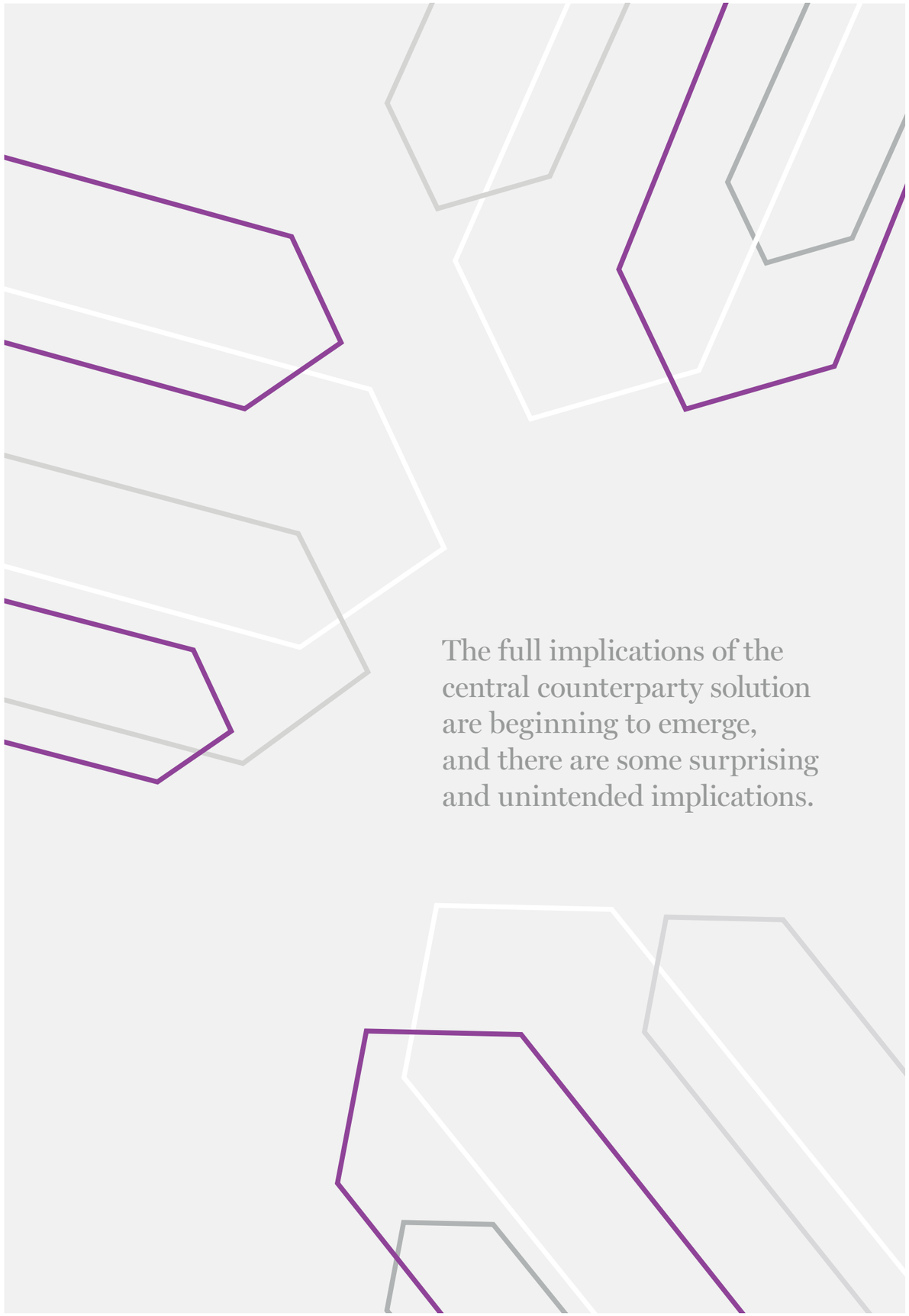
CCP Conundrums

The Full Implications of the Central Counterparty Solution

LCH The Markets' Partner



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Overview

With the recent advent of the EMIR legislation in the European Union and the passage of the Dodd-Frank Act in the U.S., central counterparties (CCPs) have been enshrined by competent authorities as a preferred way to manage systemic risk and in particular guard against the potential consequences of a major bank default or market event.

The full implications of the central counterparty solution are beginning to emerge, and there are some surprising and unintended implications. The goal of this paper is therefore to highlight some of these consequences and encourage industry debate around them.

