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On the effectiveness of the civil regime's penalty-setting framework against insider dealing in the UK

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ABSTRACT

This paper carries out a first-of-its-kind evaluation of the effectiveness of insider dealing policy in the UK focusing on the civil regime's penalty-setting framework against individuals. Under the assumption that there is a risk of underestimating illegal benefits from insider dealing for the purposes of a penalty determination, and due to the ambiguous punitive nature of disgorgement, the paper puts forward a novel two-step algorithm for inferring a deterrent effect from a civil financial sanction. It is found that in around half of the included cases deterrence is undermined. Hence the implementation of the policy may have been ineffective.

The introduction to the problem

Deterrence is the ultimate goal of enforcement of insider dealing regulations (FCA, 2024, Enforcement Guide (EG) 2.2.4, 2.2.9, 2.11.1, Decision Procedure and Penalties Manual (DEPP) 6.5.2[G](3)), which effectiveness is contingent on a properly constructed and implemented deterrence-based enforcement policy. When enforcement is compromised, deterrence is undermined too whittling away at the integrity of the UK financial system. While the objective of enforcement is clear, locating and measuring a deterrent effect for the purposes of evaluating effectiveness is problematic.

Current academic literature predominantly considers the certainty of enforcement and the level of stringency of insider dealing regulations as the touchstone of deterrence (Frijns et al., 2013; Bhattacharya and Daouk, 2009; Christensen et al., 2016; Del Guercio et al., 2017; Dutordoir et al., 2021). For example, by observing a decrease in the price run-up to the first announcement of mergers between 2015 and 2019, Pham and Auslos (2022) conclude that the Financial Conduct Authority (the FCA) is effective in enforcing the law. Gilbert and Tourani Rad (2020) test the civil regime against insider dealing by deploying three measures of informed trading and two measures of price efficiency. Their research finds that the enactment of civil sanctions reduced informed trading. On the other hand, Panetsidou et al. (2022) argue that the civil regime does not lead to a reduction in abnormal stock returns prior to takeover deals, whereas a criminal sanction brings about a deterrent effect. Lambe (2012) studies the pricing behaviour of completed takeover target firm stocks within a period between 2000 and 2010 and shows that insider dealing regulations were ineffective as informed trading was palpable in spite of the enhanced regulatory powers.

Notwithstanding that prior studies converge upon the assumption of stricter insider dealing regulations being conducive to reducing the incidence of wrongdoing, they do not proffer robust evidence as to whether the enforcement of regulations creates a sufficient level of deterrence that is capable of scaring off would-be insiders. Partly this is due to deriving deterrence from some past economic data as represented by multifarious economic variables. Relying on such evidence in pinning down a deterrent effect is subject to skepticism for any fall-off or upswing in the parameters indicating the prevalence of insider dealing are not unassailably indicative of this trend remaining in the long-term (Allen and Morzuch 2006). So, if the probability of enforcement is low, this state of affairs can inversely affect any initial deterrent effect ensuing from the strengthening of regulations and more aggressive policies (Bhattacharya and Daouk 2002). From this perspective, the devised metrics, selected variables and wider sets of customised specifications pointing to a configuration of an effective regulatory response and *vice versa*, if modified can yield diverging outcomes.

Indeed, by reason of scarce economic resources the FCA enforces the law cyclically (EG 2.2.5, 2.1, 2.2, FCA, 2017, SUP 1 A.3.2.A[G], FCA, 2022, HMT 2014, Baker and Raskolnikov 2017). It suggests that the certainty of enforcement is relatively low for not every potential instance of insider dealing will be investigated. Harshness of insider dealing regulations as exhibited by enforcement rates can turn out to be specious because anticipating a deterrent effect from the frequency of enforcement is tantamount to predicting this deterrent effect, but predictions, especially in insider dealing cases are abstruse, and predictions are not similar to measurements (de Finetti, 1937: 99). To this end, it is of paramount significance for the FCA's insider dealing policy to make

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sure that those cases being enforced send out a strong general deterrent message to would-be insiders (HMT 2014, para 2.7, FCA, 2019, DEPP 6.5.2[G], EG 2.1.2(4), Erta and others 2013, Chambers 2024). All this means is that a deterrence-based enforcement policy hinges on the severity of already meted out and yet-to-be-imposed sanctions (HMT 2014, paras 1.6, 2.6 and 2.7, Miceli et al., 2022, Grasmick and Bryjak 1980). Although, severe legal repercussions are an element of the policy discourse and academic research, to the best of my knowledge no prior research has evaluated the severity criterion as a metric of effectiveness of insider dealing regulations.

Largely, the criminal regime and the civil regime against insider dealing are homogenous in nature allowing the FCA to manouveure between them, but the legal consequences differ in the severity criterion. In economic-driven crimes, a deterrent effect from a criminal punishment is said to be powerful on the score of a potential custodial sentence (Wielhouwer, 2013; Arlena and Kornhauser, 2021). Conversely, the civil regime does not wield this custodial sentence option. Extrapolating any potential deterrent effect from a criminal sanction to a civil sanction can thus verge on a fallacy of composition. Because a criminal conviction, coupled with any other concomitant penalties is a function of deterrence, whereas a deterrent effect in the civil regime is an outcome of a financial sanction with any other concomitant penalties. It follows that, a civil monetary sanction's deterrent effect is set against primarily a monetary amount of directly or indirectly materialised or non-materialised illegal benefits from insider dealing.

A deterrent effect comes about as a product of a sanction's proportionality to the gravity of insider dealing (EG 2.1.2(2), DEPP 6.5.3[G](3)), and this sanction's severity, that is, its magnitude should outweigh the illegal benefits accrued from insider dealing (Polinsky and Shavell, 2007; Becker, 1968; Bentham, 1830). The problem with measuring these two building blocks is in that the FCA cannot know for numerous external and internal reasons the total amount of insider dealing benefits accrued and corresponding harm inflicted upon the integrity of the UK financial system. Hence, *a priori*, the total amount of illegal benefits is greater than the total amount of imposed financial sanctions. That being so, there exists a systemic risk of having a monetary sanction that is negatively asymmetrical to the real amount of illegal benefits. By extension, there exists a risk of having a monetary sanction lower than the quantified amount of illegal benefits thereby undercutting deterrence (Polinsky and Shavell, 1994; Paternoster 2010). It is prudent to draw inferences from the severity criterion failure leading to deterrence ebbing away, as against the expectations of a deterrence-based policy. Locating and measuring a deterrent effect through the severity of financial sanctions can be done by exploring whether the misquantification risk has crystalised. To be clear, the misquantification risk emanating from the penalty-setting framework is a unique measure in itself.

