

Systemic liquidity risk and bankruptcy exceptions

Enrico Perotti

University of Amsterdam, DSF and DNB

In August, prudential regulatory reform won a battle and lost another. The Basel III capital ratios proposals are reasonable, if much delayed and at risk of further weakening. More insidiously, among the G20 there was little political support for the proposals aimed at plugging the major Basel II gap, namely refinancing risk. The net funding ratios were shunned, though some modest liquidity buffers may be agreed upon.

Yet liquidity runs were the leading cause of shock propagation in the credit crisis. When losses appeared, wholesale funding evaporated rapidly, forcing fire sales and huge price falls which reinforced panic across markets and intermediaries. The propagation from the US subprime market to the whole world was stopped only when central banks stepped in to substitute for market funding, and state guarantees reassured investors.

Thus, short-term funding first enabled excess credit for both banks and shadow banks, acting as steroids to feed the securitisation wave, then rushed out scot free, leaving inattentive regulators and taxpayers to pick up the losses

Higher capital ratios would have been helpful but are surely not enough to contain runs when 90% of funding has a funding maturity of just a few days.

Since the 1930s, banks have enjoyed stable funding via insured bank deposits. In recent decades, globalization and disintermediation by shadow banks increased supply of wholesale short term funding. Combined with declining capital ratios, the trend has been an accelerated collapse in funding maturity.

The abundance and low price of short-term funding caused two major problems:

- Balance sheets of intermediaries became dominated by unstable wholesale funding, uninsured and already packaged for rapid exit.
- Even worse, this quick-exit source of funding led to misallocation of resources, as it enabled rapid credit growth with little scrutiny by investors.

How did we get here? The build-up in liquidity risk

The natural question is: “How did bank funding become so fragile?”

Liquidity risk grew explosively in the last decade with disintermediation, globalisation and relaxed Fed policy since 2001. The process accelerated in the last years, with the explosive growth of the repo market, which shortened maturity to its logical extreme, namely overnight. But why did repo financing explode so fast?

An important cause lies in new bankruptcy privileges created in 2005 in both the US and Europe under heavy bank lobbying. These privileges were granted to overnight secured credit and derivatives, and essentially allowed these lenders to ‘front run’ all other investors in case of default. This made such lending safer for the lenders, and thus cheap for the borrowers. The result was fantastic growth of unstable funding to the detriment of stability. A funding source which can front run all other lenders, and thus bear no risk is not just cheap, it is unconcerned about credit risk. Thus, short-term funding first enabled excess credit for both banks and shadow banks, acting as steroids to feed the securitisation wave, then rushed out scot free, leaving inattentive regulators and taxpayers to pick up the losses.

This Policy Insight highlights how the 2005 bankruptcy changes created a negative

The author thanks Viral Acharya, Darrell Duffie, David Skeel and conference participants at DNB, the Financial Stability Forum at the Banque de France, and the IMF-Federal Reserve Bank of Chicago Research conference.

externality for all intermediaries in liquidity runs. It first reviews the history of these privileges (also termed “safe harbour provisions”) and their role in the crisis. Finally it proposes a targeted liquidity charge on these instruments, and argues that it may be used a macro prudential tool to contain liquidity risk creation.

A \$10 trillion house of cards

The very lack of precise data on the global financial exposure to repo runs is a chilling realisation of the loss of prudential controls in the last decade. Even conservative BIS estimates suggest a boost from \$3 trillion to \$10 trillion in the three years preceding the September 2008 crash. Gorton (2009) and others suggest even larger volumes. This, combined with falling capital ratios, resulted in disappearance of risk bearing capacity and enormous fragility to runs. Among the largest holders of mortgage-backed securities, Bear Stearns had an average funding maturity of 7 days just prior to its collapse, while Lehman Brothers’ massive proprietary trading was funded at 3 days.

Evidence that the bankruptcy privileges played a critical role in the final excess credit wave and its demise comes from the inflexion point in 2005 in the growth of repo credit supporting mortgage lending. Repo’s super safe status allowed uncritical funding for risky mortgage lending, while other loans were camouflaged as derivative trades to enjoy the higher protection.

Early repossession of collateral had two powerful propagation effects.

