

The Algorithmic Crowd: Artificial Intelligence, Correlated Trading and the Limits of Institution-Level Regulation

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Abstract

Separately controlled trading systems can behave lawfully and still create market-wide risk when they rely on common models, signals or constraints. This article examines how UK and EU law allocate responsibility for that problem, which predates AI and may be amplified by more advanced automated trading. Existing law reaches much of the conduct. Firm-level duties can extend to foreseeable market interactions, venues can respond once trading effects appear, and article 42 of UK MiFIR can reach defined practices firms can identify in advance. It does not clearly reach an emergent crowd visible only after lawful decisions combine. The remaining gaps concern cross-firm information, limited scope and early detection. Responsibility should sit where aggregate risk can be seen and coordinated control can be exercised.

Keywords

artificial intelligence, algorithmic trading, correlated trading, systemic risk, financial stability, MiFID II, MiFIR, market abuse, macroprudential regulation, product intervention

1. Introduction

In April 2025 the Bank of England's Financial Policy Committee (FPC) warned of a specific risk from more advanced AI trading. Firms could take increasingly correlated positions and behave similarly under stress, amplifying shocks.¹ The problem does not require a defective algorithm. Several banks, hedge funds and asset managers can run separately controlled systems that work exactly as designed. Those systems can still react to the same model, signal or market condition by reducing the same exposure at the same time. Shared suppliers are one possible source of commonality. The firms' responses may involve buying or selling securities, or taking positions through options and swaps. Those transactions can reinforce one another without coordination or malfunction. The danger appears only when the firms' decisions are viewed together. Existing law reaches significant parts of this problem despite an institution-by-institution design, although it does not clearly reach the market-wide pattern as such.

¹ Bank of England, 'Financial Policy Committee Record: April 2025' (9 April 2025) para 50 <<https://www.bankofengland.co.uk/financial-policy-committee-record/2025/april-2025>> accessed 29 September 2026.

Financial regulation is built more comfortably around risks with an identifiable location. A firm can be required to test and control the algorithm it deploys. A trading venue can control activity in the market it operates, and market abuse law can respond where algorithmic conduct becomes manipulative. The harder problem begins when each of those systems works within the applicable rules and the risk arises from interaction across otherwise separate institutions. That residual case, lawful correlated conduct, covers parallel responses by separately controlled systems to common models, data, vendors, signals or objectives, with no coordination among the systems, explicit or emergent, and no other feature engaging the misconduct rules. It also assumes no failure of the applicable firm-level controls. The problem is lawful conduct becoming dangerous only in combination, not an algorithm behaving unlawfully inside one firm.

The regulatory question is already being asked in those terms. In July 2026 the Bank of England said the issue was "not only whether firms can understand and govern these models effectively, but whether the financial system, including regulators, has the visibility, indicators, and intervention mechanisms to monitor and contain the resulting collective behaviours".² The same report also recorded an important limit on the evidence. More autonomous AI was being used mainly for research, coding and surveillance, rather than fully autonomous trading.³ The concern is therefore prospective. The legal question, however, is narrower. When firms satisfy the controls imposed on them and model-driven strategies nevertheless converge into market-wide risk, where is responsibility allocated under UK and EU law, and can any public authority lawfully and practically intervene before the interaction becomes serious market disorder?

Existing scholarship reaches parts of that question from different directions. Goldby and Keller examine product-intervention powers as macroprudential tools through the case of catastrophe bonds.⁴ One strand of the literature treats artificial intelligence (AI) as a source of systemic externalities that sectoral legislation does not require firms to internalise.⁵ Another identifies the absence of binding AI-specific requirements in MiFID II concerning model design, data governance, explainability and traceability, and proposes additional safeguards within

² Bank of England, 'Financial Stability Report: July 2026' (7 July 2026) s 3.5
<<https://www.bankofengland.co.uk/financial-stability-report/2026/july-2026>> accessed 29 September 2026.

³ Financial Stability Report July 2026 (n 2) s 3.5.

⁴ Miriam Goldby and Anat Keller, 'Product Intervention as a Macroprudential Tool: The Case of Catastrophe Bonds' (2019) 51 *Geo Wash Intl L Rev* 1.

⁵ Anat Keller, Clara Martins Pereira and Martinho Lucas Pires, 'The European Union's Approach to Artificial Intelligence and the Challenge of Financial Systemic Risk' in Henrique Sousa Antunes and others (eds), *Multidisciplinary Perspectives on Artificial Intelligence and the Law* (Springer 2024) 422.

investment-services law.⁶ What remains unresolved is how the powers already distributed among firms, trading venues, conduct regulators and macroprudential authorities fit together once the relevant risk arises from lawful correlation across separate firms.

The answer is fragmented. Firm-level algorithmic trading duties may require a firm to take account of foreseeable interactions with market conditions where those interactions are reasonably knowable from the strategy, market or third-party system the firm uses. Venue controls can constrain trading when market effects become visible. The FPC can identify systemic risk and transmit concerns to regulators, although it cannot enlarge their legal powers. The central public intervention power is article 42 of UK MiFIR, which allows the FCA to prohibit or restrict "a type of financial activity or practice".⁷ The power is broader than its predominantly product-focused use to date might suggest. It can apply to defined forms of lawful correlated trading which firms can recognise in advance, including specified common models or automated responses to defined conditions. The power does not clearly extend to an emergent aggregate pattern defined only after the collective effect appears. Responsibility for what remains should therefore follow practical capacity to observe the risk at the level where it arises and coordinate control across the institutions creating it.

That answer also changes what counts as a regulatory gap. Some apparent gaps disappear once existing powers are construed at full strength. Some problems arise because the regulator lacks a routine view across firms rather than because legal authority is missing. Other boundaries are genuine, since a power may reach only certain conduct or actors. Timing is not always the problem either, since a regulator can possess an urgent intervention power and still lack the information needed to use it before stress develops. Nor does every residual risk demand elimination. Some lawful correlation may properly be tolerated where intervention would impose greater costs on liquidity, price discovery or innovation. The important distinction is between tolerance chosen by an authority able to see and assess the risk and risk left untouched because information and legal capacity were never joined in the same place.

Manipulation, collusion, liability for defective algorithms, retail uses of AI and AI regulation generally fall outside the scope. Trading and portfolio management are not among the high-

⁶ Riccardo Ghetti and others, 'AI and Investment Services in EU Law: The Case for MiFID III' (2026) J Financial Regulation f jag005, DOI: 10.1093/jfr/f jag005.

⁷ Assimilated Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012, as amended by SI 2018/1403 ('UK MiFIR') art 42(1)(b).

risk uses listed in Annex III of the EU AI Act.⁸ The US appears only as a comparator for institutional allocation, and the law is stated at 30 September 2026. The analysis first explains how separately controlled strategies can converge, then fixes the reach of firm-level duties, market abuse law and venue controls. It next tests the public powers capable of acting on the residual risk and develops an allocation of responsibility around aggregate sight and coordinated control. The final stage examines the empirical, comparative and proportionality limits of the resulting architecture, including the possibility that some residual risk should consciously be left alone.

2. From the individual model to the algorithmic crowd

2.1 The mechanism before and after AI

In August 2007 several of the industry's best-performing quantitative hedge funds lost record sums in a matter of days. No exchange failed. No rule was obviously broken. The funds had never spoken to one another, and their models were proprietary. The best reconstruction found separately designed strategies built on the same academic factors holding the same positions, with one large unwind setting off simultaneous selling by the rest.⁹ The pattern was visible only in the aggregate. No single desk could see it, and no single desk caused it. The episode did not depend on anything now called AI. The losses needed only many separately controlled portfolios reaching the same answer at the same time.

Now give the same mechanism modern equipment. A bank, a hedge fund and a pension fund buy the same third-party trading model. They have never spoken to one another. Their portfolios are managed separately, and each firm runs separate controls. One morning market volatility crosses a level the model treats as dangerous, and all three systems reduce the same exposure. Prices fall, the models detect still greater risk, and further selling follows. No agreement was needed to produce a crowd. When the systems reaching the same answer are algorithms, the result is an algorithmic crowd.

⁸ Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act) [2024] OJ L 12.7.2024 ('AI Act') annex III, point 5.

⁹ Amir E Khandani and Andrew W Lo, 'What Happened to the Quants in August 2007? Evidence from Factors and Transactions Data' (2011) 14 J Financial Markets 1; Andrei A Kirilenko and Andrew W Lo, 'Moore's Law versus Murphy's Law: Algorithmic Trading and Its Discontents' (2013) 27(2) J Economic Perspectives 51, 61.

2.2 Five routes to convergence

Correlated trading can arrive through five routes. The classification synthesises mechanisms identified in the economic and supervisory literature.¹⁰ In plain terms, firms can converge through the same model, the same position, the same signal, interaction between adaptive systems, or the same constraint forcing them to sell.

The shared-model route is illustrated by the example above, where several firms use the same third-party trading model and respond to the same volatility trigger.

The second needs no shared supplier. Two managers using different systems may accumulate similar positions because both strategies favour the same factors, sectors or securities, which is precisely the position the funds of 2007 were in.

The third is a shared signal. Systems watching the same volatility measure, index change or data feed can respond to the same number at the same moment.

The fourth appears when adaptive systems learn from the market in which they trade, and it carries a sting. Experiments with reinforcement-learning agents, trading programs teaching themselves by trial and error, show them discovering profitable manipulative strategies without having been programmed to manipulate.¹¹ If orders generated by such a system give false or misleading signals or secure an abnormal or artificial price,¹² the market abuse prohibition may be engaged even without a human plan.¹³

The fifth route is force. Margin calls, leverage limits and internal risk limits can oblige several portfolios to sell simultaneously whether their models agree or not.

2.3 From common models to common inputs

The routes reinforce one another. A widely used model favours similar positions across several firms. The firms then watch the same volatility signal. Once prices begin to fall, similar risk

¹⁰ Gary Gensler and Lily Bailey, 'Deep Learning and Financial Stability' (Working Paper, 1 November 2020) 21; Jón Daniélsson, Robert Macrae and Andreas Uthemann, 'Artificial Intelligence and Systemic Risk' (2022) 140 *J Banking and Finance* 106290, 7.

¹¹ Ioanna-Yvonne Tsaknaki, Andrea Macri and Fabrizio Lillo, 'Can Reinforcement Learning Efficiently Discover Price Manipulation?' (2026) arXiv:2607.06121, s 1 <<https://arxiv.org/abs/2607.06121>> accessed 29 September 2026.

¹² Assimilated Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC, as amended by SI 2019/310 ('UK MAR') art 12(1)(a).

¹³ See section 4.1.

limits force each portfolio to cut exposure. What began as a common input has become a common position, a common reaction and finally a common exit. A weakness in a widely used third-party model could influence decisions across several firms at once, so supplier concentration matters independently of how well the model performs inside any one institution. The Bank of England and the FCA have measured how far financial firms already rely on external AI providers. Their November 2024 survey of AI across UK financial services reported a third of AI use cases as third-party implementations, with the top three third-party model providers accounting for 44 per cent of all named model providers.¹⁴ The survey does not name the providers, and it covers financial services generally rather than algorithmic trading alone. The figures show common models already have a route into otherwise separate institutions. They do not show this concentration has already produced correlated trading.