The purpose of this paper is to put forward a pioneering methodology for evaluating the effectiveness of insider dealing regulations as a direct consequence of the FCA's deterrence-based enforcement policy. This will be carried out by inferring a deterrent effect from the severity of civil financial sanctions through the lens of the misquantification risk under the existing civil regime's penalty-setting framework against individuals. The paper asks, does the civil regime's penalty-setting framework deliver deterrence as intended?

A civil financial penalty can be made up of two components, disgorgement (DEPP 6.5 C.1[G]) and a penalty reflecting the seriousness of insider dealing (hereinafter a PRSID) (DEPP 6.5 C.2[G]). A PRSID is a bespoke monetary penalty (DEPP 6.5 C.2[G]) that can be of any amount as set out in section 123(1) Financial Services and Markets Act (the FSMA 2000). One of the factors having a bearing on the PRSID is the impact factor under 6.5 C.2[G](11)(a) setting down the following, 'the level of benefit gained, or loss avoided, or intended to be gained or avoided, by the individual from the market abuse, either directly and indirectly'. What this wording conveys is that impact factor mirrors a disgorgement figure. For that reason, the disgorgement figure represents two diametrically opposing dimensions, the penalty that is locked in its own quantification and the quantified amount of illegal benefits influencing the magnitude of the PRSID. The civil regime's penalty-setting framework therefore makes it possible for a financial sanction to be lower than not only the real amount, but also the quantified amount of illegal benefits.

To uncover the misquantification risk in this paper a novel two-step algorithm model is propounded for inferring deterrence from cases involving both disgorgement and a PRSID under the assumption that the consequences of enforcement are vicariously experienced by would-be insiders (Stafford and Warr, 1993; Yiu et al., 2014; Sitren and Applegate, 2012). This economic model will make substantial contributions to the existing academic literature in that (i) it proposes a trailblazing way of evaluating the effectiveness of insider dealing policy and regulations, (ii) it circumvents the temporal and economic data challenges with situating deterrence for the severity criterion is the mainstay of a deterrence-based enforcement strategy and (iii) by virtue of being beyond the confines of the complexities and specifics of individual cases, the model allows for a more accurate generalisation.

In the first step, the collected cases or individuals (n = 30) are categorised in three groups, (A) the financial sanction is greater than the quantified illegal benefits, (B) the financial sanction equals the quantified illegal benefits, that is, the break-even group, and (C) the financial sanction is smaller than the quantified illegal benefits. The cases are allocated to each group by subtracting disgorgement from the final financial penalty where the resulting difference is subtracted from the PRSID to be compared against the quantified amount of illegal benefits. Since the disgorgement figure equals the amount of quantified illegal benefits, this figure is twice referred to, and ought to be eliminated for grouping is a measure for disgorgement. In the second step, a deterrent rate is obtained from the groups by dividing a PRSID from each case by the difference from the PRSID and the quantified amount of illegal benefits figure thereby illuminating the PRSID. It is found that 13 cases fall within group (C) indicating that the architecture of the civil regime's penalty-setting framework or its implementation have been at odds with the expectation of the deterrence-based enforcement policy.

The rest of the paper proceeds as follows, the next sections lay out the importance of the severity criterion in insider dealing cases given a low certainty of enforcement. After that a five-step penalty-setting framework will be discussed through the lens of the undeterminability of illegal benefits from insider dealing. Having argued that there is a risk of imposing a sanction contradicting to the objective of the FCA's deterrence-based policy, this risk will be exposed in the penalty-setting framework and put forward a methodology for locating the risk and evaluating the policy effectiveness.

Locating deterrence in research

While the objective of enforcement of insider dealing regulations is to minimise social loss from insider dealing by deterring would-be insiders (Polinsky and Shavell, 2007: FCA Strategy, 2022-2025, Chambers 2024, FCA, 2022), there is no universally accepted methodology capable of inferring deterrence (Rakoff and Eaton 1996; Robinson, 2015). As noted above, studies relying (solely) on past economic data focusing on the certainty criterion and stringency of insider dealing regulations do run up against a drawback of discounting the dynamic nature of financial markets, regulatory structures, individual decision-making and many other factors. Not only it is naive to expect a deterrent effect invariably staying at a constant level over time (Allen and Morzuch 2006), but it is also problematic to attribute a reduction in insider dealing activity to deterrence.

In general, previous research on deterrence was primarily built on aggregate data (Nagin, 2013). Here researchers attempt to observe deterrence by looking at the number of arrests and/or convictions/penalties of any given offence and dividing this number by this offence's

incidence (Nagin, 2013). There are two issues with this approach if applied in insider dealing cases. First, a mere correlation of the aforementioned variables is not ample to situate deterrence as nobody can learn the precise number of insider dealing opportunities which have been capitalised on, passed up, and suspected but not investigated by the FCA. Second, going by aggregate data alone would depict a reality where the certainty of a penalty is approaching zero. This is because the FCA uninterruptedly monitors the financial markets for potential market abuse and receives reams of intelligence concerning potential insider dealing but acts on relatively a low number of insider dealing instances (FCA, 2021, FCA, 2022). At bottom, the enforcement rates including the opened and yet-to-be-concluded investigations into insider dealing cannot account for a deterrent effect standing alone for the severity criterion is left out.

