Our Lessons Have Returned: Insights into Post-crisis Financial Regulation from Mandatory OTC Derivatives Clearing Policy

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Our Lessons Have Returned: Insights into Post-crisis Financial Regulation from Mandatory OTC Derivatives Clearing Policy

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Abstract: The global crisis of 2008 associated with the failure of Lehman Brothers revealed the fragility of the financial system. In its aftermath, policy makers created many new rules to address the perceived causes of the crisis and to enhance financial stability. Nearly all of these rules have now been implemented, and regulators' focus has moved to policy review and revision. This phase of the regulatory cycle offers a golden opportunity to consider how these processes should be conducted, given the volume of rules written and their importance. This paper introduces mandatory clearing of over-the-counter derivatives as a case study of the issues in the review of post-crisis regulation. This example highlights a number of questions which regulatory review should address. These include the goals of the regulation; its proportionality; whether alternative policies could meet the same goal with lower cost, higher benefit, more certainty and/or fewer side effects; the size and allocation of redistributional effects; and the calibration of the policy. Insights from regulatory theory are used to illuminate these issues and to suggest how a thorough review of financial regulation might proceed. In the case of mandatory client clearing, this leads to suggestions both for the design of the policy and for potential improvements in the rule making process.

Keywords: Financial Regulation, Mandatory Clearing, OTC derivatives, Regulatory Review, Regulatory Theory

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I. INTRODUCTION

The global crisis of 2008 revealed dangerous vulnerabilities in the financial system. Regulators scrambled to create policy to address the issues they identified in the immediate aftermath of that. Rule writing and implementation eventually lead to an analysis of the impact of the reforms and to their revision. These rules have profoundly transformed the global financial system.

Rightly, an extensive literature exists on the new rules and their consequences. The history of the crisis, its causes, and the conjectured effects of the policies or alternatives to them has also received much attention. This literature is however mostly inspired by the financial system as it was, is, or might be. The wider scholarship on regulation, known as regulatory theory, has not been highly influential, perhaps because of its roots in the disparate area of environmental policy. Moreover and more fundamentally, the question of how power operates in post-crisis regulation is seldom considered. This question of power, however challenging, is vital to understanding both the decisions taken and the issues obscured and ignored in the regulatory discourse. This paper broadens the analysis of post-crisis financial regulation, taking inspiration from regulatory and other theories. It uses an important and impactful element of post-crisis regulation, the mandatory clearing of over-the-counter ('OTC') derivatives, as a case study to illuminate the questions not just of what post-crisis financial regulation might plausibly be seeking to achieve and how it seeks to achieve it, but also to analyse aspects of the discourses that created it.

Two levels are important here. The first is review at the level of the regulatory text, where there is consideration of what the regulation does and what the consequences of those requirements are.[1] A thorough impact analysis examining the benefits of the proposed regulation, its likelihood of achieving its intended goal, its costs and side effects can be an important tool here. However, regulations are not self-expressive. The level of the rule making process, of regulatory discourses, is important too. The questions of the ultimate policy goal and its framing; whether due process was followed; whether the regulation is proportional given the goal; and whether other alternatives to the proposed approach which might meet the goal with more certainty or lower cost all arise.

The next section briefly introduces OTC derivatives markets, the motivations for post-crisis regulation, and the trajectory of the resulting regulatory process. The current regulatory review phase is introduced. The policy that will act as a case study in our analysis, mandatory clearing, is then considered. Regulatory theory provides insights into the typology of rules, the analysis of their costs and benefits, and the nature of different forms of organisation. These are used both to gain insight into the clearing mandate and to analyse the system that produced it, using the broad questions suggested above. These considerations are used to discuss how financial regulation could be improved at the level of the rule text and the discourses that produce it.

[1] There is a substantial literature on the review of regulation, such as W. Hahn, J. Hird, *The Costs and Benefits of Regulation: Review and Synthesis*, Yale Journal on Regulation, Vol. 8, No. 1 (1991), but this literature typically refers to environmental or other industrial rather than financial regulation.

II. CONTEXT

OTC derivatives markets are key venues for risk transfer. They are very large,[2] diverse,[3] and in many cases highly liquid.[4] However, during the 2008 global financial crisis, some areas of these markets – notably OTC credit derivatives linked to asset-backed securities – suffered stress, and OTC markets were identified as creating financial stability, especially after the failure of Lehman Brothers and the near-failure and rescue of AIG.[5] For instance, the president of the New York Federal Reserve Bank, William Dudley, said:

"The contagion generated by the complex web of outstanding bilateral OTC derivative exposures significantly worsened the crisis and was responsible for much of the losses Lehman incurred in its bankruptcy."[6]

As a result, OTC derivatives figured prominently in the intense period of regulatory reform which followed the crisis. In this section, we describe the current state of post-crisis regulation, focussing on this part of the reforms.

2.1 POST-CRISIS OTC DERIVATIVES REGULATION

A substantial amount of financial regulation was written in the immediate post crisis period and implemented soon thereafter. This was particularly true for OTC derivatives, where the reforms were extensive and transformational. Before the crisis, OTC derivatives exposures were predominantly bilateral. The large OTC derivatives dealers had substantial portfolios of exposures with each other, creating a network with a dense core. Clients were typically connected to a handful of dealers, giving a sparser periphery. After the crisis, policies designed to increase the use of central counterparties ('CCPs'), including the mandatory clearing of some OTC derivatives, amongst others, changed this network into one where the dealers have smaller exposure to each other but substantially bigger exposure to the most important CCPs.

The consequences of this first wave of regulation were so profound that additional regulation was needed to address some of them. In particular the increased importance of CCPs meant that regulation regarding their recovery and resolution was needed. Thus, there were several waves of post-crisis rule-making with the later stages addressing the consequences of the earlier ones.

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[2] The most recent Bank of International Settlement ('BIS') statistics, for the first half of 2019, report an outstanding notional of OTC derivatives globally of over $640 trillion, while the OTC derivatives trade association ISDA reports that as of end 2018, over $350 billion of margin had been pledged against the risk of these transactions. See https://stats.bis.org/statx/srs/table/d5.1 and https://www.isda.org/2019/04/09/isda-margin-survey-year-end-2018/ respectively.

[3] The BIS, *ibid.*, reports multi-trillion dollar notionals in OTC interest rate, foreign exchange, equity, credit and commodity derivatives, with fifty five countries listed as having meaningful turnover.

[4] The BIS reports daily turnover in single currency OTC interest rate derivatives alone averaged $6.5 trillion in April 2019: see https://www.bis.org/statistics/rpfx19_ir.pdf.

[5] For a discussion of the role of Lehman and AIG, see D. Murphy, *Unravelling the Credit Crunch,* Chapman and Hall, 2009.

