_AFIN/um/27608616/27608949/Black_Wednesday.pdf

^{iv} This strategy is the basis of 'trading to win' forex trading videos made by learntotrade.co.uk

^v It was first used on 5 December 1996 by Alan Greenspan, chairman of the US Federal Reserve Board to describe the behaviour of investors in the US and the mood behind the rise in stock market prices between 1994 and 1999. It became his most famous quotation.

^{vi} If an authorised firm wants to provide financial advice, set up a base or run permitted activities in an EEA state, it may apply for a 'passport' to do this. See <https://www.fca.org.uk/firms/passporting>.

^{vii} Nadex is a regulated US exchange, designated by the US Commodities Trading Commission and legally permitted to accept US residents as members.

^{viii} Consultation Paper (16/40): Enhancing conduct of business rules for firms providing contract for difference products to retail clients available at www.fca.org.uk/news/press-releases/fca-proposes-stricter-rules-contract-difference-products

^{ix} See <https://www.fca.org.uk/consumers/binary-options>

^x See <https://www.fca.org.uk/news/press-releases/fca-issues-list-unauthorised-binary-options-providers>.

^{xi} <https://www.esma.europa.eu/press-news/esma-news/esma-issues-updated-statement-preparatory-work-in-relation-cfds-binary-options>