Regulators have identified the same risk of common models producing correlated positions. In April 2025 the FPC judged "more advanced AI-based risk allocation or trading-strategies could lead to firms taking increasingly correlated positions and acting in a similar way during a stress, thereby amplifying shocks".¹⁵ In the same paragraph the Committee identified reliance on a small number of model providers as a possible source of systemic risk.¹⁶ Joint Bank and FCA papers had raised model herding from common providers as early as 2022,¹⁷ and the ECB reached the same concern for the Euro area in 2024.¹⁸ An external member of the Committee, writing personally, has explained the economics in competitive terms. If one model proves consistently superior, firms have less reason to fund alternatives, and the winning model becomes most attractive exactly as the diversity protecting the system disappears.¹⁹ The older

¹⁴ Bank of England and FCA, 'Artificial Intelligence in UK Financial Services: 2024' (21 November 2024) s 2.8 <<https://www.bankofengland.co.uk/report/2024/artificial-intelligence-in-uk-financial-services-2024>> accessed 29 September 2026.

¹⁵ FPC Record April 2025 (n 1) para 50.

¹⁶ FPC Record April 2025 (n 1) para 50.

¹⁷ Bank of England, PRA and FCA, 'Operational Resilience: Critical Third Parties to the UK Financial Sector' (Discussion Paper DP3/22, 21 July 2022) para 4.5 <<https://www.bankofengland.co.uk/prudential-regulation/publication/2022/july/operational-resilience-critical-third-parties-uk-financial-sector>> accessed 29 September 2026; Bank of England, PRA and FCA, 'Artificial Intelligence and Machine Learning' (Discussion Paper DP5/22, 11 October 2022) para 3.22 <<https://www.bankofengland.co.uk/prudential-regulation/publication/2022/october/artificial-intelligence>> accessed 29 September 2026.

¹⁸ Georg Leitner and others, 'The Rise of Artificial Intelligence: Benefits and Risks for Financial Stability' (ECB Financial Stability Review, May 2024) under 'Financial Stability Implications of AI' <https://www.ecb.europa.eu/press/financial-stability-publications/fsr/special/html/ecb.fsrart202405_02~58c3ce5246.en.html> accessed 29 September 2026.

¹⁹ Jonathan Hall, 'Monsters in the Deep?' (Speech at the University of Exeter Business School, 7 May 2024) under "'Val': The Deep Value-Trading Algorithm' <<https://www.bankofengland.co.uk/speech/2024/may/jon-hall-speech-at-the-university-of-exeter>> accessed 29 September 2026.

theoretical point sits underneath. Strategies that appear unproblematic one by one can be damaging in aggregate,²⁰ and institutions measuring risk the same way change their portfolios simultaneously and in the same direction.²¹

Regulation is now building a common input of exactly this kind. European equity trading has long been fragmented across many venues, including Euronext, Deutsche Börse's Xetra and Cboe Europe, each publishing prices and trades for one part of the market. The amended MiFIR framework requires a consolidated tape, a single stream combining trading data from the many venues into one view of the whole market.²² The attraction is obvious. Investors see more, price discovery should improve, and information scattered across venues becomes usable. The European Securities and Markets Authority (ESMA) selected EuroCTP as the first EU equities tape provider in December 2025²³ and authorised it in July 2026, with a transition period ending on 30 September 2026.²⁴ The same reform creates the newest common input. Once the service operates, independently designed algorithms can read the same consolidated stream, and a reform intended to improve transparency reduces one source of informational difference among the systems using it. A practitioner treatment makes the connection directly, describing the tape as "a common data input across firms" and locating the concern in harm "from model convergence rather than individual misconduct".²⁵ A consolidated tape will not necessarily cause correlated trading, since different models may read the same information differently. The structural point is narrower. Regulation can make a common input easier to obtain, so commonality need not originate inside any regulated firm.

²⁰ Danielsson, Macrae and Uthemann (n 10) 2.

²¹ Danielsson, Macrae and Uthemann (n 10) 8.

²² Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012 [2014] OJ L173/84 ('MiFIR') art 27da(1), inserted by Regulation (EU) 2024/791 of the European Parliament and of the Council of 28 February 2024 amending Regulation (EU) No 600/2014 as regards enhancing data transparency, removing obstacles to the emergence of consolidated tapes, optimising the trading obligations and prohibiting receiving payment for order flow [2024] OJ L 8.3.2024.

²³ ESMA, 'ESMA Selects EuroCTP to Become the First Consolidated Tape Provider for Shares and ETFs' (19 December 2025) <<https://www.esma.europa.eu/press-news/esma-news/esma-selects-euroctp-become-first-consolidated-tape-provider-shares-and-etfs>> accessed 29 September 2026.

²⁴ ESMA, 'ESMA Authorises EuroCTP as the Consolidated Tape Provider for Shares and Exchange-Traded Funds' (27 July 2026) <<https://www.esma.europa.eu/press-news/esma-news/esma-authorises-euroctp-consolidated-tape-provider-shares-and-exchange-traded>> accessed 29 September 2026.

²⁵ Laurent Deckers, 'Transparency under MiFID II: Consolidated Tape Provider, Algorithmic Trading and the Risk of Regulatory Overexposure' (2026) 5 JIBFL 348, 351.

There are good reasons to resist moving too quickly from common inputs to systemic danger. A recent practitioner analysis considers the concern likely overstated.²⁶ Many deployed models remain comparatively simple. Human oversight remains real. Firms use different architectures, datasets and objectives. Every completed trade needs a counterparty willing to take the other side. Those considerations bear directly on how probable convergence is and how severe it would be, and common information does not mechanically produce common action. They do not determine where legal power lies if correlated behaviour nevertheless emerges. The remaining question is who could lawfully act in that event.

2.4 Three cases that must be kept apart

Answering it needs three situations kept apart. In the first, the conduct is already caught by an established prohibition. An algorithm may generate behaviour satisfying the market abuse rules, and autonomous systems may coordinate in circumstances satisfying competition law. Human intent cannot serve as the dividing line. The reinforcement-learning experiments above show manipulative strategies emerging without a human plan. Separate simulations show autonomous traders learning to coordinate "in a way that secures supra-competitive profits, without explicit agreements, communication, or pre-programmed intent".²⁷ Where the applicable legal criteria are independently satisfied, the absence of intent changes nothing.

In the second, something fails inside an identifiable regulated actor. Citigroup's 2022 trading error is one example,²⁸ and the London Metal Exchange's failure to maintain effective price bands during the nickel crisis is another.²⁹ Whatever the complexity of the events, responsibility can be located inside a firm or venue and tested against rules already applying to it.

In the third, several separately controlled systems respond in parallel to common models, vendors, data, signals, positions or constraints. None coordinates with another, expressly or through emergent interaction meeting the applicable market abuse or competition law criteria, and no individual system need malfunction. This remainder is residual correlated conduct, and the distinction is important because the harmful feature exists in the relationship between

²⁶ Leonard Ng and Qalid Mohamed, 'Artificial Intelligence in Financial Markets: Systemic Risk and Market Abuse Concerns' (2024) 11 JIBFL 715, 716.

²⁷ Winston Wei Dou, Itay Goldstein and Yan Ji, 'AI-Powered Trading, Algorithmic Collusion, and Price Efficiency' (2025) NBER Working Paper 34054, 1 <<https://www.nber.org/papers/w34054>> accessed 29 September 2026.

²⁸ FCA, 'Final Notice: Citigroup Global Markets Limited' (17 May 2024) para 2.4.

²⁹ FCA, 'Final Notice: The London Metal Exchange' (19 March 2025) para 2.10.

otherwise separate decisions. The regulatory problem stops being whether one institution behaved properly. It becomes whether any institution can see and control the aggregate pattern.

2.5 Historical analogues

The crowd has also returned since 2007, each time through a different route. On 6 May 2010 a large fundamental trader used an automated execution algorithm to sell 75,000 E-mini futures contracts, worth about 4.1 billion US dollars, into a market already under strain.³⁰ Nearly a trillion US dollars of equity-market value disappeared within minutes before much of the fall reversed.³¹ Later transaction-level research found no evidence high-frequency traders started the collapse,³² while the official account records them rapidly buying and reselling contracts among themselves as liquidity drained away.³³ Automation did not create the initial shock. It shaped the speed and the structure through which the pressure moved as liquidity disappeared. In March 2020 investors across several asset classes sought cash at the same time, and hedge funds alone are estimated to have sold roughly 173 billion US dollars of US Treasury securities in a month while dealer capacity was already constrained.³⁴ Common pressure, leverage and shrinking market-making turned separately motivated sales into a system-wide liquidity event. None of these episodes establishes that an AI-driven crowd has already occurred. They establish something more useful. Markets have already shown how common positions, shared constraints, automated execution and disappearing intermediation can turn individually generated decisions into one aggregate event. The evidence supports a narrower conclusion. Common models and data can make inputs more homogeneous, and automated decision-making and faster adaptation shorten the time in which reactions reach the market. Features of this kind can amplify an existing shock when otherwise separate institutions react alike. The evidence does not establish that such events will become more frequent. The remaining

³⁰ CFTC and SEC, 'Findings Regarding the Market Events of May 6, 2010: Report of the Staffs of the CFTC and SEC to the Joint Advisory Committee on Emerging Regulatory Issues' (30 September 2010) 2.

³¹ Luis A Aguilar, 'Addressing Known Risks to Better Protect Investors' (Speech at SEC Speaks, Washington DC, 21 February 2014) fn 46 <<https://www.sec.gov/newsroom/speeches-statements/2014-spch020421laa>> accessed 29 September 2026.

³² Andrei Kirilenko and others, 'The Flash Crash: High-Frequency Trading in an Electronic Market' (2017) 72 J Fin 967, 986.

³³ CFTC and SEC Findings (n 30) 15.

³⁴ Ayelen Banegas, Phillip J Monin and Lubomir Petrask, 'Sizing Hedge Funds' Treasury Market Activities and Holdings' (FEDS Notes, Board of Governors of the Federal Reserve System, 6 October 2021) under 'On Net, Hedge Funds Sold an Estimated \$173 Billion of Treasury Securities in March 2020, after Adjusting for Valuation Changes' <<https://www.federalreserve.gov/econres/notes/feds-notes/sizing-hedge-funds-treasury-market-activities-and-holdings-20211006.html>> accessed 29 September 2026.

question is how far existing law reaches a risk AI may amplify, once the relevant conduct belongs to no single algorithm or institution.

3. What the law requires of the individual algorithmic trader

3.1 One firm, one failure

On 2 May 2022 a Citigroup trader meant to sell a basket of European equities worth 58 million US dollars. The figure went into the wrong field. The bank's system responded by constructing a basket with a notional value of 444 billion US dollars.³⁵ Internal controls stopped most of the orders, but did not stop all of them. Sell orders worth 1.4 billion US dollars reached European exchanges before the remainder was cancelled.³⁶ Within five minutes the MSCI Europe ex UK index had fallen by just over 4 per cent.³⁷

The FCA could see exactly where responsibility lay. One regulated firm operated the system, and one control framework had failed to stop the erroneous orders. The regulator fined Citigroup 27.77 million pounds for breaching the UK algorithmic trading requirements.³⁸ This case is the problem existing law handles most comfortably. A failure occurs inside one institution, the relevant controls can be identified, and the regulator can ask whether the institution complied with rules directed to it. The harder question begins when several firms operate systems functioning as designed, and market disorder appears only when their decisions combine.