[6] Text of remarks by Mr William C Dudley, President and Chief Executive Officer of the Federal Reserve Bank of New York, at the Economic Club of New York, New York City, 6 November 2017, available at https://www.bis.org/review/r171107b.htm.

Political attention on financial regulation tends to be short-lived, and so the broad features of the post-crisis regulatory response were decided quickly. Many of them are already evident in the September 2009 G-20 leaders' statement, for instance.[7] After this, and especially after the passage of the Dodd Frank Act in the United States and the (for our purposes) broadly concordant EU derivatives regulation, EMIR,[8] political attention waned.[9] Detailed rule writing and implementation took rather longer.[10] However, the rule writing phase is now very nearly over, and implementation of most of the planned regulations is either complete or well-underway.[11]

2.2 The Need for Regulatory Review

The speed of deciding the broad features of post-crisis policy and the magnitude of the changes to the financial system it created both suggest the need for review, and this has been an area of increasing focus for policy makers since 2018.[12] When the rules were being designed, data on their likely impact was difficult to obtain and often of poor quality, but this is no longer true in many areas.[13] Review and revision can therefore be informed by this information.

OTC derivatives regulation was one of the first areas of post-crisis financial regulation to receive substantial review and revision, reflecting the magnitude of the changes it

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[7] See the G20 Leaders' Statement (Pittsburgh, 25-26 September 2009) available at http://www.g20.utoronto.ca/2009/2009communique0925.html.

[8] EMIR, colloquially the European Market Infrastructure Regulation and formally *Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories*, was passed in July 2012.

[9] Coffee describes the phenomenon of a 'regulatory sine curve' whereby "regulatory intensity is never constant, but rather increases after a market crash, and then wanes as (and to the extent that) society and the market return to normalcy" while "the public's passion for reform is short-lived". See J. Coffee, *The Political Economy of Dodd-Frank: Why Financial Reform Tends to be Frustrated and Systemic Risk Perpetuated*, Columbia Law School Working Paper No. 414 (2012). Some authors have argued that the short-lived nature of this power is partly due to the specialised nature of the issues and politicians' lack of expertise: see for instance P. Culpepper, *Quiet Politics and Business Power: Corporate Control in Europe and Japan,* Cambridge University Press (2010).

[10] The rules required under the Dodd Frank Act are a good example of the ice cream quality of financial rule making, whereby the flavour is chosen early on, but it takes a while for the fine detail to set. As Davis Polk's Dodd Frank progress report noted, "As of the end of the fourth quarter of 2015, a total of 271 Dodd-Frank rulemaking requirement deadlines have passed. Of these… 204 (75.3%) have been met with finalized rules and rules have been proposed that would meet 34 (12.5%) more. Rules have not yet been proposed to meet 33 (12.2%) passed rulemaking requirements." See https://www.davispolk.com/Dodd-Frank-Rulemaking-Progress-Report for details.

[11] For instance, for the Commodity Futures Trading Commission's (CFTC) implementation of the Dodd Frank Act requirements, see https://www.cftc.gov/LawRegulation/DoddFrankAct/Dodd-FrankFinalRules/index.htm where the Commission stated at end 2019 that it had "now finalized 79 rules, exemptive orders and guidance actions and 7 other actions".

[12] A linked pair of initiatives are insightful here. First, the Financial Stability Board convened the Derivatives Assessment Team to review post-crisis OTC derivatives regulation. Its final report *Incentives to centrally clear over-the-counter (OTC) derivatives*, FSB (2018) ('the DAT report') is available at https://www.fsb.org/wp-content/uploads/R191118-1-1.pdf. Following this, the Basel Committee on Banking Supervision considered revision of some of its rules on OTC derivatives. See for instance *Leverage ratio treatment of client cleared derivatives*, BCBS 467 (2019) available at https://www.bis.org/bcbs/publ/d467.htm.

[13] See for instance the charts in the Derivatives Assessment Team final report *Incentives to centrally clear over-the-counter (OTC) derivatives*, FSB (2018) ('the DAT report'), available at https://www.fsb.org/wp-content/uploads/R191118-1-1.pdf. Many of these were sourced from regulatory data which only became available with the implementation of the post crisis reforms.

produced. These processes can both be more considered than initial rule making, as there is no political imperative to act quickly; and better informed, not least due to the availability of information on the impact of by-now-implemented rules.[14] In some cases review was built into regulation[15], while in others, reviews were conducted due to perceptions of potential unintended consequences or higher than anticipated costs.[16] The publication of the Financial Stability Board's ('FSB's') post-implementation evaluation framework for the G20 financial regulatory reforms systematised the review process.[17]

The revisions to post-crisis financial regulation seen thus far range from fine tuning to more substantial modifications. For instance, recent revisions to European derivatives regulation (the 'EMIR refit') have been described by their drafters as "targeted modifications… to simplify the rules and make them more proportionate"[18]. On the other hand, some recent changes to the United States' Dodd Frank Act have proved more controversial.[19]

2.3 The Case of Mandatory Clearing

Given all of this context, consideration of how best to review financial regulation is timely. This article considers this topic, focussing in particular on a post-crisis policy in OTC derivatives regulation, mandatory clearing. The requirement to clear standardised OTC derivatives is a key feature of the post-crisis reforms,[20] reflecting the perceived role of bilateral OTC derivatives in the crisis.[21] Essentially, this policy requires that OTC

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[14] The rules themselves help here, in that one area of rule-making focussed on improving information available to regulators on OTC derivatives. See for instance EMIR, Article 9.

[15] For a comprehensive account of built in review clauses in European legislation see I. Krišto, *Review Clauses in EU Legislation – A Rolling Check-List*, European Parliamentary Research Service (2018). This list is substantial as the European Commission has a regulatory fitness and performance programme which reviews most European legislation and aims to ensure that it "delivers results for citizens and businesses effectively, efficiently and at minimum cost": see https://ec.europa.eu/info/law/law-making-process/evaluating-and-improving-existing-laws/refit-making-eu-law-simpler-and-less-costly_en for more details. The over-arching framework here comes from article 5 of the Treaty of the EU which states in part that "the content and form of Union action shall not exceed what is necessary to achieve the objectives of the treaties".

[16] The impact of the leverage ratio on incentives to provide client clearing services which led to the revisions discussed in footnote 13 are an example of review and subsequent revision following the identification of potential unintended consequences.

[17] See Financial Stability Board, *Framework for Post-Implementation Evaluation of the Effects of the G20 Financial Regulatory Reforms* (2018) available at https://www.fsb.org/2017/07/framework-for-post-implementation-evaluation-of-the-effects-of-the-g20-financial-regulatory-reforms/.