Something can be learnt from perceptual deterrence research, where the certainty and severity of punishment are regarded as not objective but subjective risks (Apel and Nagin 2017, Nagin, 2013). Deterrence is not inferred from studying aggregate data, but from either past behaviours or through made-up probabilistic scenarios (Lochner, 2007). Yet there exists a temporal order problem (Chalfin and McCrary, 2017). Williams and Hawkins (1986): 551) spell out this problem in the following way, '…the association may indicate that individuals who were actively involved in crime in the past have lower perceptions of certainty and severity in the present precisely because they have escaped being caught and punished for their crimes'. Another way of looking at the temporal problem is as an insider's wealth increases, his risk aversion decreases thereby affecting the decision making process (Pratt, 1964). It is relevant inasmuch as in every Final Notice issued against individuals by the FCA and its predecessor, no insider had been subjected to a criminal, civil, administrative or disciplinary sanction for any insider dealing. That said, it is uncertain whether the insiders had engaged in insider dealing prior to being penalised. If taking it as read that the penalised insiders were first-time wrongdoers, then they would have had no past experiences to draw from if they had been asked about their perceptions of deterrence.

This article suggests focusing on the severity of sanction. This thus far underdeveloped criterion will potentially get round the challenges associated with the temporal problem and economic data research for any variabilities in the magnitudes of financial sanctions should be regarded as the deviations from a deterrence-based enforcement policy against which effectiveness is to be determined. Provided that the deterrence-based enforcement policy is in force, its objective is to send out a strong deterrent message with the expectation of some would-be insiders refraining from violating (FCA, 2022), then only inconsistencies in the severity criterion are required in figuring out whether the objective and expectation have been met.

Nature of insiders

Deterrence varies with insiders' preferences for risk (Becker, 1968). For the purposes of this paper, insiders as well as would-be insiders are rational risk-averse actors (Geis and Szockyj 2002; Gobert and Punch, 2003). Risk aversion implies that the insider will choose a second-order stochastically dominant gamble to a dominant one, that is, a sure gain over a positive gamble (Tversky and Kahneman 1986). As regards the rationality assumption, although people's rationality is susceptible of errors (Tversky and Kahneman 1984; Thaler, 2015), people have the ability to weigh up their options, update their beliefs as new information comes in and comprehend the consequences of any given course of action (Bandura, 1977; Kennedy, 2008; Cline and Posylnaya, 2019).

Akin to legitimate economic behaviour (Becker, 1968), this deliberating is driven by utility maximisation (Herrmann-Pillath, 1994; Friedman and Savage, 1952; Jones, 2021; Nerantzi and Sartor, 2024; Kahneman and Thaler, 2006). So, it is expected that the insider contravenes the law when the expected benefit from insider dealing is greater than the costs of non-commission (Ferraz and Soares, 2022). In the same manner as risk attitudes can be inferred from people's decisions (Shou and Olney, 2021; de Finetti, 1937); deterrence can be inferred from the severity of enforcement action as there is objectively speaking nothing preventing would-be insiders from learning from the experiences of those having been penalised (Lessig; 1996; Stafford and Warr, 1993; Yiu et al., 2014). That is why the FCA must propagate a sanction that is capable of bearing on the insiders' cost-and-benefit deliberations and assure that the FCA will follow through with a severe penalty.

Low certainty of enforcement

Due to scarce economic resources the FCA should operate in an effective and efficient manner (HMT 2014, 2.3, 2.8, EG 2.1.2(4)) by prioritising cases with a higher likelihood of successful completion and greater deterrence value (EG 2.2.9). That is, some instances of insider dealing will fall through the cracks of enforcement even when such potential cases of insider dealing may be similar in nature and/or impact to the cases already commenced (EG 2.2.5, Symington, 2017). To put it even simpler, the certainty of enforcement is relatively low, or uncertain.

A low certainty of penalty is countervailed by a severe penalty (DEPP 6.5.2[G](1), EG 2.1.2(4), Shavell and Polinsky 2007). The FCA concurs with that academic literature and aims to impose a financial sanction that will be 'sufficiently higher than any given gain or benefit was, is or might be in the future' (Steward 2020, DEPP 6.1.2[G], 6.5.2[G](1)). This is because every single case serves a broader general deterrence purpose than just penalising the insider against whom the enforcement action has been initiated (FCA CP24/2 2024). A sanction with the diminished severity given the low certainty of this sanction being imposed will in accordance with the assumptions of expected utility theory give rise to more insider dealing (Polinsky and Shavell, 1984; 2005, von Hirsh et al., 1999; Nagin and Pogarsky 2003; Paternoster 2010, Bushway and Owens, 2013; Han et al., 2013).

Five-step framework

The FCA constructs a civil financial sanction pursuant to a five-step framework of the Decision Procedure and Penalty Manual (DEPP). Three principles underlie the severity of a sanction, namely, disgorgement, no person should benefit from any breach; discipline, such a sanction penalises a wrongdoer; and deterrence, is directed towards deterring this person and others from committing further or similar violations (DEPP 6.5.2[G]). The paper will focus only on the first two steps, disgorgement (DEPP 6.5 C.1[G]) and a penalty reflecting the seriousness of insider dealing (a PRISID) (DEPP 6.5 C.2[G]). The other three steps, namely, step 3 listing aggravating and mitigating factors under DEPP 6.5 C.3[G], step 4 entitling the FCA to make penalty adjustments to amplify deterrence (DEPP 6.5 C.4[G]) and step 5 providing early settlement discounts (DEPP 6.5 C.5[G]), will not be touched upon separately, but will be understood as being subsumed by the final financial sanction.

To note, according to DEPP 6.4, the FCA may instead of a financial sanction impose a public censure. This paper ignores this sanction for two reasons. First, insider dealing cases call for a more severe penalty (DEPP 6.2), and second, to date there have been only two relevant cases of public censures.[1] Furthermore, the FCA can also mete out administrative and/or disciplinary sanctions. In the same vein, these sanctions will not be referred to separately for they are not monetary and can only be imposed on authorised and regulated persons. Any person who is not authorised by the FCA cannot be administratively or disciplinarily sanctioned.