3.2 What article 17 requires

Article 17 of MiFID II, the EU directive governing investment firms and their markets, is the starting point. It applies to investment firms engaged in algorithmic trading and requires them to surround their trading systems with effective controls. The systems must be resilient, have sufficient capacity, operate within appropriate thresholds and limits, and prevent erroneous orders. The duty goes further. The controls must also prevent systems from functioning in a way that may "create or contribute to a disorderly market".³⁹ The FCA rulebook restates the

³⁵ Citigroup Final Notice (n 28) para 4.26.

³⁶ Citigroup Final Notice (n 28) para 2.4.

³⁷ Citigroup Final Notice (n 28) para 2.8.

³⁸ Citigroup Final Notice (n 28) para 1.1.

³⁹ Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast) [2014] OJ L173/349 ('MiFID II') art 17(1).

obligation for UK firms.⁴⁰ Citigroup shows the easy application, an erroneous order escaping inadequate controls and reaching the market. Article 17 also uses language capable of reaching a less obvious case. A correctly coded algorithm can contribute to disorder even when it executes exactly the strategy the firm selected. The words "contribute to" matter for exactly this reason. They direct attention both to whether the algorithm malfunctioned and to the effect the trading can have on market conditions. The unresolved question is how far the responsibility extends when the harmful effect becomes visible only after one firm's trades interact with those of several others.

3.3 From duty to controls

A second set of rules explains how firms are expected to control the risk in practice. Commission Delegated Regulation 2017/589, commonly called RTS 6, is a binding technical standard for firms engaged in algorithmic trading. It turns the broad duty in article 17 into a detailed testing and governance programme. Before an algorithm is deployed or substantially changed, the firm must have a defined development and testing methodology⁴¹ approved by a person designated by senior management.⁴² The methodology must test whether the algorithm avoids contributing to disorderly trading conditions and continues to function effectively during periods of market stress.⁴³

The obligations are practical rather than abstract. A firm must test whether an algorithm works properly with every trading venue it will use.⁴⁴ Deployment begins within predefined limits.⁴⁵ The firm must assess and validate the system annually.⁴⁶ Capacity must be stress tested.⁴⁷ A kill function must allow outstanding orders to be cancelled immediately.⁴⁸ Automated surveillance must watch for market manipulation.⁴⁹ Price and volume controls must operate

⁴⁰ FCA Handbook, MAR 7A.3.2R.

⁴¹ Commission Delegated Regulation (EU) 2017/589 of 19 July 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to regulatory technical standards specifying the organisational requirements of investment firms engaged in algorithmic trading [2017] OJ L87/417 ('RTS 6') art 5(1).

⁴² RTS 6, art 5(2).

⁴³ RTS 6, art 5(4)(d).

⁴⁴ RTS 6, art 6(1).

⁴⁵ RTS 6, art 8.

⁴⁶ RTS 6, art 9(1).

⁴⁷ RTS 6, art 10.

⁴⁸ RTS 6, art 12(1).

⁴⁹ RTS 6, art 13(1).

before orders reach the market,⁵⁰ and algorithmic activity must be monitored in real time.⁵¹ Buying the software from an outside vendor does not transfer responsibility away from the firm using it.⁵² The structure explains the basic allocation of responsibility. The firm chooses or deploys the system. The firm tests it. The firm sets the controls. The firm monitors the resulting trading. Even a third-party model remains inside the firm's compliance perimeter. None of these provisions expressly requires one firm to discover rival strategies or reconstruct the combined behaviour of several institutions before trading begins.

3.4 What the regulator can see

The regulator can nevertheless look deeply inside each firm's perimeter. A firm engaging in algorithmic trading must notify the FCA. The FCA may require descriptions of trading strategies, parameters and limits, evidence of compliance, and records of development and testing,⁵³ while high-frequency traders keep time-sequenced order records.⁵⁴ These powers give the regulator visibility into how an individual firm's system has been built, tested and controlled. The FCA's 2025 review of ten principal trading firms shows how the supervision works. The regulator examined firms through the self-assessments required by RTS 6 and asked whether algorithms avoided contributing to disorderly trading and remained effective under stressed market conditions.⁵⁵ The Prudential Regulation Authority (PRA) takes the same institutional approach. The supervisory statement on algorithmic trading focuses on governance, testing and periodic revalidation within regulated firms,⁵⁶ and the model risk principles for banks and PRA-designated investment firms extend governance requirements to models including AI.⁵⁷ The supervision is intensive. The unit being supervised remains the individual institution and the systems under the institution's control.

⁵⁰ RTS 6, art 15(1).

⁵¹ RTS 6, art 16(1).

⁵² RTS 6, art 4(1).

⁵³ FCA Handbook, MAR 7A.3.7R.

⁵⁴ FCA Handbook, MAR 7A.3.8R(2).

⁵⁵ FCA, 'Multi-Firm Review of Algorithmic Trading Controls: High-Level Observations' (21 August 2025) s 3.2.2 <<https://www.fca.org.uk/publications/multi-firm-reviews/algorithmic-trading-controls-high-level-observations>> accessed 29 September 2026.

⁵⁶ PRA, 'Algorithmic Trading' (Supervisory Statement SS5/18, June 2018) para 4.1.

⁵⁷ PRA, 'SS1/23: Model Risk Management Principles for Banks' (17 May 2023, updated 23 April 2026) <<https://www.bankofengland.co.uk/prudential-regulation/publication/2023/may/model-risk-management-principles-for-banks-ss>> accessed 29 September 2026.

3.5 How far the firm must look outward

Some of the rulebook looks outward. RTS 6 expressly bases testing on the potential impact algorithms may have on the "overall fair and orderly functioning of the market",⁵⁸ and testing must be adapted to the venues and markets where the algorithm will operate.⁵⁹ FCA supervision records firms testing algorithms against historical periods of market stress.⁶⁰ The legal obligation requires some outward-looking judgment. A firm cannot test an algorithm as though the system will operate in isolation from the market around it.

The difficult boundary is foreseeability. Article 17 is a systems and controls standard, not a promise that the market will remain orderly whenever a regulated firm trades. MiFID II describes the relevant provisions as "specific risk controls directed at firms", paired with "other measures directed at operators of trading venues".⁶¹ RTS 6 calibrates the controls to "the nature, scale and complexity of the business model" of the individual firm,⁶² and the prescribed stress test is aimed at the firm's own activity. The system must withstand twice the highest message volume and twice the highest trade volume generated during the preceding six months.⁶³ All the firms in a crowded strategy could satisfy the benchmark while their combined orders later proved destabilising, since each is measured against the firm's own history rather than against anyone else's flow. The most recent commentary construes the ex ante governance logic of article 17 the same way.⁶⁴

Knowledge can change the analysis. If a firm knows a model, trigger or trading signal is widely used, the knowledge may affect how the firm must test foreseeable behaviour under stressed conditions. The same may hold where characteristics of a market make interaction with other automated strategies reasonably predictable. Article 17 and RTS 6 can accordingly reach foreseeable crowd effects where the relevant interaction is reasonably knowable from the firm's strategy, market or third-party system. Whether knowledge that a model or trigger is widely shared actually extends the testing obligation to correlated responses across firms remains a

⁵⁸ RTS 6, recital 6.

⁵⁹ RTS 6, art 5(5).

⁶⁰ FCA multi-firm review (n 55) s 3.2.2.

⁶¹ MiFID II, recital 63.

⁶² RTS 6, recital 1.

⁶³ RTS 6, art 10(a) and (b).

⁶⁴ Alessio Azzutti, 'AI Governance after MiFID II: Beyond (Mere) Technological Neutrality?' (2026) 27 ERA Forum 7, 14.

question of legal construction. The point remains unresolved by authority. Past this line, article 17 and RTS 6 do not clearly require the individual firm to test for the interaction.

3.6 The boundary in practice

The enforcement record shows the practical importance of the distinction. Research into UK compliance with RTS 6 found price collars and throttles "set so generously that they have caused little friction", with some parameters left on a set and forget basis.⁶⁵ The FCA has also found firms deploying third-party algorithms while relying on simulation testing carried out by vendors.⁶⁶ Existing controls can leave substantial freedom for trading inside the permitted envelope. Published supervision still concentrates on whether each firm's own testing, governance and controls are adequate.

A recent practitioner analysis supplies an important counterpoint. The potentially harmful behaviour of advanced trading algorithms is likely to fall within the existing technology-neutral regime, the crux lying "not in whether the behaviours ... would fall within this existing regime ... but in the practical difficulties of complying".⁶⁷ The explainability example shows why. Rules depending on firms or supervisors understanding suspect behaviour become difficult to apply when model reasoning is opaque.⁶⁸ The difficulty remains located inside the regulated firm, in the firm's ability to understand, monitor and explain the system. It leaves open whether compliance by several firms can coexist with a correlated risk emerging only from their interaction.

3.7 AI changes the difficulty, not the addressee

AI does not change the identity of the regulated actor. The algorithmic trading framework is technology neutral, so machine learning can make testing, monitoring and explanation harder without shifting responsibility away from the institution deploying the system.⁶⁹ The EU AI Act does not create a separate high-risk classification for ordinary algorithmic trading or portfolio management, since Annex III covers activities including creditworthiness assessment and certain insurance pricing rather than trading as such.⁷⁰ Lifecycle analysis of AI trading

⁶⁵ Alexander Conrad Culley, 'Insights into UK Investment Firms' Efforts to Comply with MiFID II RTS 6 that Governs the Conduct of Algorithmic Trading' (2023) 31 JFR & C 607.

⁶⁶ FCA multi-firm review (n 55) s 3.2.2.

⁶⁷ Ng and Mohamed (n 26) 717.

⁶⁸ Ng and Mohamed (n 26) 718.

⁶⁹ Azzutti (n 64) 16.

⁷⁰ AI Act, annex III, point 5.

reaches the same institutional structure, with obligations attaching to the regulated firm through development, deployment and monitoring.⁷¹

The firm-level regime consequently reaches further than software malfunction. It can require a firm to test foreseeable interactions with the market, and it may extend to shared models or triggers where the resulting effects are reasonably knowable from the firm's strategy, market or systems. The law is less clear when the dangerous feature exists only in the relationship among separately controlled firms and cannot reasonably be identified from information available to any one of them. If correlated model-driven selling destabilises a market tomorrow, every firm involved may still demonstrate compliance with the applicable firm-level controls the morning after.

4. The boundary. Misconduct and venue-level controls

4.1 When an algorithm manipulates

Two algorithms can push the same price for very different reasons. One places orders designed to create a false impression of demand and withdraws them before execution. Another submits genuine orders because the model has detected the same signal as models used elsewhere. Both can move prices. The first looks familiar to market abuse law. The second raises the harder question.

The market abuse regime, an EU regulation retained in UK law as assimilated legislation and referred to as UK MAR, governs the first. Article 12 expressly includes orders placed electronically through algorithmic and high-frequency trading strategies where the manipulative effects are present.⁷² The prohibition does not depend on proving a human being formed a manipulative plan.⁷³ If autonomous trading satisfies the article 12 criteria, the absence of human purpose does not remove the conduct from the regime.⁷⁴ Earlier enforcement shows the distinction. Under the predecessor regime, the regulator treated algorithmic and high-frequency trading as legitimate market activity while pursuing layering designed to exploit

⁷¹ Alessio Azzutti, Wolf-Georg Ringe and H Siegfried Stiehl, 'Regulating AI Trading from an AI Lifecycle Perspective' in Nydia Remolina and Aurelio Gurrea-Martinez (eds), *Artificial Intelligence in Finance: Challenges, Opportunities and Regulatory Developments* (Edward Elgar 2023).