[18] The quote is from the European Commission's proposal to revise one of the key post-crisis derivatives reforms, EMIR, or *Regulation (EU) No 648/2012*. This proposal led to revisions known as the EMIR refit. See https://ec.europa.eu/info/law/better-regulation/initiatives/com-2017-208_en for the text of the proposal.

[19] Elizabeth Warren described 2018 Economic Growth, Regulatory Relief, and Consumer Protection Act, which amends certain aspects of the Dodd Frank Act, as rolling back "the rules which were put in place after the big banks were bailed out" (tweet, 22 May 2018), while Mike Crapo, who introduced the Act into the Senate, described it as "meaningful relief to small financial institutions" from the "unintended cumulative regulatory burden" of post crisis regulation (Statement at Hearing on Implementation of the Economic Growth, Regulatory Relief and Consumer Protection Act, October 2018).

[20] See the G20 Leaders' Statement, *ibid.* at [12].

[21] For a further discussion of this issue see B. Tuckman, *Derivatives: Understanding Their Usefulness and Their Role in the Financial Crisis,* Journal of Applied Corporate Finance, Vol. 28, No. 1 (2016) or J. Braithwaite, D. Murphy, *Get the balance right: Private Rights and Public Policy in the Post-Crisis Regime for OTC Derivatives*, Capital Markets Law Journal, Vol. 12, No. 4 (2017).

derivatives counterparties use a central counterparty or 'CCP' to intermediate many derivatives transactions between them. This reduces the risk each party poses to the other. It is common ground among many commentators that unconstrained contracting through OTC derivatives destabilised some dealers in the crisis, so there is a clear motivation for mandatory clearing of inter-dealer OTC derivatives.[22] However, policy makers also require mandatory clearing of many OTC derivatives where one counterparty is not a dealer, and in particular for many institutions who are not CCP members. It is less immediately clear that this 'client' activity poses the same level of risk to the financial system as that between dealers, and hence that clients should be required to clear.[23] The regulation of client clearing therefore raises questions about the scope and proportionality of the post-crisis reforms. These questions make this area of regulation a good case study.

III. CLEARING POLICY

This section discusses the policy of requiring mandatory central clearing of OTC derivatives by clients. We set out the policy itself, what motivated its introduction, and some of its principal consequences. This leads to a discussion of the issues with the rules identified by key stakeholders and how they can be addressed in the policy evaluation process.

3.1 Central Clearing as a Post-Crisis 'Solution'

The financial crisis demonstrated that the OTC derivatives markets of the mid 2000s could intensify financial instability due to their opacity and the uncertainty they created over the exposures between large banks. As a result, the post-crisis reforms gave a prominent role to central clearing of OTC derivatives.[24] This is because central clearing has certain features which can reduce systemic risk.[25] One important aspect is that because the CCP is counterparty to all the transactions it clears, it facilitates multilateral netting of exposures. CCPs also require both initial and variation margin for all cleared accounts. Together these two features mitigate counterparty credit risk for cleared OTC derivatives. CCPs also

[22] For a thoughtful account of the arguments for and against mandatory clearing, see S. McNamara, *Financial Markets Uncertainty and the Rawlsian Argument for Central Counterparty Clearing of OTC Derivatives*, Notre Dame Journal of Law, Ethics & Public Policy, Vol. 28, No. 1 (2014). This topic is discussed further below.
[23] See for instance Figures 16-18 in M. Ascolese, A. Molino, G. Skrzypczynski, J. Cerniauskas, S. Pérez-Duarte, *Euro-area derivatives markets: structure, dynamics and challenges*, Paper at the IFC-National Bank of Belgium Workshop on Data needs and Statistics compilation for macroprudential analysis (2017) or Figures 5 and 6 in M. Bardoscia, G. Bianconi, G. Ferrara, *Multiplex network analysis of the UK OTC derivatives market*, Staff Working Paper No. 726, Bank of England (2018). All of these figures illustrate a network of exposures with a small, highly interconnected core of dealers and a much larger, less connected periphery of clients. This means that clearing has significant benefits in the core, but less in the periphery.
[24] See D. Murphy, *OTC Derivatives: Bilateral Trading and Central Clearing*, Palgrave (2013) for analysis of the benefits and risks of central clearing OTC derivatives markets.
[25] For a further discussion of the benefits of central clearing, see B. Cœuré, *Central clearing: reaping the benefits, controlling the risks*, Banque de France Financial Stability Review No. 21 (2017).

enhance trade standardisation and portfolio optimisation (for instance via compression). This reduces the complexity of exposures. Finally, they standardise the management of defaults of their members, which gives predictability to the default management process.

Another feature of central clearing which deserves explicit mention is its role in enhancing the likelihood of trade continuity for market participants. If the clearing member of a CCP fails, then not only does the CCP attempt to manage the default while continuing to perform to the original counterparty of the trade,[26] it also seeks to preserve trade continuity for the defaulter's clients, through the process of 'porting' them to other clearing members. Thus, rather than having to close out their portfolio against a defaulting bilateral counterparty, participants in a cleared market are substantially less likely to lose trade continuity.

The perceived benefits of central clearing led policy makers to require that standardised OTC derivatives should be cleared by various classes of market participants. This 'clearing mandate' is implemented slightly differently in different jurisdictions, but its key features include a list of mandatorily clearable products, typically including liquid forward rate agreements, interest rate swaps and credit default swaps; a definition of a size measure of OTC derivatives market activity, such as the participant's gross notional of OTC derivatives; and a threshold such that if the participant's size measure exceeds this threshold, they must clear the mandated products. Certain classes of market participant are usually excluded from the mandate, such as sovereigns.[27]

3.2 Market Reactions to Clearing Policy

The OTC derivatives market has responded to in several significant ways to post-crisis regulation. In response to the clearing mandate and other regulatory incentives,[28] clearing rates have increased for both inter-dealer and dealer-to-client trades. This is true both in mandatorily clearable OTC derivatives such as many interest rate swaps, and in some OTC derivatives which are clearable but not mandated, such as the most liquid inflation swaps.

Policy makers did not, however, anticipate every market adaptation. One example is that both central clearing of OTC derivatives and clearing service provision have become very concentrated. For instance, one CCP dominates the clearing of interest rate swaps, while another group including two CCPs dominates the clearing of credit default swaps.[29] Similarly five large banking groups provide the majority of client clearing services for OTC derivatives.[30] This is partly because the high fixed costs of clearing for clients encourages

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[26] It is only in significant stress, if the CCP has to deploy 'end of the waterfall' tools such as tear up or forced allocation of the defaulter's positions, that trade continuity is not assured. The issues here are discussed in Q. Swerts, S. Van Cauwenberg, *CCP resilience and recovery – impact for the CCP users*, National Bank of Belgium Financial Stability Report (2016).