These are:

LIQUIDITY CONCERNS

The ongoing revisions to leverage ratios and capital regimes are reducing the liquidity that banks can make available to CCPs and other repo players. What started out as a way to control the systemic credit risk challenge has now turned into a liquidity challenge as mandates continue to increase concentrations in CCPs. The responsibility of a private sector firm to liquidate a defaulted member's position without impacting the other non-defaulted members requires that the defaulted member's collateral be liquidated rapidly for cash,so that the other members can continue to receive variation margin payments without interruption. It also requires that the defaulted member's cleared positions can be defeased quickly without generating further market disturbance.

Specific impacts

Legislation effectively forces CCPs to rely on repo markets to manage liquidity, but available liquidity capacity is shrinking, mainly driven by the liquidity coverage ratio and the net stable funding ratio.

CENTRAL BANK ACCESS

Another dilemma is created when competent authorities promote CCPs as a private sector solution, and only allow them to interact with central banks under very limited restrictions. This comes from political concerns that central bank access would be viewed as a backstop that is taxpayer funded.

Specific impacts

01. To perform their critical function during a crisis, CCPs would be well served by having the ability to deposit cash at the central bank. This should not be restricted; rather, the regulatory frameworks need to formally recognize the relationship between a CCP and the central bank during a systemic event.

02. The capability of CCPs to repo government securities with central banks is currently restricted in many jurisdictions, as it is regarded as being tantamount to a public bailout. However, such a restriction may in fact weaken the monetary tools available to the central bank during a systemic event, as it can expose government securities to a fire sale.

03. While some CCPs are able to deposit cash in their domestic central bank, they also need the ability to post cash in other central banks where they hold the local currency.

CENTRAL BANK ACTIONS

The relationship between CCPs and central banks is further challenged by the presence of monetary actions such as quantitative easing/bond-buying programs. Here, the goal of the CCP to manage prudential risk can be in conflict with sovereign objectives to reduce borrowing costs through managing yields down.

Specific impact

01. QE makes it increasingly difficult for a CCP to defend its margin levels and protect against risk in the artificial environment of lower bond yields.

SKIN-IN-THE-GAME

The desire of regulators to have CCPs as part of the private sector creates tension with proposals to increase the CCPs' Skin-in-the-Game (SITG) by undermining the ability of CCPs to return the cost of capital to their shareholders. This places the CCPs at odds with clearing members and their clients, who have argued for substantial increases in SITG.

01. CCPs and the Repo Markets

The clearing mandates create a real and growing dependency for CCPs on the repo markets, while at the same time the available repo capacity in the market is shrinking. CCPs collect margin from members, a proportion of which is delivered in cash. They must then decide how and where to invest that cash so as to generate a liquidity profile to cover their needs. These include normal payments in variation margin across multiple currencies and any potential needs generated by a member default.

EMIR ARTICLE 47 STATES THAT:

> *"Where cash is maintained overnight … then not less than 95% of such cash, calculated over an average period of one calendar month, shall be deposited through arrangements that ensure the collateralization of the cash with highly liquid financial instruments."*

This means effectively that at most 5% on average of CCP cash can be placed on unsecured deposit — a condition that protects the CCP from the credit quality of its treasury counterparties.

The consequence of this condition is that:

A CCP is forced to depend primarily on the repo market to manage its liquidity profile.

This situation can be exacerbated when a CCP regulated under EMIR has U.S. client margins to manage.

CFTC RULE 17 CFR 1.25(D)(6) GOVERNS THE INVESTMENT OF FCM CUSTOMER FUNDS IN A CCP. IT STATES:

> *"A futures commission merchant or derivatives clearing organization may buy and sell the permitted investments … provided the agreements to repurchase or resell conform to the following requirements…"*

> *"(6) The term of the agreement is no more than one business day, or reversal of the transaction is possible on demand."*

But while the alternative of investing margins in money market funds is permitted in the United States, it is not allowed under EMIR. Hence the CCP treasury must work to bring back the customer margins in cash each day. But overnight money is becoming less attractive, further worsening the situation.

At the same time, the Basel Committee is setting standards that limit repo capacity.

01. Under Basel 3's leverage ratio calculation, which banks must comply with by 2018, the grossing up of repo exposures will have a material balance sheet impact and thus reduce the capacity of banks to act as repo counterparties.