⁷² UK MAR, art 12(2)(c).

⁷³ UK MAR, art 12(1)(a).

⁷⁴ Alessio Azzutti, Wolf-Georg Ringe and H Siegfried Stiehl, 'Machine Learning, Market Manipulation, and Collusion on Capital Markets: Why the "Black Box" Matters' (2021) 43 U Pennsylvania J Intl L 79, 105.

those very traders.⁷⁵ The technology was not the offence. The character and effect of the orders were. Emergent coordination is not excused merely because nobody programmed the system to coordinate.⁷⁶

4.2 When genuine trading moves the price

The difficult case begins when the orders are genuine. Article 12(1)(a)(ii) catches a transaction or order which "secures, or is likely to secure" the price of an instrument "at an abnormal or artificial level", with no showing of intent, unless the trader establishes legitimate reasons and conformity with an accepted market practice.⁷⁷ The escape route⁷⁸ does not presently assist in the UK, because the FCA lists no accepted market practice,⁷⁹ so everything turns on the limb itself. The FCA's guidance informs the inquiry without being the prohibition, and it points away from genuine trading. A trader dealing at the times and in the quantities most advantageous to that trader is unlikely, without more, to manipulate the market.⁸⁰ Prices above or below a normal trading range "can be the result of the proper interplay of supply and demand".⁸¹ The other indicators describe conduct used to position a price, including successive changes to bids, rather than genuine trading through which a price is formed.⁸²

Consider the residual case identified earlier. Several separately controlled systems receive the same signal and submit real sell orders. Each order reflects an actual decision to sell. The resulting supply and demand are real, and the guidance accepts genuine supply and demand can produce unusual prices.⁸³ No UK or EU authority has decided whether a price produced by genuine correlated orders becomes "artificial" solely because of the correlation. The closest decided examples concern something different. *Da Vinci* involved layering through orders the trader did not intend to execute,⁸⁴ and the American analysis distinguishes rational trading from manipulation where no manipulative feature accompanies the trade.⁸⁵ A contrary construction

⁷⁵ FSA, 'Decision Notice: 7722656 Canada Inc, formerly carrying on business as Swift Trade Inc' (6 May 2011) para 5.43.

⁷⁶ Azzutti, Ringe and Stiehl (n 74) 124.

⁷⁷ UK MAR, art 12(1)(a)(ii).

⁷⁸ UK MAR, art 13.

⁷⁹ FCA Handbook, MAR 1 Annex 2.

⁸⁰ FCA Handbook, MAR 1.6.7G.

⁸¹ FCA Handbook, MAR 1.6.8G.

⁸² FCA Handbook, MAR 1.6.10G.

⁸³ FCA Handbook, MAR 1.6.8G.

⁸⁴ *FCA v Da Vinci Invest Ltd* [2015] EWHC 2401 (Ch) [22].

⁸⁵ Gina-Gail S Fletcher, 'Deterring Algorithmic Manipulation' (2021) 74 Vand L Rev 259, 297.

remains possible. Article 12 is effects based, no manipulative intention is required, and correlated algorithmic responses are exactly where the scholarship expects systemic harm to arise.⁸⁶ On the assumed facts, correlation alone should not convert genuine supply and demand into an artificial price. Residual correlated conduct falls outside article 12 on those facts. "Lawful" is used only in this constructed sense. The conclusion depends on genuine orders, on the absence of coordination satisfying the applicable misconduct criteria, and on the absence of any other manipulative feature.

Recent practitioner analysis exposes the practical problem from another direction. The market abuse regime is "premised on identifiable conduct and, at least implicitly, human agency",⁸⁷ and where outcomes emerge from many models trading on similar inputs, a regulator may instead encounter "trading patterns that emerge collectively from lawful and widely deployed technologies".⁸⁸ The difficulty is attribution. A regulator may be able to observe the market outcome without being able to identify conduct by one firm crossing the misconduct boundary. The analysis proposes calibration of transparency rather than a power over the conduct, and it does not decide the construction question.⁸⁹

4.3 Powers tied to misconduct

The enforcement powers attached to market abuse follow the same boundary. In the EU, competent authorities must have power to demand the temporary cessation of a practice, and the power responds to practice contrary to MAR.⁹⁰ The UK did not retain the provision.⁹¹ Domestic legislation provides other routes, penalties and restrictions where market abuse has occurred,⁹² injunctions where a contravention has occurred or is anticipated,⁹³ and prohibitions on individuals.⁹⁴ Section 122I is broader in form, permitting suspension of trading where necessary for the FCA's market abuse functions, and it remains functionally tied to those

⁸⁶ Fletcher (n 85) 312.

⁸⁷ Deckers (n 25) 350.

⁸⁸ Deckers (n 25) 351.

⁸⁹ Deckers (n 25) 352.

⁹⁰ Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC [2014] OJ L173/1 ('MAR') art 23(2)(k).

⁹¹ Market Abuse (Amendment) (EU Exit) Regulations 2019, SI 2019/310, reg 13(3)(b).

⁹² Financial Services and Markets Act 2000 ('FSMA 2000') ss 123 and 123B.

⁹³ FSMA 2000, s 381.

⁹⁴ FSMA 2000, s 123A.

functions.⁹⁵ These powers are substantial. None supplies a freestanding power to constrain otherwise lawful trading solely because correlated behaviour threatens financial stability.

4.4 What a trading venue can do

The next layer sits closer to the market itself. A trading venue is the exchange or other regulated platform through which orders meet and trades occur, and article 48 of MiFID II imposes controls on venues, reaching UK law through the recognition framework⁹⁶ and the on-shored technical standards. A venue must be able to reject orders exceeding pre-set limits,⁹⁷ halt or constrain trading when prices move significantly and, in exceptional circumstances, cancel transactions.⁹⁸ The regime is not confined to one venue acting alone. Where a venue important to the liquidity of an instrument halts trading, authorities are notified and trading in the same instrument can be halted across other venues through coordinated action.⁹⁹ Venue rules also require testing of member algorithms,¹⁰⁰ real-time monitoring of aggregate trading activity¹⁰¹ and controls against disorderly trading conditions.¹⁰²

4.5 Nickel shows both the power and the limit

The nickel crisis in March 2022 tested those powers. Three-month nickel closed 7 March at 50,300 US dollars a tonne, up more than 65 per cent in a day.¹⁰³ In the small hours of 8 March the price crossed 100,000 dollars, having risen by more than 30,000 dollars in twenty-four minutes.¹⁰⁴ Rising prices make money for whoever is long, and if the story ended there the spike would be a windfall, not a failure. Every long gain is a short's margin call. The London Metal Exchange concluded that allowing the morning's trades to stand would expose the clearing house to member defaults for which the available collateral would not suffice.¹⁰⁵ So

⁹⁵ FSMA 2000, s 122I.

⁹⁶ Financial Services and Markets Act 2000 (Recognition Requirements for Investment Exchanges, Clearing Houses and Central Securities Depositories) Regulations 2001, SI 2001/995, sch pt I, para 3B(1).

⁹⁷ MiFID II, art 48(4).

⁹⁸ MiFID II, art 48(5).

⁹⁹ MiFID II, art 48(5), second subparagraph.

¹⁰⁰ MiFID II, art 48(6).

¹⁰¹ Commission Delegated Regulation (EU) 2017/584 of 14 July 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to regulatory technical standards specifying organisational requirements of trading venues [2017] OJ L87/350 ('RTS 7') art 12(2).

¹⁰² RTS 7, art 18(1).

¹⁰³ LME Final Notice (n 29) para 2.15.

¹⁰⁴ LME Final Notice (n 29) para 4.91.

¹⁰⁵ *R (Elliott Associates LP) v London Metal Exchange* [2024] EWCA Civ 1168, [2025] 2 All ER (Comm) 328 [2].

the exchange suspended nickel trading for six days¹⁰⁶ and cancelled the morning's trades, 13.4 billion dollars of them,¹⁰⁷ the winners' profits erased with the losers' obligations. Price formation had come to be dominated by forced short covering and margin dynamics rather than any ordinary equilibrium of supply and demand. On the claimants' own case in the later litigation, the cancellation erased about 456 million dollars of net profits.¹⁰⁸ The Court of Appeal held the exchange's wider cancellation power had not been displaced by the technical standards and had been lawfully exercised.¹⁰⁹ The episode also exposed failure inside the venue. The FCA fined the London Metal Exchange 9.25 million pounds¹¹⁰ after finding staff had been able to disable price bands intended to help maintain orderly trading.¹¹¹

The venue tier possesses both preventive controls and powerful interventions once disorder appears. Order thresholds, algorithm testing and volatility controls operate before the most extreme outcome. Suspension and cancellation become available when the market movement has become visible. The limitation lies earlier in the sequence. Article 48 can react to orders, prices and trading conditions. Nothing in the venue toolkit regulates the prior accumulation, across firms and venues, of the correlated strategies whose simultaneous exercise produces the movement.

Nickel shows why the distinction is important. The FCA found the largest driver of the extraordinary price rise was the interaction between exchange trading and very large positions held mainly over the counter, meaning outside the exchange market. The venue could not see those positions at the time.¹¹² The exchange has since introduced weekly reporting of sizeable over-the-counter positions, so the episode supports no present-day claim of complete blindness.¹¹³ A venue nevertheless sees the market principally through orders, trades and information available under venue rules and reporting arrangements. The view does not automatically reveal common models, common vendors or correlated strategies distributed

¹⁰⁶ LME Final Notice (n 29) para 4.108.

¹⁰⁷ LME Final Notice (n 29) para 4.105.

¹⁰⁸ *Elliott* (n 105) [4].

¹⁰⁹ *Elliott* (n 105) [100].

¹¹⁰ LME Final Notice (n 29) para 1.1.

¹¹¹ LME Final Notice (n 29) para 2.10.

¹¹² LME Final Notice (n 29) para 2.31.

¹¹³ LME Final Notice (n 29) para 2.31.

across separate firms.¹¹⁴ The venue tier is real and materially closer to aggregate market behaviour than firm-level controls. The unresolved issue lies before the moment of visibility, while correlated strategies are accumulating across institutions without constituting misconduct.

5. Who can act when every firm is compliant?

5.1 Identifying the risk is not the same as controlling it

The UK already has a body charged with looking across firms rather than at one institution at a time. The FPC must identify, monitor and act to remove or reduce systemic risks,¹¹⁵ including risks created by connections between financial institutions.¹¹⁶ In April 2025 the Committee identified advanced AI trading as a possible source of correlated positions and similar behaviour during stress, amplifying shocks.¹¹⁷ The limits lie in the tools available after the risk has been identified. The Committee can issue directions to the FCA and the PRA.¹¹⁸ A direction can require a regulator to implement a macroprudential measure only where the Treasury has already prescribed the measure by order,¹¹⁹ and the statute provides that a direction "may not require the regulator to do anything that it has no power to do".¹²⁰ The Treasury step is important because a direction can transmit authority already created through the statutory framework. However, it cannot manufacture a new conduct power when correlated trading becomes dangerous.