[27] For details of the clearing mandate in the EU see ESMA, *Clearing obligation and Risk mitigation techniques under EMIR*, available at https://www.esma.europa.eu/regulation/post-trading/otc-derivatives-and-clearing-obligation.

[28] See the DAT report for a discussion of these incentives and the transformation of the OTC derivatives market.

[29] For a further discussion here see FSB, *Analysis of Central Clearing Interdependencies*, 2018 (available at https://www.bis.org/cpmi/publ/d181.pdf) and the DAT report.

[30] For instance, in the United States, the percentage of client initial margin held by the largest five client clearing service providers has exceeded 60% since the CFTC began collecting statistics: see https://www.cftc.gov/sites/default/files/2019-05/ClearedMarginReportMay2019.pdf for details.

concentration, and partly because some regulations discourage the provision of client clearing.[31]

3.3 The Current Debates in Clearing Policy

As the implementation of post-crisis OTC derivatives policy has proceeded and the market has adapted, a number of issues have emerged. In clearing policy these include the type of entities which are mandated to clear; the threshold for mandatory clearing; and the definition of the size measure. One reason that these questions arise is because a clear link was never established between the ultimate policy making goal – financial stability – and the means chosen to achieve it in OTC derivatives markets – mandatory central clearing. Thus, it has proven difficult to decide policy questions by reference to a clear account of how policy is intended to achieve its goal.

The issue with entity types is twofold. First, there are some types of OTC derivatives market participant who are unleveraged and of high credit quality. As such, their failure is unlikely, and hence the financial stability benefits of forcing them to clear are often small. Indeed, the 'benefits' may be negative, in that if the probability of their failure is nugatory, in a bilateral world they only lose their trades if the counterparties fail; while in a cleared world, trade continuity is not guaranteed if their clearing member withdraws from providing clearing services as well as if it fails.[32]

Some pension funds are an example of this kind of client. They form a particular problem for clearing policy partly because they do not naturally have significant cash balances. Central counterparties (and their regulators[33]) require variation margin in the form of cash on all cleared accounts, and pension funds' lack of substantial liquidity makes it difficult for them to meet this requirement. The EMIR refit therefore exempts pension funds from mandatory clearing for a further two years.[34] However, it is not clear that this exemption, together with that of small end users and some governmental and international entities, covers all the parties whose participation in clearing is of debateable benefit to financial stability.[35]

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[31] These disincentives to the provision of client clearing include the leverage ratio and its read-across to the G-SIB surcharge in the Basel Capital Accords; see the DAT report and J. Acosta-Smith, G. Ferrara and F. Rodriguez-Tous, *The impact of the leverage ratio on client clearing*, Bank of England Staff Working Paper No. 735 (2018) for a discussion of these issues.

[32] Typical ISDA master agreements governing bilateral transactions do not allow for early termination by the dealer, or only do so at once point in time, such as ten years into a thirty-year trade. In contrast, client clearing service agreements often allow the provider to give a short notice period, such as 90 days, and then withdraw the provision of clearing. Given the relative unattractiveness of many clients to their clearers, it is unclear if this period is sufficient for them to find a new clearing member. This point is discussed further in the DAT report.

[33] See for instance section 3.4.16 of the CPMI/IOSCO *Principles for financial market infrastructures* (2012) available at https://www.bis.org/cpmi/publ/d101a.pdf.

[34] See paragraph 30 of *Regulation (EU) 2019/834 of the European Parliament and of the Council of 20 May 2019*. This is in addition to a three year exemption set out in Articles 85 and 89 of EMIR.

[35] Exemption parties include multilateral development banks, public sector entities where they are owned by central governments and have explicit guarantee arrangements provided by central governments, the European Financial Stability Facility and the European Stability Mechanism.

The regulators' intent is that the threshold for mandatory clearing "should be set taking into account the systemic relevance of the related risks".[36] In both the EU and the United States, it is set by gross notional of OTC derivatives in each asset class. However, the threshold amounts are relatively low. For instance, they are currently €1B in both equity and credit derivatives and €3B in interest rate and FX derivatives in the EU, for instance. This means that some relatively small OTC derivatives market participants are required to clear.[37] To the authors' knowledge there has been no study of the relative costs and benefits of setting the threshold at this level.

A further problem arises here in the definition of the size measure. Gross notional of OTC derivatives is unrelated to risk. Client portfolios often have a large gross notional and relatively small initial margin requirements; equally, some portfolios with a gross notional well below the mandatory clearing threshold can nevertheless have substantial risk. This definitional problem is further complicated by the exemption of hedging transactions in the calculation of the size measure for non-financial counterparties.[38]

3.4 Policy evaluation

It would be valuable to consider each of the issues identified above separately. Regulatory review which just considered the text of mandatory clearing requirements and its consequences would do that. However, a wider perspective, including the consideration of the rule making process, would be even more useful. In the next section insights from other areas of regulatory analysis are explored. These provide substantial insights for a review of post-crisis financial regulation and form a preamble to the discussion of a review of the client clearing mandate itself.

[36] The quote is from *Commission Delegated Regulation (EU) No. 149/2013* of 19 December 2012 supplementing EMIR.

[37] In the EU, the thresholds are set by ESMA under Article 11 of *op. cit.*: see https://www.esma.europa.eu/policy-activities/post-trading/clearing-thresholds.

[38] Hedging transactions are defined in *op. cit.* as those "objectively measurable as reducing risks related to commercial activity or treasury financing activity of the non-financial counterparty or of that group". Because this definition is broad, it offers many entities the opportunity to exempt much or all of their derivatives activity from the threshold calculation.

IV. REVIEWING FINANCIAL REGULATION IN THE LIGHT OF REGULATORY THEORY

The examination of how regulation arises and evolves, how it is and could be organised, and the benefits, costs and risks of framing it in various ways is a topic which touches on various disciplines. As an inter-disciplinary area of scholarship, *Regulatory Theory* gathers insights from economics, legal scholarship, political economy and elsewhere,[39] and considers examples from a diverse range of situations including the regulation of airlines, telephony and trade as well as finance.[40] The regulation of pollution has proved a particularly rich area of study, motivating consideration of both current policies and potential alternatives to them.[41]

In the next two subsections insights at the levels of both the text and the rule making process which are relevant to OTC derivatives clearing policy are summarised.

