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# Dealing with Systemic Risk: “Liquidity Insurance for Systemic Crises”<sup>1</sup>

The financial crisis that started in the summer of 2007 has its roots in a big collective mistake: the under-estimation of systemic risk. This mistake has two important dimensions. A first dimension is the absence of a macro-prudential view in the design and practice of financial regulation and economic policy (especially monetary policy, but possibly also the fiscal and exchange rate policies that helped sustain global imbalances). A second dimension is the excessively optimistic judgment of the process of securitization and the supposed virtues of the originate-to-distribute (OTD) model of banking.

This second dimension of the mistake was partly sustained by the lack of data and historical experience with the OTD model, as well as by the general acceptance of naïve extrapolations of financial theory, regarding the virtues of diversification and greater market completeness. Potential asymmetric information and agency problems were overlooked, ignoring many of the insights provided by the academic corporate finance and banking literatures over the last thirty years.

The risks associated with in the OTD model of banking, including the risks due to maturity mismatch, were at least as important as those present in the traditional domestically-oriented banking systems of the old days. However, due in part to the effective lack of transparency of the OTD model, its greater complexity and interconnectedness, and the lack of precautions resulting from both ignorance and negligence, these risks were poorly mea-

sured, poorly understood, and much more dangerous.

A truth evidenced by the crisis (but denied by many before its outburst) is that short-term wholesale liabilities constitute, in practice, a less stable source of funds for banks than retail deposits. This lower stability comes partly from the fact that banks’ non-deposit short-term debt lacks an arrangement similar to deposit insurance. Deposit insurance protects the financial system against traditional deposit runs by reassuring the depositors about the value of their deposits when there are rumors about the likely insolvency of their banks. Short-term wholesale creditors did not get similar reassurances until very late in this crisis.

The news about the US housing losses around the summer of 2007 and the perception that these losses could spread in an unpredictable way throughout a system of interconnected global banks produced a modern form of global bank panic among money market investors. For the banks that relied on international money markets for their funding, liquidity problems became immediately obvious. Many other banks suffered second round effects, after being hit by direct losses, fire sales, asset price declines, higher margin calls, and costly deleveraging processes, all of which were part of intertwined downward spirals observed during the buildup of this great crisis (Brunnermeier, 2009).

The presumption that money markets without explicit government support were liquid (and a good source of

<sup>1</sup> This short paper summarizes a panel statement at the 37<sup>th</sup> Economics Conference of the Oesterreichische Nationalbank, “Beyond the Crisis: Economic Policy in a New Macroeconomic Environment”. The contents is based on joint work with Enrico Perotti, from the University of Amsterdam.

market discipline for banks) was fundamentally wrong. Once this was recognized, probably too late, by the authorities, governments went massively to the rescue, causing concern and scandal on ample groups of the public opinion, hostile to the idea of using tax-payers money to assist the institutions blamed for the crisis.

The day-to-day management of the crisis then became accompanied by the need to urgently reconsider the regulation of the financial system. In addition to the short term need to calm the public with the announcement of a new financial architecture, the main goal in the current re-regulatory efforts is to correct some of the excesses perceived as causes of the crisis so as to, hopefully, minimize the risk and severity of a similar crisis in the future.

The challenges and alternatives for the design of the new financial architecture are manifold and providing a systematic review of them will exceed



the scope of this short paper. Some recent reports provide excellent summaries of the underlying trade-offs and the main alternatives (e.g. Brunnermeier et al., 2009, and the de Larosière Group, 2009). In this short paper I will focus on a subset of issues regarding the regu-

latory treatment of liquidity risk and the institutions required to deal with it in the event of a future systemic crisis. The remaining discussion will build extensively on a regulatory proposal that Enrico Perotti (from University of Amsterdam) and I launched last February.<sup>2</sup>

### The Case for Liquidity Charges and Pre-packaged Assistance

Our proposal is to establish a liquidity and capital insurance arrangement that would compactly solve some of the problems associated with the excessive reliance of banks on short-term wholesale funding, the political resistance to assist banks during a systemic crisis, and the coordination problems associated with the rescue of international mega-banks.