[1] FSA Final Notice against D Morton and C Parry, 6 October 2009

Undeterminability of illegal benefits

A financial penalty should satisfy two principles, proportionality (DEPP 6.5.3[G](3)) and a penalty should outweigh the benefits from insider dealing (DEPP 6.1.2[G], DEPP 6.5.2[G](1)). The logic behind the principle of proportionality is that a penalty should 'fit the crime' (Hart, 1968: 160), so that it does not subvert marginal deterrence (Beccaria, 1872; von Hirsh 1992). Marginal deterrence according to Bentham's Rule 3 and Rule 4 is necessary '…to induce him [a man] to do no more mischief that what is necessary for his purpose' (Bentham, 1830). Putting together such a financial penalty in large measure pivots on the FCA's ability to correctly quantify the amount of directly and/or indirectly materialised and/or non-materialised illegal benefits from insider dealing (DEPP 6.5.2[G]). Manne (1984) argues that insider dealing regulations are inherently ineffective as no regulatory body can accurately quantify illegal benefits. With some reservations this paper subscribes to this argument that the quantification issue undermines deterrence (Raskolnikov, 2014). In that case, marginal deterrence is limited to single cases, which is not what general deterrence seeks to achieve, or deterrence is absent as a result of a disproportionately low penalty.

My argument is that the FCA can observe only a fraction of the total amount of insider dealing events for the FCA cannot know the exact quantity of pieces of inside information in circulation at any given time (Adams et al., 2018; Iscenko et al., 2016; Cline and Posylnaya, 2019; FSA CP 09/19). It follows that, the total amount of illegal benefits from insider dealing and corresponding total harm to the integrity of the UK financial system are undeterminable. Therefore, the total amount of imposed financial sanctions is lower than the total amount of illegal benefits from insider dealing. This can be observed in the transaction reporting and suspicious transactions and orders requirements.

Transaction reporting

In Market Watch 63, the FCA makes it clear that the more accurate transaction reporting data are submitted to it by investment firms which execute transactions in financial instruments, the higher the probability of detecting insider dealing. Inversely, inaccurate and untimely transaction reports can result in the FCA missing out on potential instances of insider dealing (Longman, 2022). As a matter of fact, a study conducted by ACA Group (2022) finds that there have been persistent problems in the process of transaction reporting with 97 per cent of reports containing various types of inaccuracies but with 87 per cent of firms being confident in the quality of their submitted reports. For example, in 2019 Goldman Sachs International was fined around £34 million for failing to provide accurate and timely reporting relating to round about 213.6 million transaction reports and made 220.2 errors in its transaction reporting between November 2007 and March 2017 (FCA Final Notice, 2019).

Furthermore, suspicious transaction and orders reports (STORs) reveal an interesting aspect of enforcement. STORs are submitted by investment firms as a result of a reasonable suspicion that an order or transaction in any financial instrument, whether placed or executed on or outside a UK trading venue, could constitute insider dealing or attempted insider dealing (article 16(2) UK MAR). Statistically speaking, in 2016 the FCA received 1562 STORs, in 2017 the number tripled to 4829 STORs, in 2018 the number of STORs rose to 5107, in 2019, 4683 STORs were received, in 2020, the number dropped down to 3553, in 2021, the statistics increased to 4233 STORs and in 2022, the FCA was reported 3367 STORs (FCA 2023).

At the same time, for the year ending 2022/23, the FCA had 46 dual track and 20 criminal investigations into insider dealing, that is, the FCA receives ten to 50 times as many STORs as it launches investigations into. Of course, a STOR does not automatically prove insider dealing, but whilst transaction reporting reveals the unobservability of all instances of insider dealing, STORs demonstrate that even within those observed potential instances of insider dealing the FCA does not look into every case. This spawns a question, if the FCA received all transaction reporting in an accurate and timely manner and STORs, would it increase the number of investigations?

The risk-based approach

Seemingly it would make no difference for the FCA since it would still need to act in line with Principle 1 of good regulations instructing the FCA to allocate its resources in the most efficient and economical way (section 3B(1)(a) FSMA 2000). This allocation is carried out in accordance with the FCA's risk-based approach to both supervision (Supervision Manual (SUP) 1 A.3.2 A[G]) and enforcement (EG 2.2.5). For the FCA risk in this setting equals the impact of the problem if it occurs multiplied by the probability of the problem occurring (FCA Risk Management, 2017). With this in mind, much the same as the undeterminability of total illegal benefits from insider dealing, risk of insider dealing cannot be generalised on the foot of impossibility of multiplying this risk by the probability of insider dealing occurring. Instead, the risk of insider dealing ought to be generally held constant. But the probabilities of a particular insider dealing instance are conditional on the FCA's possessing adequate evidence enabling it to carry an investigation through (EG 2.2.5, Symington, 2017).

The case for undeterminability in single cases

My argument continues in that since the total amount of financial sanctions is smaller than the total amount of illegal benefits, logically this fact can be extended to assuming that there is a risk of underestimating the amount of illegal benefits in individual cases (Polinsky and Shavell, 1994). This misquantification risk looms large for it is through individual cases the FCA maximises the prospects of delivering credible deterrence in a risk-based environment (FCA Business Plan 2023/24).

For example, persons creating, co-creating and holding inside information can be unaware of the fact that they are in possession of price-sensitive inside information. Tejoori Limited, a self-manged close-ended investment company is a case in point. In 2017, the FCA fined the company £70,000 for failing to disclose inside information to the public when Tejoori Limited should have done so (FCA Final Notice, 2017). It was found that the company mistakenly believed that the disposal of its shares as part of the drag-along clause in the company concerned did not constitute inside information. It is irrelevant for this paper whether Tejoori Limited really did not know that, but what important is that any person being unaware of possessing inside information can deal in that inside information himself, improperly disclose inside information to third parties, or encourage third parties to deal in inside information. Then those third parties could follow the same routine, go on to deal in inside information themselves, further improperly disclose inside information, or encourage other parties to deal in that inside information. Subsequently, any quantification and identification of illegal benefits will be barely feasible, if at all.

The FCA is silent on how it quantifies the illegal benefits, but it can be presumed that the FCA deploys different methodologies depending on the intricacies of any given case. Apparently, the most basic disgorgement model is to evaluate the difference between the values of a financial instrument pre and after a public announcement. This model does not work in situations when for example an insider opts out of closing his position (Minenna, 2003), or insiders' strategies may involve amalgamating trading on preferential information with noise trades thereby camouflaging illegality in the uninformed flows of trading (Kyle, 1985). Potential deterministic disgorgement rectifies some of the basic model's shortcomings by introducing an open-weighted average price multiplied by the invested quantities (Minenna, 2003:68). But this model cannot account for illegal profits accruing from long positions as they may have been affected by extraneous influences (Minenna, 2003).