02. New liquidity rules such as the liquidity coverage ratio and the net stable funding ratio (to be introduced in 2015 and 2018, respectively) further constrain the balance sheets of banks to accept repo positions.

The contraction of repo capacity is already being observed in the marketplace and has been formally observed by participants in public forums[1]. This leads to a fundamental problem, in which demand for repo capacity is growing while the supply is shrinking.

[1] Market Risk Advisory Committee of the CFTC, June 2, 2015.

02. Central Bank Access

CCPs need to deposit cash at a central bank during a crisis

As discussed in §1, a CCP will manage its liquidity profile by effectively storing cash margins in the repo markets. The liquidity profile is constructed so that enough cash is available each day to meet normal operational liquidity needs, with a buffer should a default event occur.

Of course, in the critical days following a default, the CCP needs to liquidate collateral and use it to meet member VM calls. This creates the need for the CCP to store cash during this short period, as it cannot be tied up in investment activity.

Currently the vast majority of these funds would have to be encumbered in secured investment activity with no more than 5% on average being placed on unsecured deposit. Of course, such a deposit would need to be a demand deposit in this situation, and there can be a capacity issue in finding a home for even this amount of cash at overnight rates.

This highlights the need for a CCP to have the ability to place on-demand, unsecured cash deposits in a manner that does not increase the credit exposure of the CCP to the heightened risk of a stressed membership. Of course, this outlet would only be required during a stress period, but that is precisely the point. It is exactly during such a stress event that a CCP must perform its function to ensure that markets are being stabilized. A central bank provides the capacity for demand deposits without further increasing the risk profile of a CCP during a market stress.

The challenge for CCPs is further accentuated when there is a sharp change in the interest rate environment, as this can create a large VM cash flow.

This conclusion has proved somewhat controversial. The idea has become confused in the public mind with providing a taxpayer bailout to the CCP. Of course, nothing of the sort is being argued here. The suggestion is merely that the CCP be allowed to deposit cash with the central bank, so there is no exposure to the credit risk of the CCP. Put another way, the central bank is being asked to accept on deposit the currency it issued in the first place.

The same considerations apply to an international CCP holding foreign currencies at a foreign central bank. Here there may be obstacles to placing foreign currency in deposit with a foreign central bank. An alternative approach could be for central banks to install swap lines between the domestic currency of the CCP and the foreign currencies held at the other central banks.

At the very least, consideration should be given to allow CCPs to deposit client cash margin in the central bank under a mechanism that meets the current client segregation roles.

03. Repo Considerations

CCPs need the ability to repo government paper directly with the central bank for cash

In the world of bilateral clearing, banks can repo assets in the form of government-issued paper with the central bank in return for cash. This mechanism is a fundamental pillar for the financial system, providing support for the government debt itself and giving central banks an effective tool for monetary policy. However, the conundrum is that this mechanism is not available to a CCP, which is the replacement for the system of multiple bilateral contracts.

Again, the issue appears to be confused in the public mind with the reluctance to provide a taxpayer bailout to the CCP. However, repoing U.S. treasuries with the U.S. Federal Reserve in return for U.S. dollars, as an example, should not be considered a taxpayer bailout.

Faced with such restrictions, CCPs are forced to find more indirect routes to liquidity at the central bank via rules-based committed liquidity facilities. Under these arrangements, members agree to provide cash to the CCP in exchange for government securities, safe in the knowledge that they can in turn repo them for cash at the central bank.

The challenge here is that members are reluctant due to cost considerations to consume balance sheets and liquidity ratios in the current environment, so it may be difficult for the CCP to obtain such facilities from its members.

In addition, the mechanism would involve disciplined coordination of many transactions among many members. These members would need to then transact with the central bank. Of course, all this activity must then be unwound at some point in the future (i.e., members simply intermediate the flow of bonds to central banks).

Adding to this, more than one central bank can be intimately involved here. Many clearing services are international, involving several currency positions and bonds in these currencies. A CCP may provide clearing services in several currencies, but not have access to all of the central banks of the countries in question.

Another consideration under the current regime is that invoking committed liquidity facilities during stressed times may actually be procyclical and could create a sharp decrease in the price of government securities at the very time that the central bank would be looking to smooth the effects of a systemic market event. This would weaken the monetary tools of the central bank, but would not happen if the CCP could repo directly with the central bank.

On the face of it, there is then a strong argument for a CCP to have a direct formal liquidity relationship with its central bank, but this would be distinct from a bailout and be restricted only to government-issued securities.