4.1 TYPES OF REGULATION

Regulatory theory identifies a typology of regulation. At the highest level of this, regulations which define permissible or illegal activities, so called 'command and control' regulations, are distinguished from those which establish an incentive structure to encourage the desired outcome.[42]

'Bright line' command and control regulation is easier to monitor than incentive-based regulation, but a workable definition of permissible activities is obviously key. Command and control regulation also tends to be susceptible to some stakeholders arguing in the rule making process that the proposed regulation accidentally captures or has a disproportionate impact on them, and thus they should be exempted. A good example can be found in the Montreal Protocol. This is an international treaty on substances that deplete the ozone layer. During the negotiation of this treaty, farmers largely in the United States successfully argued that methyl bromide, a chemical which was used as a soil fumigant in strawberry and tomato production should not be banned as there

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[39] Introductions can be found in for instance *Regulatory Theory: Foundations and applications*, P. Drahos, (Ed.), ANU Press, 2017 and *Economic Regulation and its Reform*, N. Rose (Ed.), University of Chicago Press, 2014.

[40] For airlines, see for instance M. Levine, *Why Weren't the Airlines Reregulated?*, Yale Journal on Regulation, Vol. 23, No. 2 (2006); for telephony and other examples from utility regulation, see *Regulatory Economics: Twenty years of progress?*, M. Crew, P. Kleindorfer, Journal of Regulatory Economics Vol 21, No. 1, 2002; for trade and the problems of multilateral cooperation, see M. Trebilcock, R. Howse, A. Eliason, *The Regulation of International Trade*, Routledge (2013) and T. Hale, D. Held, K. Young, *Gridlock: Why Global Cooperation Is Failing When We Need It Most*, Polity Press (2013).

[41] The literature ranges from discussions of theory, such as N. Keohane, R. Revesz, R. Stavins, *The Choice of Regulatory Instruments in Environmental Policy*, Harvard Environmental Law Review Vol. 22 (1998) through to quantifications of the costs and benefits of particular policies, as in N. Muller, R. Mendelsohn, *Efficient Pollution Regulation: Getting the Prices Right*, American Economic Review, Vol. 99, No. 5 (2009).

[42] Command and control and incentive-based regulation are discussed extensively in the theory of pollution regulation: see for instance *The Theory and Practice of Command and Control in Environmental Policy*, G. Helfand, P. Berck (Eds.), Routledge (2013). They are moreover not the only types; there are for instance models define a self-regulatory framework (as discussed in D. Sinclair, *Self-Regulation Versus Command and Control? Beyond False Dichotomies*, Law & Policy Vol. 19, No. 4, 2002), or rely primarily on market discipline (as in A. Fung, M. Graham, D. Weil, E. Fagotto, *The Political Economy of Transparency: What Makes Disclosure Policies Effective?*, Ash Institute for Democratic Governance and Innovation, Harvard University, 2004).

were no similarly priced substitutes. This was despite methyl bromide being responsible for an estimated 4% of total ozone depletion.[43] The protocol entered into force in 1989, but, due to successful lobbying, methyl bromide remained available in the US until 2016. This episode demonstrates the vulnerability of command and control regulation to exemptions which can substantially reduce its effectiveness.[44]

The flexibility of incentive-based regulation, in contrast, if properly framed, can mean that the largest impact is on the most marginal activity, and exemptions are less necessary. Once identified, the comparative efficiency and presumed cost-effectiveness of incentive-based regulation initially led to its increasing popularity.

However, as experience with market-based regulation deepened, it became clear that framing incentives so as to ensure the desired outcome is non-trivial and that distributional equity is not assured in these schemes.[45] Incentives need both to be fully transmitted to the party who decides to pollute, and not so sharp as to completely level the playing field between more and less polluting alternatives.[46] Both incentives-based and command and control regulation, moreover, have the potential for unintended consequences, especially once affected parties modify their behaviour in response to regulation.[47]

The rich literature on legal transplants is insightful here.[48] A legal transplant is a transposition of a rule or a sub-system of law from one from one country to another, or one domain to another. This approach has been used in many situations, but it can be problematic. One problem is cultural: the meaning of a transposed rule depends on the strategies of its implementers and their challengers. It does not 'take place in a legal cultural vacuum'.[49] Therefore if, as is often the case, there are substantial relevant cultural or contextual differences between the original domain and the transplanted one, the transposed rule can act very differently in the new soil it is planted in.[50] Mandatory clearing

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[43] The farmers claimed that there was no economically feasible alternative; they also cast doubt on the underlying science of ozone depletion and predicted mass unemployment if the ban on methyl bromide was enacted.

[44] For a fuller discussion of the methyl bromide exemption, see B. Gareau, *A critical review of the successful CFC phase-out versus the delayed methyl bromide phase-out in the Montreal Protocol*, International Environmental Agreements, Vol 10, No. 3 (2010).

[45] See for instance R. Hahn, S. Olmstead, R. Stavins, *Environmental Regulation during the 1990s: a retrospective analysis*, in The Harvard Environmental Law Review, Vol. 27, No. 2 (2003) for an account of the shifts in environmental regulation during the Clinton era reflecting the evolving understanding of the benefits, costs and risks of various styles of regulation.

[46] For instance, in the United States, the Clean Air Act's requirement for coal burning power stations to use the 'best available technology' made burning harder, less polluting but more expensive coal from the Western states unattractive compared with the softer, more polluting but cheaper alternative from Appalachia: see B. Ackerman, W. Hassler, *Clean Coal/Dirty Air: Or How the Clean Air Act Became a Multibillion-Dollar Bail-Out for High-Sulfur coal Procedures and What Should be Done About It,* Yale University Press (1981).

[47] This reflexivity, whereby both external constraints and the beliefs of market participants affect firm behaviours and market dynamics, has been known at least since the Great Depression: see J. Keynes, *The general theory of employment, interest, and money*, Harcourt Brace (1936).

[48] .See for instance A. Watson, *Legal Transplants: an approach to comparative law* (University of Georgia Press, 2nd Edition, 1993), P. Legrand, *The Impossibility of 'Legal Transplants*, Maastricht Journal of European and Comparative Law, Volume 4 (1997).

[49] The quote is from J. Husa, *Developing Legal System, Legal Transplants, and Path Dependence: Reflections on the Rule of Law*, Chinese Journal of Comparative Law, Volume 6, Issue 2, December 2018.

[50] For a further discussion of the role of legal discourses in the interpretation of transplants see M. Graziadei, *Legal Transplants and the Frontiers of Legal Knowledge,* Theoretical Inquiries in Law, Vol. 10, 2009.

has been used in futures markets for many years.[51] But futures markets are different from OTC derivatives in several pertinent ways. Futures are typically shorter term, and individual trades are smaller; futures market participants are often of lower credit quality; and futures market intermediation is often less concentrated. There must therefore at least be a question as to whether the fact that futures markets developed mandatory clearing voluntarily while OTC derivatives ones did not is indicative of issues that a forced transplantation will have to address.