Our proposal is to establish a mandatory liquidity charge that would be paid continuously during good times to a supervisor, who, in exchange, will provide emergency liquidity (and perhaps capital) during systemic crisis. This charge should work like a Pigouvian tax on pollution, discouraging bank strategies that create systemic risk for everyone (*financial pollution*). For this purpose, the charge should be proportional to banks' short-term liabilities, increasing in the maturity mismatch between assets and liabilities, and levied on all potential beneficiaries of safety net guarantees. Its aim will be to make short and long term bank debt financing more comparable in cost, inducing a lower reliance on the former. Importantly, retail deposits would be exempted from the charge (and excluded from short-term funding in the measure of mismatch) since their own (and separately priced) insurance already seems to make them sufficiently stable during crisis.

<sup>2</sup> See Perotti and Suarez (2009).

The main goal of the liquidity charges would be to realign funding incentives among the beneficiaries of the safety net. Reducing the reliance on short term market funding would reduce the spreading of panic in a confidence crisis and ultimately systemic risk. We think that the lower cost of short term funding partly reflects the fact that short term lenders bear little risk, partly because they are able to shift it away to other stakeholders (equityholders, other banks, and taxpayers) when they dismantle their positions at the first sight of trouble. Thus, the charges would make banks internalize the damage caused to others when things go awry.

Revenues accruing from these charges would go into a fund, say an Emergency Liquidity Insurance Fund (ELIF), that would have legal autonomy, pre-packaged access to central bank liquidity, and the backing of government funds, if required. The relevant macroprudential supervisor (e.g. the Financial Stability Board worldwide or the planned European Systemic Risk Council at the EU level) would trigger the extension of assistance from the ELIF as soon as systemic problems were detected. Specifically, ELIF would provide liquidity support, guarantees on uninsured wholesale funding and, perhaps, some pre-arranged capital injections. Assistance may be accompanied by specific constraints on management, such as restrictions on executive compensation, dividends or other decisions with prudential implications. Critically, no assistance would be provided to institutions that suffer problems of an idiosyncratic, isolated nature.

Given this aspect of the arrangement, the liquidity charge would work

as an insurance premium: a pre-payment for the contingent support that banks and assimilated institutions eventually receive during those episodes of systemic distress. We think that the charges and the existence of an ELIF would make emergency intervention politically more acceptable, especially after the public concern raised by current rescues.<sup>3</sup>

### Advantages Relative to Other Proposals

We think that flat liquidity requirements or higher capital requirements do not constitute the best possible solutions for the management of the systemic component of liquidity risk. A plain liquidity requirement may be a too rigid imposition for banks, impeding them to optimize on a smoother basis. Essentially, that type of requirement imposes a *price* of zero for increasing maturity mismatch if the relevant measure of liquidity remains above the required minimum and a price of infinity for increasing it if liquidity falls below that minimum. Additionally, in order to guarantee sufficient liquidity in the (hopefully) unlikely event of a crisis, the liquidity requirement will probably have to be large, forcing the financial system to hold possibly excessive liquidity in normal times.

With capital requirements the story is similar. For them to provide effective protection against liquidity problems (if at all), bank capital would need to be really large during normal times. This has obvious direct costs and several more subtle disadvantages. The latter include that shareholders tend to see bank capital as an asset to which they are fully entitled. So banks with plenty of capital on their books may be subject

<sup>3</sup> Related cases for insurance arrangements have being made by Acharya et al. (2009) and Kashyap, Rajan, and Stein (2008), among others.

to pressure from their shareholders to *lever it up*, not necessarily through leverage (which might be constrained by capital requirements) but through riskier investment strategies. Another disadvantage is that shareholders' claims on bank capital are a source of trouble in bank interventions since, at least under current bankruptcy and supervisory intervention procedures, seizing or intervening a bank ahead of formal default may be seen as a violation of private property rights.

In contrast to these alternatives, our insurance scheme arranges for the availability of sufficient liquidity (and, perhaps, capital) in systemic crises only and is intended to penalize systemic risk creation in a continuous manner, especially in normal times (using charges per unit of wholesale short-term funding that, as already mentioned, would increase with maturity mismatch).

An advantage of the proposed form of the liquidity charges is that maturity mismatch is relatively easy to compute. Systemic risk – namely the simultaneous realization of correlated tail risk – is hard to estimate, as extreme co-movements are rarely observed, and may be triggered by a different asset class each time. But liquidity runs play an important role in the escalating phase of all systemic crises and have a clearly negative amplifying effect. So liquidity mismatch can be considered a *proxy* of potential systemic risk. In this sense, liquidity charges would discourage the creation of systemic risk associated with short term funding.