The other more sophisticated disgorgement models, such as event study analyses or also known as potential econometric disgorgement that incorporates percentage variations of a financial instrument, that is, returns, or potential probabilistic disgorgement that simulates all potential future price scenarios with corresponding probability measures building on insiders' strategies and on the past values of a financial instrument as conditioned on the present values (Minenna, 2003) are likewise not one-size-fits-all solutions. Technological advancements in financial services like high frequency trading, where pre-set trading algorithms enable a person to generate profits even before prices have absorbed new inside information can throw out the aforementioned models (Yadav 2016). Since from the moment of public disclosure, insiders can go about dealing in inside information lawfully (recital 25 UK MAR) without so much as waiting for this new inside information to be reflected in the prices. Moreover, the models will find it difficult to trace and calculate illegal benefits accrued as a result of improper disclosure or encouragement as there can be multiple recipients of inside information.

The ultimate question therefore is, are the imposed and yet-to-be imposed sanctions for that matter can be lower than the quantified illegal benefits?

The solution to the problem

This question can possibly be tackled by unravelling the complexities of any given case, such as, the duration and frequency of insider dealing, whether there was improper disclosure or encouragement to deal in inside information, or both. But those approaches focus on individual cases, so they will not be as comprehensive for the purposes of generalisation. Surely, there can be similar patterns observed between the analysed cases, but those patterns will be bounded by the specifics of that case including but not limited to the legal environment at the time of disposing of the case, the level of sophistication of technology when the insider dealing was committed, or the regulator's attitude towards enforcement, which may run counter to deterrence as it was the case with the light-touch approach to regulation prior to the global financial crisis of 2007/09 (Bailey, 2019) and so on.

This paper argues that the misquantification risk can be located not through the certainty criterion, but by analysing the structure of a civil financial sanction. This is because the purpose of a sanction remains intact as long as the deterrence-based policy is in effect, and it is ubiquitous across cases. To put it differently, the policy's objective to impose a sanction sufficiently higher than any given benefit (DEPP 6.1.2[G], DEPP 6.5.2[G](1)) is a reference point against which the variabilities in financial sanctions' components are to be compared. If the civil regime's penalty-setting mechanics somehow make it possible for the misquantification risk to exist, then this very risk if unpicked can be employed as a measure of the policy effectiveness.

Financial penalty components

Disgorgement as a financial penalty component presupposes weaker punitive value for it cannot be evaluated in isolation. When disgorgement is juxtaposed against a PRSID it shows up the misquantification risk in the penalty-setting framework going against the objective of the FCA's deterrence-based enforcement policy.

Argument 1 - Disgorgement as restitution

In insider dealing cases disgorgement can be replaced with restitution. As equitable remedies both disgorgement and restitution are non-compensatory because they are circumscribed by their own quantifications (Grantham and Rickett, 2003). Restitution can be understood as about giving back illegal benefits, whereas disgorgement as about giving up illegal benefits, which can also be disgorged to the state (Virgo, 2008). Due to the infeasibility of tracing and linking the victims of insider dealing to the ill-gotten benefits accrued as a result of the insider dealing (Ahern, 2017), in the UK lay persons cannot bring claims against insiders, so no quantified amount of illegal benefits can be disgorged to the claimant. Yet, a claim against an insider can still be laid if it is a face-to-face transaction with identifiable counterparties, in which restitution can be sought (EG Chapter 11). This was in the case of Gavin Breeze, who had avoided a loss of £1900 at the expense of identifiable victims. The FCA ordered him to pay restitution in the amount of £1850 with interest amounting to £259, which was to be passed by the FCA to the victims (FCA Final Notice, 2016). Had there been no identified victims, this £1900 would have been disgorged to the FCA.

The crux of the argument is that whilst in restitution gain and loss are quantitatively correlative (Benson, 2004; Cares and Haynes, 2018), in insider dealing cases gain and loss are not necessarily correlative for the risk of quantifying incorrect amount of illegal benefits from insider dealing. If disgorgement doubles up as restitution and brings an insider to the position had there been no insider dealing, then this makes an evaluation of disgorgement's punitive value problematic because the disgorgement value can either be equal to or lower than the quantified amount of illegal benefits.

Argument 2 - PRSID computational methodologies

Whatever models the FCA chooses to employ to quantify disgorgement, disgorgement is fixed in relation to its quantified sum. So, if a disgorgement figure is set at £25,000, it cannot be raised to £30,000 without firstly proving that £30,000 had been made (DEPP 6.5 C.3[G](1)). Similarly, this disgorgement figure cannot be slashed down to say £20,000, unless it is proven that the insider in question did not make £30,000 to begin with.

On the other hand, the PRSID's computation is more transparent and straightforward as it is subject to three sets of factors, namely, referability of insider dealing to an individual's employment, the factors reflecting the seriousness of insider dealing, and further adjustments at steps 3, 4 and 5 of the framework. The FCA should establish whether or not insider dealing was referrable to an individual's employment (DEPP 6.5 C.2[G]). In cases where the insider dealing was referrable to an individual's employment, the figure for the purposes of a PRSID will be a figure based on a percentage of the individual's relevant income. According to DEPP 6.5 C.2[G](4), an individual's relevant income will be the gross amount of all benefits received by him from the employment in connection with which the insider dealing occurred for the period of the insider dealing. Where the insider dealing lasted less than 12 months, or was a one-off event, the relevant income will be that earned by the individual in the 12 months preceding the final insider dealing. If the individual was in the relevant employment for less than 12 months, his relevant income will be calculated on a pro rota basis to the equivalent of 12 months' relevant income (DEPP 6.5 C.2[G](4)).

In determining the level of seriousness of insider dealing in cases when it is referrable to an individual's employment, the FCA uses five levels ranging between 0 per cent to 40 per cent of the individual's relevant income and a profit multiple between 0 and 4 (DEPP 6.5 C.1[G](6) and (8)). Insider dealing cases are normally considered by the FCA to be seriousness level 4 or 5 and set at £100,000 (DEPP 6.5 C.2[G](2)(c)). To note, this fixed £100,000 amount is different to the Sentencing Guidelines (Step 2 Aggravating Factors) in that, the FCA considers every case of insider dealing to be worth imposing this penalty. In cases where the insider dealing was not referrable to the individual's employment, the figure will be a multiple between 0 and 4 of the illegal benefits by the individual for his own benefit, or for the benefit of other individuals where the individual has been instrumental in achieving that benefit (DEPP 6.5 C.1[G](7)).