4.2 Regulatory Discourses

The need for a clear justification for the precise measures taken, given the desired policy goal, is an important insight from regulatory theory. To pick one example from many, deposit insurance can help to insulate deposits from the burden of doing due diligence on banks and the social costs of bank failure, but badly designed deposit protection schemes can facilitate unsustainable growth by badly capitalised banks and still leave the financial system exposed to bank failure.[52] Regulatory outcomes, then, depend not just on the broad direction of policy, but on the details of the rules enacted.

Policy making is more likely to lead to the desired outcome if that outcome is clearly specified. In Emissions regulation, for instance, the total level of greenhouse gas emissions is a natural measure of outcome. The availability of an easily agreed measure of regulatory success is, however, the exception rather than the rule. The definition of a measure also often involves a normative choice. Thus, in the cost/benefit analysis of regulation, the definition of who's benefits and costs are accounted for, and how, is arbitrary yet often determinative of policy choices.[53] Because these choices in turn shape outcomes, effective policy making requires that they can be questioned.[54]

The nature of regulatory power is also key to understanding the policy making process.[55] This is impersonal and centred in organisations rather than individuals.

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[51] For an account of the history here see J. Moser, *Origins of the Modern Exchange Clearinghouse: A History of Early Clearing*, Working Paper WP-94-3 (1994), Federal Reserve Bank of Chicago.

[52] See C. Calomiris, *Deposit insurance: Lessons from the record*, Chicago FED Economic Perspectives, Vol. 13, No. 3 (1989).

[53] For a fuller discussion of this point see W. Samuels, *Normative Premises in Regulatory Theory*, Journal of Post Keynesian Economics, Vol. 1, No. 1 (1978). The official Macroeconomic Assessment Group on Derivatives report *Macroeconomic impact assessment of OTC derivatives regulatory reforms* (2013), available at https://www.bis.org/publ/othp20.pdf is a good example of the importance of normative choices. It uses CDS premia to infer default probabilities, which results in overstatements of the probability of market participant failure; it makes crude assumptions about the exposures between financial institutions which do not account for the post-crisis reforms to margin arrangements; it underestimates the prevalence of clearing, again increasing exposure estimates; and it make highly questionable assumptions about the probability of a financial crisis resulting from stress in OTC derivatives markets. Other choices might well negate the report's conclusion that the costs of the OTC derivatives reforms are justified given their benefits.

[54] It should be noted here that Habermas' definition of a valid norm as one 'that could meet with the approval of those potentially affected, insofar as the latter participate in rational discourses' (*Between Facts and Norms: Contributions to a Discourse Theory of Law and Democracy,* MIT Press, 1996 pg. 127) is seldom satisfied by regulation.

[55] This question motivates the use of the term 'discourse' in the introduction. It is used in the sense of a (historically contingent) system that produces knowledge and meaning – in this case regulatory knowledge and meaning. The sense is Foucault's in his attention to how power operates, and in particular to the structures which control how the production of discourse is "controlled, selected, organised and redistributed". See M. Foucault,

However, regulations are often written by a relatively small number of people, much as statute is. Moreover, regulatory power is strategic, with its own dynamic. It involves the continual assertion of the regulatory analysis by authorities. This is often of the form '*this* is the problem; *these* are the solutions'. By (often successfully) attempting to define the boundaries of the policy making debate, regulation reinforces its power and sometimes seeks to ignore or marginalise opposing narratives. Thus, an inverse regulatory capture is largely achieved by which the regulators shape the discourse of the regulated.

Another factor is the strength of the international regulatory 'consensus'. To see this in operation, consider a notably frank speech, Malcolm Edey, Assistant Governor of the Reserve Bank of Australia, discussing the clearing mandate in Australia.[56] He said:

> The decision, ultimately, to recommend a mandated approach, and the government's acceptance of that advice, were driven importantly by considerations of international consistency. In a number of cases, products had already been mandated for clearing in other jurisdictions, notably interest rate derivatives denominated in the major currencies. The regulators took into account the benefits that could arise in such cases from favourable comparability assessments of the Australian regime…

One interpretation of this is that a significant factor in the Australian decision to mandate OTC derivatives clearing was the desire not to be deemed non-compliant with the international consensus – rather than, say, the benefits of the policy on its own terms.

As discussed in section 2, policy making proceeds in cycles, with large-scale new initiatives often driven by a crisis, but outside these episodes regulation is not static. Rather, it regenerates itself through its own processes.[57] These processes are responsive to changes in the regulated, political economy, and so on, but not straightforwardly reflective of them.[58]

The last insight from regulatory theory that is relevant here is the importance of understanding the distributional aspects of regulation. By necessity, any effective regulatory regime "affects the distribution of power and wealth… [Not only do] powerful interest groups frequently influence regulators, and benefit from the rents or influence that regulation affords them… [but regulators'] power associated with framing issues and

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The Order of Discourse, Inaugural Lecture at the Collège de France, 1970, translated in R. Young (Ed.), *Untying the Text: A Post-Structuralist Reader,* Routledge, 1981.

[56] Speech, *The transition to central clearing of OTC derivatives in Australia,* at the International Swaps and Derivatives Association's 2015 Annual Australia Conference, Sydney, 22 October 2015. Text available at https://www.bis.org/review/r151023a.pdf.

[57] Self-generating self-regulation, self-producing and self-organising systems such as regulation and the law are sometimes said to be 'autopoietic': see J. Black, *Critical Reflections on Regulation*, Australian Journal of Legal Philosophy, Vol. 22 (2002) for a further discussion. This character has consequences for the review of regulation.

[58] A key feature here is *normative closure*; regulatory facts are not imported from outside regulation, but rather are constructed by the operations of it. Thus, there is the 'regulatory balance sheet', which often differs substantially from the ordinary (accounting) balance sheet, 'regulatory exposure', which often differs substantially from the exposure a firm would measure and manage, and so on.

debates" is increasing, and it is correspondingly more difficult to check regulatory over-reach and question arbitrary framing.[59]

4.3 INSIGHTS INTO POLICY EVALUATION

The discussion of the previous section suggests that regular review of regulation is key to keeping it relevant and providing a check on the promulgation of the regulator's narrative. Regulatory theory suggests a number of important features of regulatory review.[60] For our purposes, eight are significant, and they are developed further in light of the case study in the following section:

1. The review should be conducted by a body *independent* from the policy maker, and not by staff who were involved in the original policy making;
2. It should consider if the policy has a *clearly articulated goal* and whether regulation is *necessary* to meet the goal;
3. If regulation is necessary, review should consider whether the regulation reliably assures that the goal is met in a *proportional* manner[61] using an appropriate *form*;
4. It should review the history of policy making and whether *due process* was followed;
5. It should consider the *consequences* of the policy, whether intended or unintended, how the regulated will adapt or have adapted to the regulation, and whether this change in behaviour materially affects the optimality of the chosen policy;
6. The distributional consequences of regulation and their *fairness* should be considered;
7. *Alternative policies* which might also meet the goal either more certainty, or with lower cost, or fewer side effects, should be considered;
8. Finally, the detail of the regulation, including any thresholds or other *calibration* should be reviewed.