Recommendations operate differently. The Committee may recommend how the FCA or the PRA exercises existing functions,¹²¹ with a comply-or-explain mechanism where the recommendation is so designated.¹²² The liability-driven investment episode of 2023 illustrates the institutional logic. After forced gilt sales threatened market functioning, the Committee's recommendation went to The Pensions Regulator, the authority holding the relevant tools, so the episode shows the channel working without supplying a precedent for article 42's

¹¹⁴ Yesha Yadav, 'The Failure of Liability in Modern Markets' (2016) 102 Va L Rev 1031, 1091; Azzutti, Ringe and Stiehl (n 74) 125.

¹¹⁵ Bank of England Act 1998, s 9C(2).

¹¹⁶ Bank of England Act 1998, s 9C(3)(a).

¹¹⁷ FPC Record April 2025 (n 1) para 50.

¹¹⁸ Bank of England Act 1998, s 9H(1).

¹¹⁹ Bank of England Act 1998, s 9L(1).

¹²⁰ Bank of England Act 1998, s 9H(8).

¹²¹ Bank of England Act 1998, s 9Q(1).

¹²² Bank of England Act 1998, s 9Q(3).

application to correlated trading.¹²³ The Bank's current work on AI in markets runs on the same track, monitoring, system-wide stress testing and the search for sufficient "visibility, indicators, and intervention mechanisms" to address the system-level problem.¹²⁴ The next question is whether the FCA already holds a power capable of constraining the conduct.

5.2 The FCA has two possible routes

One FCA route is familiar from retail markets. Product intervention allows rules aimed at financial products where intervention advances the FCA's statutory objectives.¹²⁵ Since January 2018, product intervention rules may also advance the integrity objective which includes the soundness, stability and resilience of the UK financial system,¹²⁶ and temporary product intervention rules can last up to twelve months without consultation.¹²⁷ The legal form still follows the product. The power authorises rules restricting specified agreements involving financial products,¹²⁸ and prominent uses have included restrictions on binary options¹²⁹ and retail crypto-derivatives¹³⁰. A power designed around what firms sell fits awkwardly around a risk arising from how many firms trade.

Article 42 of UK MiFIR, assimilated law in force at the cut-off date, has broader words. The FCA may prohibit or restrict the marketing, distribution or sale of financial instruments or "a type of financial activity or practice".¹³¹ Three conditions govern. First, the activity or practice must give rise to significant investor protection concerns or pose "a threat to the orderly functioning and integrity of financial markets ... or to the stability of whole or part of the financial system within the United Kingdom". Second, existing requirements must not sufficiently address the risk, and improved supervision or enforcement must not provide a

¹²³ Bank of England, 'Financial Policy Summary and Record: March 2023' (29 March 2023) para 74 <<https://www.bankofengland.co.uk/financial-policy-summary-and-record/2023/march-2023>> accessed 29 September 2026.

¹²⁴ Financial Stability Report July 2026 (n 2) s 3.5.

¹²⁵ FSMA 2000, s 137D(1).

¹²⁶ FSMA 2000, s 1D(2)(a); Financial Services and Markets Act 2000 (Regulated Activities) (Amendment) Order 2017, SI 2017/488, arts 1(2)(c) and 13.

¹²⁷ FSMA 2000, s 138M.

¹²⁸ FSMA 2000, s 137D(2)(a).

¹²⁹ FCA, 'Product Intervention Measures for Retail Binary Options' (Policy Statement PS19/11, March 2019) para 1.11.

¹³⁰ FCA, 'Prohibiting the Sale to Retail Clients of Investment Products that Reference Cryptoassets' (Policy Statement PS20/10, October 2020) para 1.11.

¹³¹ UK MiFIR, art 42(1)(b).

better answer. Third, the intervention must be proportionate.¹³² The procedure also constrains the FCA. Ordinarily, notice must be published one month before the measure takes effect.¹³³ Urgent provisional action can last for up to three months.¹³⁴ The FCA must publish evidence supporting the statutory conditions¹³⁵ and revoke the measure once those conditions cease.¹³⁶ A restriction may also operate only in specified circumstances.¹³⁷ The criteria accompanying article 42 confirm financial stability is part of the design, directing attention to innovation, price formation, market resilience and threats to systemically important institutions and market infrastructure.¹³⁸ The EU built the same architecture as an exceptional tool on the model of the short-selling regime,¹³⁹ giving national authorities the standing power and ESMA a temporary, periodically reviewed one.¹⁴⁰ The exceptional character of the power concerns the conditions for intervention, not a restriction of the subject matter to products.

5.3 A regulated practice must be identifiable in advance

The construction question is determinacy. The FCA must identify the type, state precisely the restricted conduct, and evidence the conditions for that type, so the type must be something a firm can recognise in advance in conduct under the firm's control. Article 42 has not been construed against an emergent cross-firm pattern.¹⁴¹ Interventions to date have instead

¹³² UK MiFIR, art 42(2)(a)(i), (b) and (c).

¹³³ UK MiFIR, art 42(3).

¹³⁴ UK MiFIR, art 42(4).

¹³⁵ UK MiFIR, art 42(5).

¹³⁶ UK MiFIR, art 42(6).

¹³⁷ UK MiFIR, art 42(2), third subparagraph.

¹³⁸ Assimilated Commission Delegated Regulation (EU) 2017/567 of 18 May 2016 supplementing Regulation (EU) No 600/2014 of the European Parliament and of the Council with regard to definitions, transparency, portfolio compression and supervisory measures on product intervention and positions, as amended by SI 2018/1403 ('UK Delegated Regulation 2017/567') art 21(2)(i), (n), (q), (s) and (u).

¹³⁹ ESMA, 'Consultation Paper: MiFID II/MiFIR' (ESMA/2014/549, 22 May 2014) 168.

¹⁴⁰ MiFIR, arts 42(1) and 40(1), (6), the latter as amended by Regulation (EU) 2019/2175 of the European Parliament and of the Council of 18 December 2019 amending Regulation (EU) No 1093/2010 establishing a European Supervisory Authority (European Banking Authority), Regulation (EU) No 1094/2010 establishing a European Supervisory Authority (European Insurance and Occupational Pensions Authority), Regulation (EU) No 1095/2010 establishing a European Supervisory Authority (European Securities and Markets Authority), Regulation (EU) No 600/2014 on markets in financial instruments, Regulation (EU) 2016/1011 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds, and Regulation (EU) 2015/847 on information accompanying transfers of funds [2019] OJ L334/1, art 2(8).

¹⁴¹ Goldby and Keller (n 4) 48.

concerned products.¹⁴² The statutory text nevertheless does not confine the power to products. Three formulations show where the boundary lies.

5.4 Three formulations produce three different answers

The first formulation is use of a specified common model or model class. This fits comfortably within the idea of a financial practice. A firm knows which vendor model or model class it uses. A published measure could identify the relevant class and allow each addressee to determine whether the restriction applies, so the legal object is sufficiently determinate. The obstacle is information. The systemic concern depends on commonality across firms, while the present reporting architecture supplies no standing cross-firm map of model use. The FCA could obtain evidence through supervision in a particular case, and a disclosure requirement could cure the structural deficit. The important distinction is between power and knowledge. Article 42 can fit the practice, however the FCA may not routinely possess the information needed to establish the case for intervention.

The second formulation is stronger. Automated deleveraging triggered by specified volatility conditions describes conduct through an observable rule operating inside each firm. A measure could identify the trigger, the class of automated response and the stressed circumstances in which the restriction applies. Firms could determine before the event whether their systems fall within the class, and the FCA could support the stability case with stress evidence and observed concentration in common triggers. Lawfulness creates no obstacle. Article 42 exists to prohibit or restrict otherwise lawful activity when the statutory conditions are satisfied.¹⁴³

The third formulation is algorithmic trading whose aggregate interaction produces defined correlation or price-formation effects. That formulation reaches too far on the better construction. It identifies the harm more readily than the regulated practice. A firm could not know whether ordinary trading falls inside the prohibition until enough other firms act and the aggregate pattern emerges, so the measure would define the prohibited activity by the outcome it is meant to prevent. The procedural machinery reinforces the problem. Notice must identify

¹⁴² European Securities and Markets Authority Decision (EU) 2018/796 of 22 May 2018 to temporarily restrict contracts for differences in the Union in accordance with Article 40 of Regulation (EU) No 600/2014 of the European Parliament and of the Council [2018] OJ L136/50; PS19/11 (n 129) para 1.11; ESMA, 'Opinion on the Product Intervention Measures Relating to Turbos Proposed by the Dutch Authority for the Financial Markets (AFM)' (ESMA35-43-2524, 7 June 2021) para 16.

¹⁴³ UK MiFIR, art 42(1)(b) and (2); Pablo Iglesias-Rodríguez, 'ESMA as a Residual Lawmaker: The Political Economy and Constitutionality of ESMA's Product Intervention Measures on Complex Financial Products' (2021) 22 EBOR 627, 641.

the practice in terms firms can apply. Evidence must support the identified type. Revocation assumes a class whose statutory conditions can later be seen to have ceased.¹⁴⁴ The criteria referring to price formation and systemic effects explain why an identified practice may be dangerous. They do not clearly authorise the FCA to define the practice solely through those effects.¹⁴⁵ In *United Kingdom v Parliament and Council*, the UK challenged an EU rule allowing ESMA to intervene in short selling in exceptional circumstances. The Court upheld the power because its exercise was bounded by statutory conditions, specified criteria and judicial review.¹⁴⁶ That decision shows that an exceptional intervention power may confer substantial discretion where the statutory framework tightly constrains its exercise. It does not decide whether the regulated class may itself be defined only by the aggregate market effect it produces. A more precise effects threshold might rescue a narrower measure, and once the threshold can be applied by each firm in advance, the measure has moved back towards the first or second formulation.

5.5 The statutory filters still matter

A definable practice is only the beginning. Article 42 does not permit intervention merely because the FCA can describe the conduct. The first condition requires a relevant threat. Realised disorder is unnecessary. Article 42 asks whether the practice poses a threat,¹⁴⁷ and the provisional action mechanism confirms intervention can occur before the ordinary notice period expires.¹⁴⁸ Existing official material documents the correlation mechanism¹⁴⁹ and analogous collective deleveraging,¹⁵⁰ although that evidence does not establish every statutory condition for a particular measure. The harder filter is whether existing requirements already address the risk sufficiently, or whether better supervision or enforcement would provide a better answer. Article 17 and RTS 6 already reach foreseeable crowd effects where the interaction is reasonably knowable from a firm's strategy, market or systems. Market abuse law reaches misconduct. Venue controls reach visible trading conditions. None of those requirements is clearly fitted to the residual risk, and enforcement cannot manufacture a breach where nothing is broken. The FCA must still decide whether existing requirements remain

¹⁴⁴ UK MiFIR, art 42(3), (5) and (6).

¹⁴⁵ UK Delegated Regulation 2017/567, art 21(2)(n).

¹⁴⁶ Case C-270/12 *United Kingdom v Parliament and Council* EU:C:2014:18 [53].

¹⁴⁷ UK MiFIR, art 42(2)(a)(i); Goldby and Keller (n 4) 53.

¹⁴⁸ UK MiFIR, art 42(4).

¹⁴⁹ Bank of England and FCA AI survey (n 14) s 4.3.