Argument 3 - locating the misquantification risk

There are four categories of factors that the FCA considers in addressing the severity of a financial sanction.[2] The paper will look at the impact factors under DEPP 6.5 C.2[G](11),

(a) the level of benefit gained, or loss avoided, or intended to be gained or avoided, by the individual from the market abuse, either directly or indirectly,
(b) whether the market abuse had an adverse effect on markets and, if so, how serious that effect was,
(c) whether the market abuse had a significant impact on the price of shares or other investments.

The reason for concentrating on the impact category is while it is unclear whether there is any hierarchical division between the categories, it appears that the impact factors are first amongst equals. Insider dealing is all about making profits and avoiding losses (Cziraki and Gider, 2021, Ahern; 2017; Jeng et al., 2003; Lakonishok and Lee, 2001). Therefore when the impact factors are not determined, the FCA can still probabilistically surmise that insider dealing could have generated an *n*-amount of profits or caused an adverse impact on the market (FSA Final Notice 13 March, 2012: paras 33, 34, 39 and 41). It is unlikely that the other three categories of factors can be probabilistically surmised by the FCA. By way of illustration, consider the category tending to show whether the market abuse was deliberate. In the case of Massey, the Upper Tribunal found him acting not in a deliberate manner, but who '…by a process of wishful thinking persuaded himself on inadequate grounds that he was so entitled' to deal in the inside information he had (UKUT FIN/2009/0024: para 43). Could the FCA probabilistically assume that a wrongdoer would have acted deliberately when he had not? Would the outcomes of his actions have been different if he had acted deliberately, by how much? Another way of looking at this problem through the factors under the nature category of insider dealing. For example, if an insider is not an approved person, can the FCA allege that he is an approved person? Certainly not. This category will not have a bearing on the behaviour of the outsider.

It matters less whether an insider commits insider dealing recklessly or not recklessly, deliberately or not deliberately and so forth, as they are mitigating and aggravating factors. The indispensable constituent of insider dealing is price-sensitivity of inside information, that is, profitability. Should inside information be not price-sensitive, then no insider can generate illegal benefits on the basis of that hollow information. No insider dealing is committed, and any other factors are hence immaterial.

[2] The other factors under DEPP 6.5 C.2[G](12),(13) and (14) are, Nature of insider dealing, the frequency of market abuse - if committed on multiple occasions, whether the individual abused a position of trust, whether the individual is an experienced industry professional, whether the individual held a senior position with the firm, whether the individual acted under duress, and whether the individual caused or encouraged other individuals to commit market abuse. Deliberate insider dealing, the market abuse was intentional, in that the individual intended or foresaw that the likely or actual consequences of his actions would result in market abuse, the individual intended to benefit financially from the market abuse, either directly or indirectly, the individual knew that his actions were not in accordance with exchange rules, share dealing rules and/or the firm's internal procedures, the individual sought to conceal his misconduct, the individual committed the market abuse in such a way as to avoid or reduce the risk that the market abuse would be discovered, the individual was influenced to commit the market abuse by the belief that it would be difficult to detect, the individual's action were repeated, the individual knew or recognised that the information on which the dealing was based was inside information. Reckless insider dealing, the individual appreciated there was a risk that his actions could result in market abuse and failed adequately to mitigate the risk, the individual was aware there was a risk that his action could result in market abuse but failed to check if he was acting in accordance with internal procedures

The impact factor under DEPP 6.5 C.2[G](11)(a), 'the level of benefit gained, or loss avoided, or intended to be gained or avoided, by the individual from the market abuse, either directly or indirectly' represents a figure that is identical to the disgorgement figure. It is confounding not only because it stands for both disgorgement and the impact factor, but also it shapes a PRSID. What it means is that the disgorgement ought not to be higher than the PRSID in the same way as the illegal benefits from insider dealing ought not to be higher than the financial penalty.

The FCA's civil regime's penalty-setting framework permits such a possibility. In cases where a PRSID slides down towards disgorgement, the difference between the penalty components narrows. If the PRSID continues plummeting, this drop will lead to a situation where disgorgement becomes higher than the PRSID. By contrast, it is equally possible that as a PRSID increases against fixed disgorgement, the difference between them widens thereby stepping up deterrence commensurate with the seriousness of insider dealing. This elasticity of a PRSID allows greater leeway for the FCA to mould a financial penalty, but the problem is that the framework does not recognise the straddling nature of the disgorgement figure. If it is how the land lies, the penalty-setting framework is at variance with the objectives and expectations of the FCA's deterrence-based policy by allowing a financial sanction to be disproportionately lower than the quantified amount of illegal benefits.

Methodology

In order to evaluate the effectiveness of insider dealing regulations through the lens of severity with the in-built risk of a financial sanction being lower than the quantified amounts of illegal benefits from insider dealing, a two-step-algorithm is proposed for situating deterrence from the misquantification risk. At the centre of the model is the expectation that disgorgement should never be higher than a PRSID.

Given a relatively low certainty of enforcement, the model derives deterrence not from the frequency of enforcement, but through the actually imposed and potential sanctions. The model circumvents the temporal order and economic data challenges for the severity criterion is stable over time regardless of insiders past illegal experiences, penalty-setting frameworks, and the certainty criterion, unless of course the certainty criterion is zero or barely noticeable. This is because the model is predicated on the objective of a deterrence-based enforcement policy that is to deter would-be insiders and the assumption that would-be insiders are rational risk-averse actors who can vicariously experience the imposed sanctions (Yiu et al., 2017; Lessig, 1996) given the misquantification risk.

Data collection

A two-step algorithm is designed for cases where both disgorgement and a PRSID, or/and only disgorgement are deployed. In a period between 2004 and 2023 of the total of 47 civil insider dealing cases against 54 individuals analysed, 30 individuals met the inclusion criteria. Table 1 below provides a list of the included cases accomplished between 2004 and 2023.