[59] The quote is from F. Cafaggi, K. Pistor, *Regulatory Capabilities: A Normative Framework for Assessing the Distributional Effects of Regulation*, Columbia Public Law Research Paper No. 13-354 (2013).
[60] There are also important insights from legal scholars commenting on financial regulation: see for instance R Romano, *Regulating in the dark and a postscript assessment of the iron law of financial regulation*, Hofstra Law Review, Vol. 43, No. 1 (2014), on the role of sunset clauses in financial regulation.
[61] The requirement from Article 21 of the Legislative and Regulatory Reform Act (2006) that "regulatory activities should be carried out in a way which is transparent, accountable, proportionate and consistent" and that "regulatory activities should be targeted only at cases in which action is needed" do not apply to most regulatory rule making, but form a good benchmark.

V. REVISITING THE CLEARING MANDATE

The criteria for regulatory review articulated in the previous section are now applied to the policy of mandatory client clearing of certain OTC derivatives. Each of the eight features of effective review is discussed in a subsection below.

5.1 Independent Review

A review should be conducted by a body independent from the national and trans-national standard setters, and ideally at no lower a level than the original rule making.[62] The review should not be staffed by persons who wrote or approved the original rules.[63]

5.2 Necessary Regulation to Meet a Clearly Articulated Goal

The requirement for review to consider the goal of regulation may be challenging for the client clearing mandate because, as discussed in section 2.3, it has never been clearly articulated by the official sector what the goal which suggests the need for mandatory client clearing is.

Plausible goals might include the reduction of counterparty credit risk (in which case bilateral margin requirements would be a credible alternative); the reduction in complexity of the network of exposures (which suggests inter-dealer clearing, but does not clearly motivate client clearing, not least because there are more interconnections in a client cleared trade than in a bilateral one); trade standardisation (which could be achieved by *fiat* in the bilateral market); or reducing the likelihood of disorderly close-out after a default. These issues highlight the important of analysing the purported mechanism by which the regulation under review meets its goal.

5.3 Proportional Regulation in a Suitable Form

Mandatory clearing is a command and control regulation, as discussed in section 4.1 above. Policy review should examine whether this is justified, given the relatively low risks that some currently captured clients pose to financial stability (against the counterfactual of bilateral trading with margin[64]), and given the incentives to clear present as discussed in section 5.7 below.

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[62] In particular international rules should be reviewed by an international body, as a purely national review would not necessarily have the necessary standing.

[63] J. Coates IV, in *Cost-Benefit Analysis of Financial Regulation: Case Studies and Implications* 124 Yale Law Journal 882 (2015), considers the use of judicial review here and concludes that it is an imperfect tool in situations where regulation depends on inferences in a contested model of behaviour. There are however many instances where there has been judicial review of cases where the facts are complex, and where they have been equal to the task. There are good examples in EU Competition Law here: see D. Geradin, N. Petit, *Judicial Review in European Union Competition Law: A Quantitative and Qualitative Assessment*, TILEC Discussion Paper No. 2011-008, Tilburg Law & Economics Center, 2010.

[64] See BCBS, *Margin requirements for non-centrally cleared derivatives* (2019) available at https://www.bis.org/bcbs/publ/d475.htm for details of the margin requirements for bilateral OTC derivatives. The definition of clients captured by these rules is similar to those captured by the clearing mandate.

5.4 Due Process

Review should consider whether the rule making process for the clearing mandate consulted a suitable range of stakeholders, performed an impact analysis which validated the chosen rules and their calibration, and included any subsequent review and re-calibration. As discussed above, review should also consider the normative choices involved in the definition of this cost/benefit analysis.[65]

Section 4.1 discussed failures of transposition. A review of mandatory client clearing should consider whether this policy represents such a failure. The clearing of futures was perceived by the rule writers as robust during the crisis; was this success, and the (arguable unrepresentative) example of the problems OTC derivatives caused at AIG,[66] used to justify mandatory client clearing of OTC derivatives without sufficient analysis?

5.5 Policy Consequences

There are a number of pieces of pertinent new information since mandatory clearing policy was written which should inform policy review.

A good example is the high concentration in the provision of OTC derivatives client clearing discussed in section 3.2. This means that the largest client clearing members have very big client portfolios. This in turn means that were a large client clearer to withdraw from the market, either voluntarily or due to distress, it is unlikely that all of its clients could be ported. The number of clients involved and the amount of risk they collectively clear would likely be too large for the market to absorb. The difficulty of assuring that porting will be possible poses a risk to trade continuity for clients, as clients who cannot port have to be closed out. Some of the largest and most challenging portfolios to close out are client portfolios; clearing member house accounts, while often very large in notional terms, are often well-hedged, whereas some client portfolios are highly risky. Therefore closing out the largest clients after a failure to port could also cause market disruption and risk to the CCP. This risk should be analysed and, if judged significant, measures to mitigate it should be designed.

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[65] The issue is summarised in J. Dunlop, *The Limits of Legal Compulsion*, Labor Law Journal, Vol. 27, No. 2 (1976) as when policy is made "it is often at the price of exaggerating the virtue of those that are to benefit or the wickedness of those that bear the burden". This, together with the sometimes self-justifying nature of rule-making, suggests appropriate scrutiny of regulatory assumptions is warranted. For a further discussion here, see J. Coates IV, *op. cit.*) who argues compellingly that because cost benefit analysis necessarily entails unreliable causal inference, the use of problematic data and/or the use of equally contestable, assumption-sensitive modelling as was used to make policy in the first place, its robustness is highly questionable. This is not to suggest, of course, that cost benefit analysis of financial regulation is impossible, simply that claims about its ability to decide policy questions should be treated sceptically. The arguments for conducting it, as E. Posner, E. Weyle, *Benefit-Cost Analysis for Financial Regulation*, 103 American Economic Review 393 (2013) remain valid.

[66] AIG's problems were principally caused by liquidity risk. The firm had agreed to contracts whereby margin would become payable if its credit quality fell sufficiently. Once this happened, it created demands for cash which the firm could not meet, as discussed in W. Sjostrom, *The AIG Bailout*, Washington and Lee Law Review, Vol. 66 (2009). This situation could not occur today due to the bilateral margin requirements discussed in footnote 50.