¹⁵⁰ Hall (n 19) under "'Val": The Deep Value-Trading Algorithm'.

insufficient and whether better supervision or enforcement would answer the risk, since concentration revealed early enough could mean the risk is better addressed without intervention.¹⁵¹ Whether existing requirements, supervision or enforcement are insufficient is a genuine statutory filter, evidenced case by case rather than assumed. Proportionality supplies the final discipline. A measure should extend no further than the evidenced risk requires, including by operating only during specified stressed conditions.¹⁵² Less restrictive responses, including disclosure or enhanced supervision, also matter. If the cost of restricting lawful trading exceeds the volatility the measure would prevent, proportionality can require the regulator to tolerate the volatility. That outcome is a lawful regulatory choice, not a defect in the statute.

5.6 The power reaches only part of the crowd

A further limit concerns the entities article 42 can address directly. Investment firms, relevant credit institutions and market operators fall within the intervention framework. Undertakings for Collective Investment in Transferable Securities (UCITS) management companies and alternative investment fund managers (AIFMs) acting in those capacities remain outside the direct addressee class,¹⁵³ and the 2019 reform of the European supervisory architecture did not extend the regime to those managers.¹⁵⁴ This exclusion is important because fund managers outside the direct scope can participate in the same correlated trading patterns. This means a valid measure binds part of the crowd directly and may affect the rest only indirectly, through the venues and intermediaries they use. Practice supplies the second limit. Every article 40 and article 42 measure to date rests on investor protection and concerns a product, so the stability and conduct dimension remains untested.¹⁵⁵ An underused macroprudential conduct capacity sits in the statute book, waiting.

5.7 Neither the comfortable answer nor the alarming one

Article 42 can reach defined and firm-ascertainable forms of correlated model-driven trading. Automated deleveraging under specified stress conditions is the strongest candidate, provided the FCA can evidence every statutory condition. A restriction aimed at a named common model

¹⁵¹ FCA multi-firm review (n 55) s 3.2.2.

¹⁵² UK MiFIR, art 42(2)(c) and art 42(2), third subparagraph.

¹⁵³ ESMA, 'Opinion: Impact of the Exclusion of Fund Management Companies from the Scope of the MiFIR Intervention Powers' (ESMA50-1215332076-23, 12 January 2017) para 7; Goldby and Keller (n 4) 49.

¹⁵⁴ Regulation (EU) 2019/2175, art 2(8) and (9).

¹⁵⁵ ESMA Decision (EU) 2018/796; PS19/11 (n 129) para 1.11; ESMA AFM Opinion (n 142) para 16.

or model class can also fit the power, although the FCA presently lacks the routine cross-firm information needed to establish common use. The aggregate phenomenon as such is different. A prohibition defined only through correlation or price-formation effects becomes circular where no participating firm can know the measure applies until the collective outcome emerges, and article 42 does not clearly reach that form. The remaining gaps can be stated precisely. The emergent form presents a scope gap. The model-class form presents an information gap curable by disclosure. UCITS management companies and AIFMs acting in those capacities create a second scope gap. Article 42 presents no separate legal timing gap, since provisional action can outrun the notice period, although missing information may still prevent sufficiently early intervention. The remaining question is how responsibility should be allocated where the risk survives these boundaries, and when regulatory tolerance of that risk is the price of markets worth having.

6. Allocating responsibility for lawful correlated conduct

6.1 Responsibility follows practical capacity

Archegos exposed the allocation problem without any algorithm. The family office entered total return swaps with several bank counterparties. Under such a swap, the client receives the gains and bears the losses on shares the client does not own. The banks hedged the swaps by holding the underlying equities. Each bank could see the positions on the bank's own books. Neither the banks nor their supervisors appreciated the common exposure across firms until liquidation exposed it.¹⁵⁶

The episode suggests a criterion for allocating responsibility. The relevant question is not which institution happens to hold a nearby legal power. It is which institution can observe the risk at the level where the risk arises and coordinate control across the participants whose interaction creates it.¹⁵⁷ Existing legal power matters after those capacities have been identified. It decides whether responsibility can presently be exercised or whether law must supply an additional tool.

Starting from existing powers would reverse the inquiry and make it circular. If responsibility followed existing power, a risk beyond every existing power would belong to nobody, and no

¹⁵⁶ Jeremy C Kress and Jeffery Y Zhang, 'The Macroprudential Myth' (2024) 112 Geo LJ 569, 635.

¹⁵⁷ Kress and Zhang (n 156) 634.

gap could ever appear. Individually rational conduct can become collectively harmful,¹⁵⁸ and public coordination may then be needed to preserve the market.¹⁵⁹ Entity-based regulation can remain demanding while missing risks created in the relationships between regulated entities.¹⁶⁰

The allocation has three levels. Firms remain responsible for risks they can reasonably identify and control, and venues for the markets they directly operate. System-level responsibility arises only where the relevant risk becomes visible in aggregate and control requires coordination beyond either tier.

6.2 A firm cannot control a market it cannot observe

The firm level carries everything a firm can practically discharge and no more. Article 17 and RTS 6 already impose extensive duties of testing, monitoring and control, and may require a firm to take account of foreseeable interactions reasonably knowable from the firm's strategy, market or third-party system.¹⁶¹ Whether known common use extends testing to correlated responses across firms remains a construction question. Use of the same strategy elsewhere does not weaken those obligations.

The residual case begins only beyond those reasonably knowable effects, where the relevant information lies outside the institution. A firm cannot inspect competitors' models. It cannot compel rival firms to reduce positions. It cannot reconstruct the full exposure created by undisclosed strategies, common vendors and common signals.¹⁶² One firm's lawful trade may still contribute to a harmful market movement. Causal contribution alone does not make the firm practically responsible for an interaction it cannot observe or control. Allocating the residual risk back to individual firms would require each participant to anticipate behaviour hidden from it and constrain actors beyond the participant's authority. The legal obligation would expand while the aggregate problem remained untouched.

¹⁵⁸ Saule T Omarova, 'New Tech v New Deal: Fintech as a Systemic Phenomenon' (2019) 36 Yale J on Reg 735, 768.

¹⁵⁹ Omarova (n 158) 769.

¹⁶⁰ Steven L Schwarcz, 'Systematic Regulation of Systemic Risk' [2019] Wis L Rev 1, 3.

¹⁶¹ RTS 6, art 5(5).

¹⁶² Hilary J Allen, *Driverless Finance: Fintech's Impact on Financial Stability* (OUP 2022) 115; Giuliano G Castellano, 'Don't Call It a Failure: Systemic Risk Governance for Complex Financial Systems' (2024) 49 L & Soc Inquiry 2245, 2265.

6.3 Venues control markets after strategies reach them

Trading venues occupy the next level because they can see orders entering their markets and intervene directly in trading. Article 48 requires venues to be able to halt or constrain trading and, in exceptional cases, to cancel, vary or correct transactions.¹⁶³ The Court of Appeal in *Elliott*¹⁶⁴ treated those powers as "intended to protect the market and those who trade in it", together with the wider economy. Article 48 also permits authority-coordinated halts across venues trading the same instrument.¹⁶⁵

Those powers do not give the venue a view of every exposure accumulating before an order reaches the market. The nickel episode showed the limit, with large over-the-counter positions interacting with exchange trading outside the venue's view at the time.¹⁶⁶ More generally, observing orders does not reveal every common model, shared vendor or correlated position held across institutions.¹⁶⁷

Venue responsibility follows direct control over trading in the venue and coordinated control over the same instrument across venues. The prior accumulation of correlated strategies across institutions sits above this level.

6.4 Aggregate risk needs aggregate sight

System-level responsibility is narrower than responsibility for everything labelled systemic. It arises where the relevant risk becomes visible only after information from several institutions is combined and where effective control requires coordinated intervention. Such responsibility does not imply one omnipotent regulator. Different institutions can perform different functions according to the practical capacity each possesses.

A broader model distributes systemic-risk responsibilities across market participants in advance, often by crisis phase and through predetermined contingency roles.¹⁶⁸ That approach has real value for preparedness and coordinated response. It does not by itself answer where an ex ante intervention function should sit when the relevant trigger is visible only at system level.

¹⁶³ *Elliott* (n 105) [37].

¹⁶⁴ *Elliott* (n 105) [44].

¹⁶⁵ MiFID II, art 48(5).

¹⁶⁶ LME Final Notice (n 29) para 2.31.

¹⁶⁷ *Yadav* (n 114) 1094.

¹⁶⁸ *Castellano* (n 162) 2276.

The two approaches can coexist during preparation. They diverge when ex ante control depends on an aggregate view. At that point responsibility should lie with a public actor capable of assembling the market-wide picture.¹⁶⁹

In the UK that public role is divided. The FPC monitors the system to identify systemic risks.¹⁷⁰ A recommendation under section 9Q of the Bank of England Act 1998 is one route for passing a concern to the FCA, never a legal precondition of FCA action.¹⁷¹ The FCA holds the principal conduct power in article 42 of UK MiFIR.¹⁷² Article 42 can reach defined forms of correlated trading, though it does not clearly reach the aggregate phenomenon as such. Three functions emerge from this allocation. The system may need better sight, a quantitative brake and a means of arrest when narrower controls fail.

6.5 Better sight through model-use disclosure

Regulators already possess significant authority to ask algorithmic traders about their systems. Article 17(2) allows the competent authority to require descriptions of strategies, parameters, limits, controls and testing "on a regular or ad-hoc basis".¹⁷³ The FCA's rule requires an answer within fourteen days of a request.¹⁷⁴ The rule also reaches "any further information about the firm's algorithmic trading and systems used for that trading".¹⁷⁵

The missing element is not the ability to question one firm. It is routine, standardised information across firms showing which model classes and providers are sufficiently common to create concentration. Those request powers appear wide enough to obtain model and provider information from individual firms.

Reporting model class and provider identity by in-scope algorithmic traders could supply that information. The FCA could combine facts already known to individual firms and identify common use before stress reveals the concentration. The same map would remove the information obstacle to an article 42 measure aimed at a specified common model or model

¹⁶⁹ Omarova (n 158) 748 fn 48.

¹⁷⁰ Bank of England Act 1998, s 9G(1)(a).

¹⁷¹ Bank of England Act 1998, s 9Q(1).

¹⁷² UK MiFIR, art 42(1)(b).

¹⁷³ MiFID II, art 17(2), second subparagraph.

¹⁷⁴ FCA Handbook, MAR 7A.3.7R.

¹⁷⁵ FCA Handbook, MAR 7A.3.7R(6).

class. Disclosure of algorithmic models to regulators alone was proposed as early as 2015,¹⁷⁶ and the proposal recurs in later work.¹⁷⁷

The critical third parties regime addresses a different risk. The Treasury may designate a service provider where failure or disruption of the services could threaten "the stability of, or confidence in, the UK financial system".¹⁷⁸ The first four designations took effect on 13 July 2026.¹⁷⁹ That regime concerns the resilience of the service. Model-use disclosure asks whether customers may behave alike while the provider continues functioning perfectly.

6.6 A quantitative brake already exists for leverage

The second function already exists in narrow form. Suppose many funds borrow to hold similar positions chosen by similar models. When prices fall, each may have to sell to cut the borrowing, and each sale pushes prices lower for the others.