In the bottom of Table 1 there are some cases where a PRSID is denoted as $\alpha = 0$. This means that disgorgement was the only penalty imposed. The reason for including such cases was that the FCA and its predecessor could have imposed a PRSID on top of disgorgement but for whatever reasons decided not to do so. This differs from the cases where disgorgement was not quantified, leaving the FCA and its predecessor with no other choice but to impose a PRSID penalty as the only financial penalty.

Step 1: grouping

The total financial penalty is made up of two penalty components, disgorgement and a PRSID. The disgorgement figure, f_p, also represents

Table 1
The cases with disgorgement.
Source. The FCA final notices

Case name	Total Penalty	Disgorgement f_p	PRSID α	α -f_p
Robert Middlemiss	£15,000	£6825	£8175	£1350
Peter Bracken	£15,000	£2824	£12,176	£9352
Michael Thomas Davies	£1000	£420	£580	£160
Robin Mark Hutchings	£18,000	£4924	£13,076	£8152
Arif Mohammed	£10,000	£3750	£6250	£2500
Jonathan Malins	£25,000	£6400	£18,600	£12,200
James Boyd Parker	£250,000	£121,742	£128,258	£6516
Richard Ralph	£117,691	£12,691	£105,000	£92,309
John Shevlin	£85,000	£38,000	£47,000	£9000
Mehmet Sepil	£967,005	£267,005	£700,000	£432,995
Steven Harrison	€52,500	€44,000	£4500	≈-£40,000*
Levent Akca	£94,062	£10,062	£84,000	£73,938
Filip Boyen	£81,982	£29,482	£52,500	£23,018
Darwin L. Clifton	£275,541	£85,541	£190,000	£104,460
Erik Boyen	£176,254	£127,254	£49,000	-£78,254
Jeffery Burley Jeremy Burley	£157,500	£21,700	£135,800	£114,000
Andre Jean Scerri	£66,000	£46,000	£20,000	-£26,000
Mark Samuel Taylor	£36,285	£3498	£32,787	£29,289
Murat Ozgul	£105,240	£35,240	£70,000	£38,256
David Massey	£150,000	£111,474	£38,256	-£72,948
David Einhorn	£3638,000	£660,795 £5800,000	-£2822,795	-£9283,590
Kenneth G. Carver	£35,212	£24,207	£11,005	-£13,202
Philip Jabre	£1500,000	£500,000	£1000,000	£0
Bettie C. Hatcher	£56,098	£56,098	£0	£0
Stewart McKegg	£14,411	£14,411	£0	£0
Brian V. Taylor**	£4462	£4462	£0	£0
Robbin Chhabra				
Sameer Patel	£285,541	£85,541	£200,000	£145,459
Gavin Breeze	£61,686	£2109	£59,557	£57,448

* Because of the foreign currency exchange conversion this amount is approximate
** The penalty was composed solely of disgorgement

the amount of illegal benefits, f_b. The absence of f_p does not rule the existence of f_b. By subtracting f_p from the total financial penalty the PRSID, α is obtained followed by $\alpha - f_p$ to obtain the difference between the penalty components, ω. This difference is to be compared against f_b. This is necessary because both f_p and α are the components of a financial penalty, that is, each can be deployed separately. For instance, say the total penalty is £13,000, where f_p is £3,000, then α equals £10,000. Both financial penalty components are active in this example. If f_p is not quantified, then this total penalty of £10,000 is equivalent to α. On the other hand, if the only penalty is f_p, there is no α, then $f_p = f_b$. Thus, $\alpha - f_p$ effectively bisects these penalty components from each other, where f_p branches out into $f_p = f_b$. Again, ω is the difference between $\alpha - f_p$. Logically, when $f_p = f_b$, it is twice referred to, therefore it is necessary to eliminate f_p and obtain the difference to be compared against f_b which will tell the severity of a financial penalty pertaining to the quantified illegal benefits.

There are three basic groups,

$\alpha - f_p > f_b$, is $\omega > f_b$

$\alpha - f_p < f_b$, is $\omega < f_b$

$\alpha - f_p = f_b$, is $\omega = f_b$

The first group, $\omega > f_b$, indicates a positive relationship, a financial penalty is greater than the quantified illegal benefits. The second group, $\omega < f_b$, indicates that this relationship is negative, that is, a financial penalty is lower than then quantified illegal benefits. And the third group, $\omega = f_b$, indicates a break-even point, where the financial penalty equals the quantified illegal benefits. Sitting in the middle of the two extremes, $\omega > f_b$ and $\omega < f_b$, the break-even group delineates a reference point from which a penalty can become either negative or positive. Consider, α = £100,000 and f_p = £25,000, then patently $\alpha > f_p$, and $\omega > f_b$. By increasing f_p to say £50,000, it will still be $\alpha > f_p$, but $\omega = f_b$. If keeping α constant at £100,000 but with f_p moving up from this break-even point to £50,001, where there is still $\alpha > f_p$, but it is nonetheless $\omega < f_b$, although by a negligible margin of £1. In other words, when the difference between α and f_p narrows it leads to $\omega < f_b$. For this reason, it is sensible to keep disgorgement fixed and a monetary penalty adjustable, but latter can be adjusted in either direction in relation to disgorgement which is fixed relative to its quantification. So only if this quantification changes so does disgorgement. With an increasing monetary penalty but with decreasing disgorgement will inevitably bring about $f_p = 0$ or being unquantified. For example, α £13000 and f_p £7000, then $\alpha < f_p$. If keep carrying on with this, α becomes £14,000 and f_p = £6000, then $\alpha < f_p$. But if keep adding to α and subtracting from f_p will lead to $f_p = 0$. That is why, when f_p is fixed at some quantified figure, α should not sink below the positive break-even point, but climb up. By way of an example, if α = £21,000 and f_p = £10,000…, α = £30,000 and f_p = £10,000 and so forth given marginal deterrence, obtaining a positive difference between ω and f_p. But if α is reduced with constant f_p, the difference will eventually become negative. As if α = £19,000 and f_p = £10,000, … α = £13,000 and f_p = £10,000, …, leading to a negative point when say α = £9999 and f_p = £10,000, although in this example by a negligible margin of -£1. So, if $\alpha < f_p$, as in α = £9000 and f_p = £11,000, the resulting figure will be negative, i.e., -£2000. This negative border will eventually lead to $\alpha = 0$ as opposed to $f_p = 0$. To put it differently, a PRSID sliding up with disgorgement fixed at some quantified figure shows that the difference between the components widens and the total value of a financial penalty goes up too. By contrast, if a PRSID strides down, then it walks closer to the disgorgement figure, again assuming that disgorgement remains intact. The closer the PRSID figure marches towards the disgorgement the narrower becomes the difference eventually

Table 2
The deterrent rates for $\omega > f_b$ and $\omega < f_b$.