04. Central Bank Actions

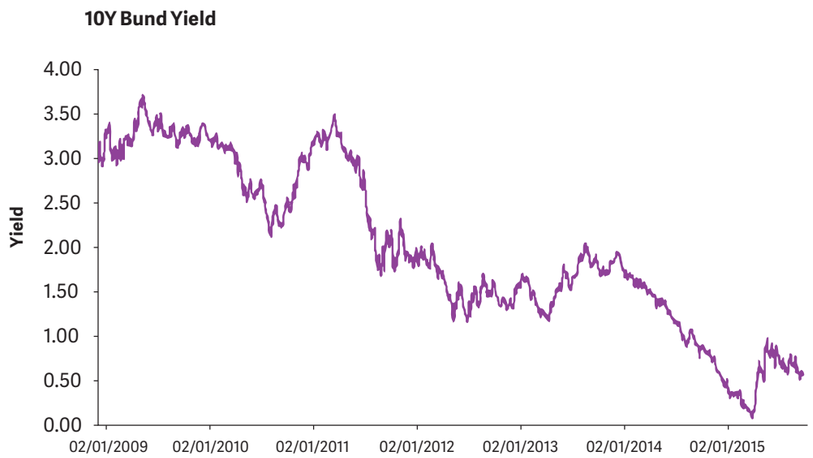
Quantitative easing makes it difficult for CCPs to manage margin levels without being procyclical

At the height of the Eurozone crisis in 2012, ECB President Mario Draghi pledged to do "whatever it takes" to save the euro. The ECB Quantitative Easing (QE) program then formally began on 9 March 2015 at €60 billion per month. Initially this was expected to run until September 2016 or until the ECB sees that inflation is on a "sustained path" to its target (around 2%) in the medium term. However, during the ECB conference on 3 September 2015, President Draghi expressed the possibility that QE may be extended.

In the UK, QE was first introduced in March 2009 to give further stimulus to the economy in the wake of the global financial crisis. It is still in effect in Q4 2015, and the total amount of QE funds since its introduction is £375 billion.

In the U.S., QE was introduced in 2009 and has added more than $3.5 trillion to the Fed's balance sheet. The Fed decided in 2013 to gradually reduce the monthly economic boost with a plan known as the "taper," finishing with a final $15 billion purchase in October 2014. But even after the taper's end, the Fed continued to support the economy by holding its interest rates near zero.

Many critics have argued that QE only provides short-term benefits with the risk of exacerbating long-term problems. However, the impact is undeniable, as can be seen, for example, from yields on German bunds (probably the closest benchmark to the risk-free rate for euros):



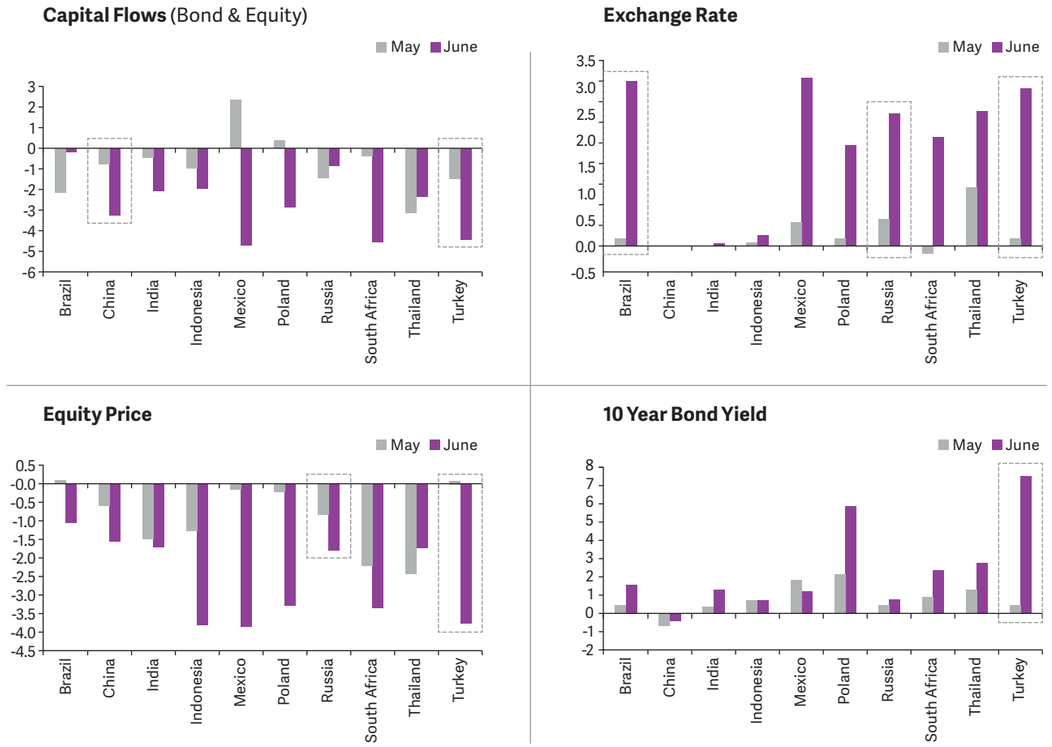
While yields have certainly fallen as a consequence of QE, perhaps more importantly from a CCP perspective, the price of risk has also been distorted and driven to lower levels.