Regulation 68 of the Alternative Investment Fund Managers Regulations 2013, derived from article 25(3) of the AIFM Directive,¹⁸⁰ addresses that pattern for one class of manager. The FCA must "assess the risks that the use of leverage by full-scope UK AIFMs ... could entail".¹⁸¹ Full-scope UK AIFMs are the managers of alternative investment funds within the full UK regime. Where measures are "necessary in order to ensure the stability and integrity of the financial system", the FCA must use them. They limit the extent to which leverage contributes to "the build up of systemic risk in the financial system" or "the risks of disorderly markets".¹⁸² The measures are leverage limits and other restrictions on how a fund is managed.¹⁸³

The UK version of the implementing regulation makes the aggregate logic explicit. The FCA must consider how far a manager's "interaction with a group of AIFMs or other financial

¹⁷⁶ Yesha Yadav, 'How Algorithmic Trading Undermines Efficiency in Capital Markets' (2015) 68 Vand L Rev 1607, 1670.

¹⁷⁷ Allen (n 162) 164.

¹⁷⁸ FSMA 2000, s 312L(2).

¹⁷⁹ Critical Third Parties (Designation) Regulations 2026, SI 2026/777, reg 2.

¹⁸⁰ Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No 1060/2009 and (EU) No 1095/2010 [2011] OJ L174/1 ('AIFMD') art 25(3).

¹⁸¹ Alternative Investment Fund Managers Regulations 2013, SI 2013/1773 ('AIFMR 2013') reg 68(1)(a).

¹⁸² AIFMR 2013, reg 68(1)(b).

¹⁸³ AIFMR 2013, reg 68(2).

institutions" can contribute to systemic risk.¹⁸⁴ Relevant aspects include a downward spiral in prices,¹⁸⁵ "concentrations of risks in particular markets" and contagion to other markets.¹⁸⁶

The architecture matters more than the particular transmission mechanism. Information from individual managers is aggregated by a public authority. A binding constraint can then be imposed because collective exposure creates the risk, even where no manager has broken any rule. Regulation 68 also reaches full-scope AIFMs, which article 42 does not directly address in that capacity. This closes part of article 42's entity-scope gap where leverage transmits the risk. UCITS management companies acting as such remain outside both powers.

The power remains narrow. It concerns leverage and a defined group of managers. It does not create a general constraint on correlated trading across firms and strategies.

A broader exposure measure could borrow the same architecture. The measure would need an observable object, such as concentration or aggregate exposure linked to a specified automated deleveraging trigger. Such a trigger is the strongest candidate for an article 42 measure. Defining the measure by the eventual price effect would simply recreate the circularity identified there. A firm would learn the measure applied only after enough other firms had acted. Article 42 restricts a defined practice, while an exposure measure caps a quantity.

Any broader measure would still depend on existing legal authority. The FPC can direct the FCA or the PRA only to implement a Treasury-prescribed macroprudential measure¹⁸⁷ within the regulator's existing powers.¹⁸⁸ Where regulation 68 or article 42 already reaches the risk, another measure would add nothing.

6.7 Arrest is largely instrument-specific

Much of the instrument-specific machinery already exists. Article 48 permits coordinated halts in the same instrument across venues.¹⁸⁹ Under section 313A of FSMA, the FCA may "require an institution or a class of institutions to suspend or remove a financial instrument from

¹⁸⁴ Assimilated Commission Delegated Regulation (EU) No 231/2013 of 19 December 2012 supplementing Directive 2011/61/EU of the European Parliament and of the Council with regard to exemptions, general operating conditions, depositaries, leverage, transparency and supervision, as amended by SI 2019/328 ('UK AIFMD Level 2 Regulation') art 112(2).

¹⁸⁵ UK AIFMD Level 2 Regulation, art 112(3)(b).

¹⁸⁶ UK AIFMD Level 2 Regulation, art 112(3)(d).

¹⁸⁷ Bank of England Act 1998, s 9L(1).

¹⁸⁸ Bank of England Act 1998, s 9H(8).

¹⁸⁹ MiFID II, art 48(5).

trading". The power exists to protect "the interests of investors" or "the orderly functioning of the financial markets".¹⁹⁰ Institutions include recognised investment exchanges, investment firms and qualifying credit institutions,¹⁹¹ and trading includes trading away from a venue.¹⁹²

For a crisis centred on one identified instrument, those powers cover substantial ground. A broader problem arises where the same model or trigger spreads stress across several instruments. Whether suspensions imposed instrument by instrument could keep pace is an open question of fact.

In June 2026 a Deputy Governor of the Bank of England raised, as a question for future work, whether guardrails are needed. The guardrails in view were "analogous to circuit breakers or kill switches that would limit or stop trading market-wide if faulty AI models cause market meltdown".¹⁹³ The example concerns faulty models, not lawful residual conduct. It is a policy analogy rather than evidence of an existing general power.

Any wider halt would require an objective trigger, limited duration, review and controlled reopening. Stopping correlated trading also stops liquidity, price discovery and profitable trades. An authority may lawfully judge some volatility a lesser cost than a halt. A wider arrest power adds value only where existing instrument-specific powers cannot contain the event. Article 48's coordinated halt machinery applies where there is "a significant price movement in a financial instrument" over a short period.¹⁹⁴ Section 313A contains no equivalent express requirement that disorder must already be visible.¹⁹⁵ Sight and the quantitative brake nevertheless remain the earlier-stage tools.

6.8 Regulation can create the uniformity it seeks to prevent

One apparently direct response should be rejected. If common models create correlation, regulators might try to mandate model diversity. The remedy can reproduce the problem. Rules prescribing model characteristics or required inputs become common inputs themselves. The

¹⁹⁰ FSMA 2000, s 313A(1).

¹⁹¹ FSMA 2000, s 313D(1).

¹⁹² FSMA 2000, s 313A(3).

¹⁹³ Sarah Breeden, 'Agents of Change' (Speech at the ECB Forum on Central Banking, Sintra, 30 June 2026) under 'Agentic Trading in Financial Markets', para 5
<<https://www.bankofengland.co.uk/speech/2026/june/sarah-breedden-panel-at-the-european-central-bank-forum-on-central-banking-2026>> accessed 29 September 2026.

¹⁹⁴ MiFID II, art 48(5), first subparagraph.

¹⁹⁵ FSMA 2000, s 313A(1).

literature treats regulation built around value-at-risk, a standard measure of potential loss, as an example of common regulatory design moving institutions in the same direction.¹⁹⁶

AI design constraints can create similar convergence by pushing learning systems towards common responses.¹⁹⁷ The consolidated tape described in section 2 illustrates the same mechanism from the information side, since standardising market information can also standardise the information supplied to trading systems.¹⁹⁸

A diversity mandate creates a further difficulty. The regulator would need to decide in advance which differences between models matter before the relevant interactions are known. Firms would also lose freedom to select the models they consider most effective.¹⁹⁹ The more defensible measures stop short of prescribing model content. Disclosure improves sight, existing or extended aggregate constraints cap observable exposure, and halts arrest disorder when narrower tools fail. Those interventions watch, constrain and stop the crowd without requiring regulators to design the models firms use, although none solves the circularity arising when harmful correlation becomes identifiable only after the crowd has formed.

7. Objections, the United States, and the limits of intervention

7.1 The risk need not be inevitable

The strongest empirical objection comes from practice. Firms often use simpler models than academic accounts assume. Humans remain involved, architectures and data differ across institutions, and every sale requires a buyer.²⁰⁰ Those qualifications reduce the likelihood of widespread convergence and caution against treating every episode of volatility as evidence of an algorithmic crowd. They do not eliminate the underlying mechanism by which separately controlled firms can converge on similar positions or responses and amplify a shock. The FPC has formally identified that mechanism as a possible source of amplified stress,²⁰¹ and the 2007

¹⁹⁶ Schwarcz (n 160) 50; Ka Wah Philip Ng, 'From Herding Machines to Autonomous Agents: A Taxonomy of AI-Driven Flash Crash Mechanisms and the Regulatory Gap' (2026) 19(9) J Risk and Financial Management 664, 9.

¹⁹⁷ Dou, Goldstein and Ji (n 27) 42.

¹⁹⁸ Deckers (n 25) 351.

¹⁹⁹ Allen (n 162) 160, 178.

²⁰⁰ Ng and Mohamed (n 26) 716.

²⁰¹ FPC Record April 2025 (n 1) para 50.

quant unwind shows it operating without AI.²⁰² Neither establishes that AI-driven convergence will occur. Together they establish a recognised mechanism with a real historical analogue.

Article 42 is framed for risk rather than completed catastrophe. The stability limb asks whether a practice poses a threat,²⁰³ and every remaining condition would still require evidence in the particular case. The relevant question is who could act once the risk was sufficiently evidenced, before serious disruption occurred.

7.2 Entry controls still need an aggregate view

A second objection moves intervention earlier. Instead of constraining conduct after deployment, regulators could require systems to pass a sufficiently demanding gate before trading begins. The existing regime already contains such a gate. RTS 6 requires development and testing methodologies,²⁰⁴ conformance testing²⁰⁵ and controlled deployment before an algorithm trades normally in the market.²⁰⁶ Timing is not the central difficulty.

The difficulty is what the gate can see. A firm can test the firm's own system against relevant markets, strategies and stressed conditions. Suppose a firm seeks to deploy a model which sells once volatility crosses a set level. The firm can show that the model works as designed and can be switched off. It cannot show how many other firms already use the same trigger. The firm-level duty reaches a limit once the relevant interaction depends on undisclosed systems or common use across other firms. For entry testing to identify a crowded model before deployment, the test would need an aggregate criterion such as whether the same model class or trigger is already sufficiently concentrated across the market. No individual firm possesses the cross-firm dataset needed to apply that criterion.

The strongest academic form of entry control reaches the same point. A licensing test based on systemic effects can assess the system-level risk only once someone can observe beyond the applicant firm.²⁰⁷ Moving the test earlier does not remove the need for aggregate information. It moves the same information problem to the entrance.

²⁰² Kirilenko and Lo (n 9) 61.

²⁰³ UK MiFIR, art 42(2)(a)(i).

²⁰⁴ RTS 6, art 5(1).

²⁰⁵ RTS 6, art 6(1).

²⁰⁶ RTS 6, art 8.

²⁰⁷ Allen (n 162) 185.

7.3 The United States relocates the problem

One objection treats the problem as a peculiarity of UK law. The US organises the institutional architecture differently, and the same distinction between system-level observation and firm-level control reappears. Magnuson locates the American difficulty in capacity rather than power. He writes "statutory authority is unlikely to be an issue in regulating artificial financial intelligence's systemic risk. Competence and capacity, however, will be."²⁰⁸

Existing trading rules remain more localised. Regulation SCI strengthens the technological resilience of exchanges and other important market infrastructure.²⁰⁹ The Market Access Rule generally requires broker-dealers providing market access to keep financial and regulatory risk controls under their "direct and exclusive control", subject to a limited exception allowing specified regulatory controls to be allocated to a broker-dealer customer.²¹⁰ Both rules are infrastructure and access controls. Neither is a general restriction on lawful correlated conduct across independent firms.

The Commodity Futures Trading Commission's Regulation AT, a dedicated rulebook for automated trading, went further and never became law. The proposal was withdrawn in 2020, abandoning the proposed new registration requirements and compulsory production of source code without a subpoena.²¹¹ Congress returned to AI-related financial risk in August 2026 through the Financial Artificial Intelligence Risk Reduction Act. The proposal would add AI-risk coordination, research, threat identification, reporting and recommendation functions to the Financial Stability Oversight Council, the US body of financial regulators responsible for systemic risk.²¹² The bill would also require the Securities and Exchange Commission to make rules on governance, testing, monitoring and human oversight for covered firms.²¹³

This proposal combines observation above firms with governance duties inside firms. It does not itself create a general cross-firm conduct restriction, so a different institutional design reproduces the same underlying question. Seeing aggregate risk and possessing a legal instrument capable of controlling it are separate functions.