Group: $\omega > f_b$	Group: $\omega < f_b$
$\varsigma = 1.3, \varsigma = 1.6, \varsigma = 1.52$ $\varsigma = 1.13, \varsigma = 1.61, \varsigma = 1.13$ $\varsigma = 1.81, \varsigma = 1.19, \varsigma = 1.11$ $\varsigma = 1.74, \varsigma = 1.00$	$\varsigma = 6, \varsigma = 3.62, \varsigma = 2.5$ $\varsigma = 19.68, \varsigma = 5.22, \varsigma = 2.28$ $\varsigma = 2.01, \varsigma = -0.63, \varsigma = -0.11$ $\varsigma = -0.77, \varsigma = -0.52, \varsigma = -0.83$ $\varsigma = -0.87$

leading to a situation where the PRSID slips below the disgorgement going against the FCA's deterrent approach to tackling market abuse (FCA, 2022).

It was found that 11 individuals fall under $\omega > f_b$, 13 individuals belong to $\omega < f_b$, and $\omega = f_b$ was computed in six cases, where in three cases only the disgorgement component was deployed. These findings are significant in that they show that in 13 cases the financial penalties were smaller than the quantified illegal benefits.

Step 2: a deterrent rate

A deterrent rate, ς is derived from both $\omega > f_b$ and $\omega < f_b$ by $\varsigma = \frac{\alpha}{\alpha - fb}$, and it is defined as the difference between these two groups for α. The deterrent rate corroborates the grouping step in that when the difference between the PRSID and the disgorgement figure is small therefore bigger ς, but when the difference is large therefore smaller ς. The first group $\omega < f_b$ indicates that the actual difference between α and f_b is small therefore bigger ς. In the other group it is the opposite, the difference between α and f_b is large therefore smaller ς.

It can be seen in Table 2 there is a tendency for a financial penalty to be greater than potential benefits, so ς is within the value of 1. For the other group where the potential illegal benefits were greater than the financial penalties ς was everywhere even in the domain of negative numbers but not within 1. In relation to the break-even category with six individuals the deterrent rate is assumed to be at 0. It was found that for $\omega > f_b$, ς is locked within the value of 1, and for $\omega < f_b$, ς is everywhere above the value of 1 or below the value of 0.

If ς is a negative number, when adding up it takes away from the average, since a positive number is added to the negative one. To get round this problem one may simply turn to two alternative computations, (1) take absolute value of the deterrent rate or (2) swap round and flip over $\varsigma = \frac{\alpha}{\alpha - fp}$ to have $\frac{fp - \alpha}{\alpha}$. For the latter the results will simply mirror the obtained ones, where for $\omega > f_b$, ς will be outside 1, and for $\omega < f_b$, ς will be within 1.

Conclusion and future research

This paper shifted attention to the heretofore underresearched severity criterion of civil financial sanctions. Prior research in its pursuit of determining the effectiveness of insider dealing regulations has been predominantly skewed towards the stringency of regulations as represented by the certainty of enforcement. However, previous studies disregarded the fact that the certainty criterion in insider dealing cases is relatively low, that is periodic, so it cannot provide robust evidence about effectiveness. Similarly, the stringency of regulations, although provides for severe legal repercussions, it does not necessarily evaluate the actual severity of financial sanctions.

The severity criterion circumvents the certainty criterion's limitations in that it is not assessed as being frequent or rare, and it is not related, at least directly, to amendments to insider dealing laws including structural and organisational overhauls, tightening or slackening regulations, budgeting considerations and other multiplex factors. Instead, the severity criterion depends only on the goal of the FCA's deterrence-based enforcement policy, which is geared towards amplifying a deterrent effect through every accomplished case in a risk-based environment. General deterrence is achieved so long as the severity of imposed, and yet-to-be-imposed sanctions is upheld so that would-be insiders can conjure up and vicariously experience the legal consequences (Trevino, 1992; Stafford and Warr, 1993; Piquero and Pogarsky, 2002; Yiu et al., 2014).

The risk with the severity of sanction is that the FCA can underestimate the real amount of illegal benefits, but this very shortcoming can be used as a measure of the severity criterion and thus evaluate the effectiveness of insider dealing regulations. This risk can be observed in the deviations from the reference point, that is the objectives of the FCA's insider dealing policy. The ambiguous nature of disgorgement as a financial penalty component bears out the possibility of having a penalty lower than the quantified illegal benefits. The novel two-step algorithm proposed in this paper measured the prevalence of the misquantification risk. Findings show that in around half of the studies cases the deterrent effect has been undermined for the financial sanctions were lower than the quantified amounts of illegal benefits.

However, despite that there is telling evidence alluding to the FCA's deterrence-based enforcement strategy being at odds with the implementation of that policy in that the principle of disgorgement contradicts the principles of discipline and deterrence, this paper does not hasten to conclude that the policy has been ineffective. While it is advised that the FCA might refer to and deploy the two-step algorithm in the process of penalty determination and consider demoting disgorgement to a mere element of a financial penalty, more research is needed on both the civil and criminal regimes before tabling constructive policy reform.

Furthering research can be done in the following directions. The model is built solely around the impact factor, so future research may incorporate the other factors reflecting the seriousness of insider dealing. Exploring various factors' permutations and combinations will enhance the theoretical capacity of the proposed two-step algorithm. More should be invested in unpicking the break-even group as a potential reference point for an optimal financial penalty.

CRediT authorship contribution statement

Rustam Mirrakhimov: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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