Anecdotal examples of this include:

01. In April 2015, Mexico issued the world's first 100-year government bond, taking advantage of falling borrowing costs in Europe. The country offered €1.5 billion of debt due in March 2115 with a 4.2% yield to maturity.

02. In April 2015, Switzerland auctioned 10-year government bonds with a negative yield. This was the first time that a government has effectively made investors pay for the privilege of lending it money for such a long time.

03. Around the same time, Germany auctioned off €3.28 billion at a yield of –.08%. More strikingly, there was a marked effect on the price of risk globally immediately after the Fed announced that it would be tapering out its QE program. This can be seen from the following charts that compare month-end statistics for May and June 2014, which span the announcement, and the effect is more pronounced for some countries than for others:



The fall in yields during QE has had an associated impact on CCP initial margins. They have been declining in response to the market-implied risk measures, and CCPs have had to redesign margin models (particularly for swaps) to accommodate low yield environments. Still, it has become very difficult for a CCP to defend margin levels in the artificially low rate environment created by these central bank actions.

Inevitably, QE will cease and there will be an associated procyclical event as risk premia (margins) return to "normal levels". The Federal Reserve's QE program had been accompanied by a pronounced flow of funds into emerging markets. When the Fed first mentioned an eventual slowdown and an end to its QE activities in 2013, foreign investors started to withdraw from some of these funds, leading to capital outflows, a drop in emerging market currencies and stock markets, and a rise in bond yields[2].

In anticipation of a similar cessation of other QE programs, CCPs would need a very strong anti-procyclical regimen in place over and above that required by current regulations. This would prevent margin levels from falling too much so that when central bank QE activities eventually ceased, the resulting margin jump would be less abrupt than it would be otherwise.

The need for improving procyclical standards has been recognized[3], but regulations have not yet been formally strengthened. It is fair to say that when this happens, CCPs will need to retain higher margin levels (or at least to slow the rate of margin giveback during benign conditions) to protect against sudden market jumps at the onset of a crisis.

2 The Effect of the Federal Reserve's Tapering Announcements on Emerging Markets, Bank of Canada Working Paper 2014-50, November 2014.

3 EMIR Review Report no. 2, Review on the Efficiency of Margining Requirements to Limit Procyclicality, ESMA, August 2015.

05. Skin-in-the-Game

Increasing CCP Skin-in-the-Game will inevitably increase clearing costs

Under the EMIR regulations, a CCP must place at least 25% of its regulatory capital directly after a defaulted member's financial resources (margins, defaults fund contributions) but before the financial resources of any non-defaulted member. This layer of CCP capital is known as the CCP Skin-in-the-Game (SITG).

The placement of the 25% layer directly after the resources of the defaulted member but before any resources of a non-defaulted member is to ensure that the interests of CCP management are aligned with those of the clearing membership. LCH has further strengthened this incentive structure by linking management compensation directly to usage of the SITG layer. This accomplishes a three-way alignment between clearing members, CCP management and CCP shareholders.

Several large banks and buy-side firms contend that CCPs should substantially increase SITG on the grounds that the current levels of CCP contribution are only of the order of basis points of clearing member exposure, and that the CCPs should be contributing more substantially to the loss absorption resources supporting the trading activity of clearing members. This argument is problematic on a number of grounds:

(i) While SITG has aligned CCP management incentives with those of the clearing members, a substantial increase of SITG would create a misalignment of clearing member incentives, as members might engage in riskier activities on the grounds that any potential losses would be subsidized by the CCP.