To eliminate the incentives to excessively relying on short term maturity funding when the term structure of interest rates is characterized by a high positive slope (which tends to occur during good economic times), the liquidity charges might be increasing in

the slope of the short end of the yield curve (say, up to one year). With this feature, the charges would be naturally countercyclical, leaning against the wind when liquidity is abundant and short term rates are very low. In addition, if necessary, an explicitly countercyclical proportionality factor might also be introduced.

The charges that we propose would probably make it more expensive for banks to rapidly expand their lending above their deposit base, but it will certainly not block it. We would expect banks to react to them by using a greater fraction of long term funding, which might advantageously imply greater monitoring from the corresponding creditors. Finally, with better incentives and counting on the contingent assistance of the ELIF in case of a systemic crisis, we think that the residual short term creditors would be less prone to panic. In each of these dimensions, our solution would imply a significant correction of problems that have contributed to the severity of the current crisis.

### Implementation and Institutional Details

We coincide with most existing proposals on regulatory reform in that properly defining the perimeter of the markets and institutions subject to prudential regulation and supervision will be key to the achievement of a truly more stable financial system. Some clear lessons from the crisis are that the old distinction between commercial and investment banks was obsolete, that the existence of opportunities for regulatory arbitrage encouraged the creation of a dangerous uncontrolled shadow banking system, and that the connections between elements of that system (such as special purpose vehicles, the hedge funds, and the systemi-

cally important institutions were instrumental to the spread and amplification of the crisis.

Future regulation and supervision will hope to cover all institutions that either for their size or for their interconnectedness are systemically important (and, thus, likely receivers of assistance in a crisis), irrespectively of whether they fit into the traditional definition of a bank or not. In this sense, our arrangement should be applied to all of them.

Skeptics may fear that the liquidity charges that we propose will encourage the system to shift activities that make heavy use of short term funding into yet another shadow banking sector. This is a serious risk not only for our proposal, but for essentially all re-regulatory proposals: as soon as a shadow system is regulated, the roots of another are established. However, the shift of some short-term funded activities to the shadow banking system is not likely to be sizeable or to imply a big danger for the regulated sector if regulators and supervisors stick to the principle that the unregulated agents should enjoy very limited (or otherwise strongly penalized) recourse to the regulated ones.

Accordingly, for deals between the regulated and the unregulated sectors, our proposed scheme should assign charges increasing in the unregulated borrowers' own mismatch, if it were at all verifiable. Otherwise, any potentially mismatched asset funding should be fully charged. For instance, bank credit lines to institutions such as hedge funds might be treated as non-contingent commitments and fully charged.

The international implementation of our liquidity insurance arrangement is another complex but important challenge. Ideally, in order to properly deal with banks with significant presence in several jurisdictions, an international

ELIF should be created. This ELIF might operate in coordination or under the management of the relevant international macroprudential authority defended in other proposals. Countries should choose to participate by requi-



ring either all their regulated institutions, or at least the largest ones, to join an international ELIF, pay its liquidity charges, accept its supervision, and count on its support in a systemic crisis.

The establishment of an international ELIF may sort out commitment problems. Countries that do not join should not benefit ex post. The scheme would constitute an explicit coordination device for the rescue of large international banks, preventing the issue of burden sharing to be left for difficult ex post negotiations. In this sense, the liquidity charges, accepted as insurance premia during normal times, would provide a mutually agreed metric for systemic risk and would offer an objective basis for burden sharing in crisis times. We think that it would be reasonable to accept that, in case of need, countries will contribute to funding the ELIF in proportion to the share of each national banking sector in the

liquidity charges paid during the pre-crisis period, rather than on the basis of costly and time-consuming ex post negotiations or some politically debatable country quotas.

### Conclusions

This short paper describes a mechanism that Enrico Perotti and I have proposed as a response to a number of the key challenges in the process of reform of global financial architecture. In particular, our mechanism addresses (i) the regulatory treatment of liquidity risk (and its contribution to systemic risk), (ii) the establishment of some form of pre-packaged assistance to banks during systemic crises (that helps prevent or attenuate these crises in the same form as deposit insurance pre-

vented retail panics in the old days), and (iii) the improvement of coordination in the management of crises involving internationally operating mega-banks.

As argued in previous sections, the liquidity charges imposed by our Emergency Liquidity Insurance Fund would discourage the forms of short term funding that create and amplify systemic risk. The arrangement would also provide some prepayment of intervention costs (making early intervention politically more acceptable). In its international implementation, it would constitute a starting step to ensure public assistance to international mega-banks with cost sharing based on ex ante rules rather than negotiations or politically debatable country quotas.

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