²⁰⁸ William Magnuson, 'Artificial Financial Intelligence' (2020) 10 Harvard Business L Rev 337, 372.

²⁰⁹ 17 CFR §§ 242.1000 to 242.1007 (2025) (Regulation SCI).

²¹⁰ 17 CFR § 240.15c3-5(d) (2025).

²¹¹ Regulation Automated Trading; Withdrawal, 85 Fed Reg 42755, 42756 (July 15, 2020).

²¹² Financial Artificial Intelligence Risk Reduction Act, S 5358, 119th Cong § 2 (2026).

²¹³ S 5358 (n 212) § 5.

7.4 Intervention carries real costs

Disclosure requires reporting systems and compliance resources. Quantitative constraints, such as leverage limits under regulation 68, can change portfolio choices.²¹⁴ A trading halt sacrifices liquidity and price discovery for as long as the intervention lasts. These costs cannot be dismissed as incidental. The cost to innovation is sharpest where regulation shapes the technology itself. The innovation trilemma captures the difficulty. Regulators seeking clear rules, market integrity and financial innovation can secure at most two of the three at any one time.²¹⁵ A mandate requiring firms to build deliberately different models would sharpen that cost. Measures focused on sight, a quantitative brake and arrest leave model content alone.

Overreach is constrained by article 42 itself. The FCA must identify a qualifying threat, find existing requirements and improved supervision or enforcement insufficient, adopt a proportionate measure,²¹⁶ give notice,²¹⁷ publish supporting evidence²¹⁸ and revoke the measure once the conditions cease.²¹⁹ On the better construction, harmful aggregate correlation does not itself become a regulated practice. Those safeguards do not eliminate the cost of intervention. They determine when the cost is legally justified.

7.5 The legal architecture is already being rewritten

Article 42,²²⁰ RTS 6²²¹ and the relevant provisions of Delegated Regulation 2017/567 remain operative at the 30 September 2026 cut-off.²²² They also sit inside the programme of revocation and replacement under the Financial Services and Markets Act 2023. Parts of UK MiFIR have already been rewritten or revoked, most recently articles 4 and 4a on 30 March 2026.²²³ The Alternative Investment Fund Managers Regulations 2013, which contain the regulation 68 brake, are also listed for revocation, although revocation has so far been commenced only for

²¹⁴ AIFMR 2013, reg 68(2).

²¹⁵ Chris Brummer and Yesha Yadav, 'Fintech and the Innovation Trilemma' (2019) 107 Geo LJ 235, 248.

²¹⁶ UK MiFIR, art 42(2).

²¹⁷ UK MiFIR, art 42(3).

²¹⁸ UK MiFIR, art 42(5).

²¹⁹ UK MiFIR, art 42(6).

²²⁰ UK MiFIR, art 42.

²²¹ Assimilated Commission Delegated Regulation (EU) 2017/589 of 19 July 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to regulatory technical standards specifying the organisational requirements of investment firms engaged in algorithmic trading, as amended by FCA 2019/60 and FCA 2025/41 ('UK RTS 6').

²²² UK Delegated Regulation 2017/567, art 21.

²²³ Financial Services and Markets Act 2023 ('FSMA 2023') s 86(3) and sch 1, pt 1; Financial Services and Markets Act 2023 (Commencement No 11 and Saving Provisions) Regulations 2025, SI 2025/1078, reg 6(b).

regulation 79.²²⁴ Restatement could preserve the same allocation of information and powers, redistribute them or remove particular routes. The more durable question survives those changes. Any successor regime must still decide which actor sees firm-level information, which actor can assemble the aggregate picture, and which actor can intervene once correlated conduct becomes dangerous. The statutory names may change while that allocation problem survives.

7.6 Some correlation may properly be tolerated

The final objection is also the most important limit on intervention. Markets depend on participants responding to the same information, changing positions and discovering prices. Volatility can create opportunity as well as loss. A regime intervening whenever automated systems reach similar conclusions could suppress the diversity and price discovery it is meant to protect. Article 42 already leaves room for that judgement through proportionality. A restriction need not be imposed merely because a qualifying risk can be identified. Where the costs of intervention exceed the expected harm, tolerance can be the lawful result.²²⁵ That possibility does not erase the allocation problem. Deliberate tolerance and unallocated risk are different.

8. Conclusion

Lawful correlated conduct does not fall wholly outside the regulatory system. Firm-level duties may extend to crowd effects a firm can reasonably foresee from the strategy, market or third-party system it uses. The harder case begins beyond that point. Several firms may each run a properly controlled system, comply with the rules applying to them and make individually lawful trades, while their combined behaviour creates a risk none can see alone. Existing law deals well with failures located inside one firm or one market. It is less comfortable when the harmful feature lies in the relationship between many lawful decisions.

That distinction explains where responsibility should sit. A firm remains responsible for risks it can reasonably identify and control. A trading venue is responsible for the market it operates once trading conditions reveal a problem. The residual risk belongs at system level only when seeing it requires information from several institutions and controlling it requires action across them. The legal system already contains much of the necessary machinery. The FCA can obtain

²²⁴ FSMA 2023, s 86(3) and sch 1, pt 2; Financial Services and Markets Act 2023 (Commencement No 4 and Transitional and Saving Provisions) (Amendment) Regulations 2023, SI 2023/1382, reg 2(c)(vi).

²²⁵ UK MiFIR, art 42(2)(c).

information from individual firms,²²⁶ restrict some defined forms of correlated trading²²⁷ and intervene urgently where the statutory conditions are met.²²⁸ Existing rules also provide narrower ways to constrain leverage²²⁹ and to halt trading when stress reaches the market.²³⁰ What is missing is not a single master power. It is the ability, in every case, to join the relevant information to a power capable of acting on what the information reveals.

That leaves three limited problems. First, regulators do not routinely receive a cross-firm picture showing whether many firms depend on the same model or provider, even though existing request powers appear capable of obtaining the underlying information from individual firms. Regular reporting could close that information gap. Second, article 42 can reach a trading practice defined in advance, including some common-model or automated-deleveraging cases, while it does not clearly reach harmful correlation identifiable only after the crowd has formed. Third, some fund managers remain outside that intervention power,²³¹ although the leverage regime for full-scope UK AIFMs closes part of the boundary where leverage transmits the risk. These are real limits. They are much narrower than saying that existing law has no answer to algorithmic correlation.

Some residual correlation may properly remain in the market. Similar responses to common information can support price discovery, and intervention can impose costs on liquidity and innovation. The important distinction is therefore not between regulation and non-regulation. It is between tolerance chosen after an authority with adequate sight and legal power has assessed the risk, and exposure left in place because no institution ever possessed both. A legal architecture need not eliminate every algorithmic crowd. It should ensure that leaving one alone is a regulatory choice rather than an institutional accident.

²²⁶ FCA Handbook, MAR 7A.3.7R.

²²⁷ UK MiFIR, art 42(1)(b).

²²⁸ UK MiFIR, art 42(4).

²²⁹ AIFMR 2013, reg 68(1)(b).

²³⁰ MiFID II, art 48(5); FSMA 2000, s 313A(1).

²³¹ ESMA 2017 Opinion (n 153) para 7.

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FCA v Da Vinci Invest Ltd [2015] EWHC 2401 (Ch) 16

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European Union

United Kingdom v Parliament and Council (Case C-270/12) EU:C:2014:18 24

Table of Legislation

United Kingdom statutes

Bank of England Act 1998

s 9C 20

s 9G 29

s 9H 20, 31

s 9L 20, 31

s 9Q 20, 29

Financial Services and Markets Act 2000

s 1D 21

s 122I 18

s 123 17

s 123A 17

s 123B 17

s 137D 21

s 138M 21

s 312L 30

s 313A 32, 38

s 313D 32

s 381 17

Financial Services and Markets Act 2023

s 86 36, 37

sch 1 36, 37

United Kingdom statutory instruments

Alternative Investment Fund Managers Regulations 2013, SI 2013/1773

reg 68 30, 36, 38

Critical Third Parties (Designation) Regulations 2026, SI 2026/777

reg 2 30

Financial Services and Markets Act 2000 (Recognition Requirements for Investment Exchanges, Clearing Houses and Central Securities Depositories) Regulations 2001, SI 2001/995	
sch pt I, para 3B	18
Financial Services and Markets Act 2000 (Regulated Activities) (Amendment) Order 2017, SI 2017/488	
art 1	21
art 13	21
Financial Services and Markets Act 2023 (Commencement No 4 and Transitional and Saving Provisions) (Amendment) Regulations 2023, SI 2023/1382	
reg 2	37
Financial Services and Markets Act 2023 (Commencement No 11 and Saving Provisions) Regulations 2025, SI 2025/1078	
reg 6	36
Market Abuse (Amendment) (EU Exit) Regulations 2019, SI 2019/310	
reg 13	17
<i>Assimilated law</i>	
Assimilated Commission Delegated Regulation (EU) No 231/2013 of 19 December 2012 supplementing Directive 2011/61/EU of the European Parliament and of the Council with regard to exemptions, general operating conditions, depositaries, leverage, transparency and supervision, as amended by SI 2019/328	
art 112	31
Assimilated Commission Delegated Regulation (EU) 2017/567 of 18 May 2016 supplementing Regulation (EU) No 600/2014 of the European Parliament and of the Council with regard to definitions, transparency, portfolio compression and supervisory measures on product intervention and positions, as amended by SI 2018/1403	
art 21	22, 24, 36
Assimilated Commission Delegated Regulation (EU) 2017/589 of 19 July 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to regulatory technical standards specifying the organisational requirements of investment firms engaged in algorithmic trading, as amended by FCA 2019/60 and FCA 2025/41	36
Assimilated Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC, as amended by SI 2019/310	
art 12	5, 15, 16
art 13	16
Assimilated Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012, as amended by SI 2018/1403	
art 42	3, 21, 22, 23, 24, 25, 29, 34, 36, 37, 38

Regulatory rules

FCA Handbook

MAR 1.6.7G	16
MAR 1.6.8G	16
MAR 1.6.10G	16
MAR 1 Annex 2	16
MAR 7A.3.2R	11
MAR 7A.3.7R	12, 29, 38
MAR 7A.3.8R	12

European Union regulations

Commission Delegated Regulation (EU) 2017/584 of 14 July 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to regulatory technical standards specifying organisational requirements of trading venues [2017] OJ L87/350

art 12	18
art 18	18

Commission Delegated Regulation (EU) 2017/589 of 19 July 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to regulatory technical standards specifying the organisational requirements of investment firms engaged in algorithmic trading [2017] OJ L87/417

recital 1	13
recital 6	13
art 4	12
art 5	11, 13, 27, 34
art 6	11, 34
art 8	11, 34
art 9	11
art 10	11, 13
art 12	11
art 13	11
art 15	12
art 16	12

Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC [2014] OJ L173/1

art 23	17
--------	----

Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012 [2014] OJ L173/84

art 27da	7
art 40	22
art 42	22

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art 2 22, 25

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annex III 4, 14

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art 25 30

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recital 63 13

art 17 10, 29

art 48 18, 28, 31, 32, 38

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§ 2 35

§ 5 35

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