5.6 Fairness

Any review of mandatory client clearing should investigate its distributional aspects. Two obvious classes of beneficiary of this policy are the CCPs and the large client clearing service providers. As noted in section 3.2, in many areas of OTC derivatives clearing there is little effective CCP competition. This means that a small number of CCPs are highly systemic.[67] Moreover, because client clearing of OTC derivatives is concentrated in a small number of providers, questions arise about access to client clearing and fees for it. Small clients in particular face difficulties in access to clearing, as the DAT report highlights.[68] These consequences are not an inevitable result of achieving a more stable OTC derivatives system: rather they are outcomes of decisions made in the policy making process. Review should consider whether these outcomes are justified and, if not, what should be done about it.

5.7 Alternative Policies

Given the command and control nature of mandatory clearing, there is a reasonable open question as to whether policy providing incentives to clear would achieve substantially the same benefit at lower cost,[69] and without the need for such significant exemptions to the rule. There are already incentives in place, including requirements for bilateral margin (which are often higher than those for cleared portfolios) and higher capital requirements for banks on non-cleared portfolios.[70] Do these rules, or rules in a similar vein, already form a proportionate response to the goal mandatory client clearing addresses (whatever that is)?

5.8 Calibration

There are four key issues in considering the calibration of the client clearing mandate. These are:

1. Is the threshold defined in the right terms, i.e. is gross notional the right measure?
2. If it is, what is the right level for this threshold? If it isn't, what would be a better alternative?

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[67] For a discussion of the risks created by CCP and clearing member concentration see U. Faruqui, W. Huang, E. Takáts, *Clearing risks in OTC derivatives markets: the CCP-bank nexus*, BIS Quarterly Review, December 2018 available at https://www.bis.org/publ/qtrpdf/r_qt1812h.htm.

[68] See Part E of the DAT report.

[69] There is a requirement under the Financial Services and Markets Act 2000 that, subject to some exemptions, before making any rules FCA must publish a draft of the proposed rules accompanied by, among other things, a cost benefit analysis. See https://www.fca.org.uk/publication/corporate/how-analyse-costs-benefits-policies.pdf. This kind of post-implement review is part of established practice in UK financial regulation: see https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/790031/RPC_case_histories__post-implementation_reviews__March_2019.pdf for more details.

[70] Incentives to clear in are discussed extensively in the DAT report.

3. Are the current exemptions optimal, and if not, how should those clients exempt from the clearing mandate regardless of the size of their OTC derivatives activity be defined?
4. Is the definition of those OTC derivatives which are mandatorily clearable optimal?

VI. IMPLICATIONS FOR CURRENT OPEN QUESTIONS ABOUT CLEARING

It would be wrong to pre-judge the results of the kind of policy review recommended in the last section. However, just considering the questions, some likely conclusions are evident. This section discusses those both at the level of the policy itself and at the level of policy making.

6.1 MANDATORY CLEARING

Mandatory client clearing for OTC derivatives is a command and control regulation created by transposition of an arrangement from another area of the markets (exchange traded derivatives). In the absence of a clear goal for this policy, a measure of policy success, and an account of why the policy is a proportional way of meeting the goal with acceptable side effects and redistributional consequences, questions must arise as to its suitability. In particular there are alternative policies with potentially lower costs and higher financial stability benefits. One of these is eliminating mandatory client clearing entirely and relying on the incentives already present to encourage clearing.

If a clear account of why client clearing is necessary and proportionate can be obtained, then re-designing the policy to ensure that clients which pose little risk to financial stability are not forced to clear, and that the benefits of clearing are more likely to be achieved. Key areas to consider here would be:

- Defining a measure of policy success which could be monitored and against which policy revisions could be calibrated;
- Rephrasing the threshold for mandatory clearing in terms of risk (i.e. initial margin) rather than notional;
- Setting that threshold at a level which only captures clients who pose a plausible risk to financial stability, and reconsidering the exemptions from the mandate with the same aim;
- Making improvements to porting so that this is more likely to be possible for clients should their clearing member fail or withdraw from providing client clearing services.

- Considering whether very large end-users, which might pose risk to the CCP should they have to be closed out after a failure to port, should be direct members of the CCP rather than accessing it as clients.

6.2 The Policy Making Discourse

The post-crisis OTC derivatives reforms sometimes proceeded by declaration: mandatory central clearing was announced as a solution without any accompanying discussion as to why.[71] A better approach would have been to clearly set out the threats to financial stability from OTC derivatives markets, and for each of these to consider a range of policies which might mitigate it. An independent group should conduct a cost/benefit/risk analysis of each of these policies, analysing not just the costs and benefits of the proposal but how likely the benefits were to be realised, and what side effects and redistributional effects it was likely to cause. This analysis should be published together with an analysis of the normative choices made in it.

After a tentative set of policies had been identified, they should be issued for comment. Alternative proposals suggested by stakeholders should be analysed too. Finally, there should be some external governance of policy making which is particularly alert to proportionality considerations and regulatory 'group think'. Issues here are much easier to avoid during policy formation than to correct during post-implementation review.

VII. CONCLUDING REMARKS

After a burst of rule writing, the focus of post-crisis financial regulation has moved to review and revision. This offers a golden opportunity to consider how these processes should be conducted, given the volume of rules to consider and their importance.

The mandatory clearing of OTC derivatives has been introduced as a case study of the issues in the review of post-crisis regulation. It is a good example, as it highlights the need to articulate the goal of regulation; the importance of considering proportionality and whether alternative policies could meet the same goal with lower cost, higher benefit, more certainty and/or fewer side effects; the issue of redistributional effects; and the significance of the calibration of regulation.

Insights from regulatory theory have been used to illuminate these issues and to suggest how a thorough review of financial regulation might proceed. In the case of mandatory client clearing, this leads to questions both of policy design and to potential improvements in the rule making process.

The overall picture that emerges is of a well-intentioned rule that was created quickly, and whose proportionality is questionable. It is perhaps inevitable that some fine tuning

[71] The Pittsburgh G20 Leaders' Statement (*op. cit.*) simply states "All standardized OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties by end-2012 at the latest".

of policy and process would be required give the scale and speed of post-crisis rule making, so our intent is not to highlight this policy as particularly flawed. Rather it is a contribution to the on-going debate about how policy review and revision should be conducted. Our proposal for regulatory review is significantly more comprehensive than those reviews of post-crisis rule making which have been conducted to date. Financial markets are important, and inefficiencies in them can be costly to the real economy. Moreover, the crisis demonstrated that inadequate regulation can be far more expensive than any regulatory process. Therefore a little more work in ensuring that regulation is closer to optimal seems entirely justified.