(ii) A CCP exists to guarantee the default losses of its clearing members and collects sufficient financial resources from its members to provide this default insurance. It is not economic for each individual clearing member to underwrite such potential losses, and it is only via the mechanism of pooling (or loss mutualisation) that a solution is possible. The CCP does not provide the financial resources necessary to absorb the potential default losses themselves, and so these losses are not a component of CCP capital.

(iii) The key question to ask is whether there are in fact enough financial resources held at the CCP to absorb the default of its largest two members under extreme but plausible scenarios. LCH interprets this as meaning an event that has either happened in the last 30 years or could have happened based on market conditions that were present within the last 30 years. In addition, LCH demands that this level of financial resources should be fully funded.

(iv) If market participants believe that this level of resources is not adequate, then implicitly this means that the size of the default fund and/or the margin levels need to be raised. This of course is easy to do, but as a consequence, the members of the CCP would need to contribute more financial resources to cover such a shortfall in total loss-absorbing capacity.

(i) Raising the SITG requirements for a CCP may actually weaken the CCP, as it brings forward the point of distress at exactly the time the CCP is most needed to address a stress scenario.

(ii) The purpose of CCP capital is to cover activities undertaken in providing the clearing service over and above the capital requirements necessary to cover any default losses from the pooled member portfolios. These are capital requirements related to losses in activities not covered by any financial resources contributed by members such as:

01. Any losses from investment activities arising from the "storage" of member margins with third parties such as custodians, repo counterparties and settlement banks/platforms.

02. The purchase of committed liquidity lines or other liquidity solutions.

03. Any losses stemming from interactions with PPS banks (although the principal margin exposure is covered by clearing members through extended member liability).

04. Any losses generated by operational risks (including legal risk and cyber risk).

(iii) There is no broad-based support for CCPs being incorporated into the public sector. Most jurisdictions are keen to avoid the perception of a potential taxpayer bailout and the accompanying moral hazard for participants in the financial system. The key arguments against having a CCP as part of the public sector were perhaps best laid out by Paul Tucker[4]:

01. "Public agencies can be turned to short-term political imperatives; can be used to pursue distributional interests; and are hard to reform if they prove incompetent"

02. "For many CCPs, it is not clear which country's state would provide the clearing service"

03. "It isn't true that CCPs can't be allowed to fail or wither away, so long as stability is maintained"

(iv) Regulators have, rightly, indicated their strong preference for the private sector to fund potential losses in a default. However, this has implications to SITG:

01. There are not that many CCPs in existence of the size necessary to provide clearing services for mandated products, and any further requirements on SITG would need to ensure that these private sector solutions are encouraged and return at least the cost of capital to the providers of the clearing service.

[4] Are Clearing Houses the New Central Banks? OTC Derivatives Symposium, Chicago, 11 April 2014, Harvard Kennedy School and Harvard Business School.

01. Under CCP capital rules, SITG is effectively a deduction from capital, and any substantial increase in SITG would mean that the CCP would need to raise capital to compensate and returns would eventually fall below the cost of capital. This would present the private sector capital providers with the choice of either exiting clearing completely or raising fees to recover at least the cost of capital. To get a sense for this issue, imagine a typical CCP with minimum regulatory capital needing Kreg and a SITG of 25%. If the CCP is running a 20% notification buffer, then the total capital held by the CCP is 1.2*1.25*Kreg. Suppose further that the CCP cost of capital is 10% currently. If the CCP has a current return on capital of r%, then one can calculate the maximum multiple of SITG it can afford as 12.5*r – 1 times the current Kreg, before breaching its cost of equity to the shareholders.

02. A couple of points are worth noting on the above discussion:

03. CCPs are utilities and typically have lower returns. The CCP could therefore at most afford a SITG of 2x Kreg and still return the cost of equity to its shareholders. Beyond this point, there would simply be no capacity for the CCP to have more SITG without raising clearing revenues. Of course, the CCP shareholders have an expected ROI in excess of 10%, so it would only take a smaller increase in SITG to cause pressure to increase clearing revenues.

04. The CCP has no potential to increase SITG to such an extent as to provide meaningful additional loss absorbency to buffer against any potential member clearing losses.

05. The CCP can only afford a small percentage of its capital as SITG, and this must be enough to ensure alignment of incentives with the clearing membership and the CCP shareholders.

06. It is ironic that when financial market participants are arguing for a CCP to increase the SITG, they are in effect advocating for an increase in clearing fees.

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