The ability to seize and resell collateral at the first sign of default meant that they forced their borrowers, namely banks and shadow banks, to massive fire sales, leading to the spreading of losses across markets in 2007-2008 (Brunnermeier, 2009). The massive collateral withdrawals and resales upon the default of Lehman Brothers led to burst of sales of repossessed securities within a couple of days. Derivatives had a similar effect. The decision to bail out Bear Stearns stemmed from the perceived consequences of default for the repo and derivatives markets, as the *New York Times* reported: “Fears of so-called counterparty risk arising from credit default swaps on the books of Bear Stearns, were central to the rescue engineered by the Federal Reserve Bank of New York and JPMorgan Chase” (Skeel, 2009a). Derivative provisions allowing immediate seizure of collateral also forced the US government decision to bail out AIG, which as an insurance company had no access to the discount window for emergency liquidity support.

A final compounding effect came from the sudden realisation by other lenders of these claims with superior priority. Sudden Knightian uncertainty over the assignment of losses was a leading cause for the switch by wholesale lenders

to defensive strategies, refusing to refinance counterparties at any rate (Khreshnamurti 2009). Short-term maturities force simultaneous decisions. At times of stress, with limited time to assess information, they cause extreme instability among highly interconnected intermediaries (Allen and Carletti, 2008).

Liquidity charges to contain the creation of liquidity risk

A tool to regain control over funding stability is liquidity-risk charges, which I proposed with a co-author last year in the *Financial Times* (Perotti and Suarez, 2009). These levies would decrease with maturity, discouraging the negative externality associated with cheap, unstable funding without suffocating or segmenting financial intermediation. They would eliminate the tax bias against insured deposits. Their goal is to complement higher capital ratios to increase stable funding, discourage useless gambles and charge for potential fiscal costs. Critically, charges could be adjusted over the cycle to break reckless credit bubbles without raising interest rates for everyone.

The principle of rewarding maturity has been adopted in the UK and German bank tax proposals, with reduced or zero tax rates for funding with maturity longer than one year. Yet one year maturity is too long to target liquidity risk. The choice reflects a number of implementation constraints.

First, authorities never collected such data, and bank resistance to disclose is fierce, as it gets to the heart of their recent business model. Second, a tax which does not include the shadow banking system is suboptimal (Haldane, 2010). Third, financial innovations may seek to camouflage actual maturity. Fourth, while balance sheet taxes are harder to avoid than transaction taxes, banks may threaten to move headquarters abroad. On the other hand, this is only partially credible if it implies a switch to financial systems less able to bail out liquidity needs.

Targeting liquidity charges: Tax the bankruptcy exceptions

We propose here to target the very short-term risk by taxing the bankruptcy privileges.

It is certainly legitimate for some investors to insist on an extraordinary level of protection. Yet if in systemic events this construction shifts risk to other parties and ultimately to the financial system, it is appropriate that they pay for the privileges. Taxing the bankruptcy exceptions by a significant amount, say 10 basis point, has a number of advantages. First, of course, it is only fair if it helps revealing debt priority information

to third parties. Second, it would discourage the excessive build up of such liquidity risk. Third, it would curb carry trade incentives in *both the banking and shadow banking sector*. Fourth, it resolves any potential ambiguity in defining the tax base and avoiding arbitrage, since only claims with a specific legal construction enjoy the bankruptcy privileges. Fifth, it cannot be avoided by relocating transactions, unlike a Tobin tax.

The history and nature of the bankruptcy privileges

The US bankruptcy code of 1978 allowed some safe harbour provisions for Treasury repos and for a few listed futures contracts. In a series of amendments to US and EU bankruptcy laws in 1998-2005, heavily lobbied by the financial industry,¹ bankruptcy privileges were extended to all secured financial credit (such as repurchase agreements) and non-debtor derivatives (Partnoy and Skeel, 2007).

We propose here to target the very short-term risk by taxing the bankruptcy privileges

The bankruptcy exceptions stride with general principles of bankruptcy law aimed at orderly resolution of distress. They exempt all overnight credit collateralised with securities and any derivative, listed or not, from the automatic stay in bankruptcy. The stay principle is at the heart of bankruptcy. It blocks secured creditors and non-debtors from seizing collateral without court approval in order to ensure an orderly reorganisation or unwinding of operations. They also exempted them from general bankruptcy rules preventing cross-default clauses standard in derivative contracts. Derivatives are largely equivalent to insurance policies, yet insurers are prevented from terminating a policy when a company files for bankruptcy.

These privileges represent new proprietary rights, opposable to all third parties. Changes in strongly enforced proprietary rights are extremely rare legal innovations, and count as powerful legal innovations with profound economic effects.² Strengthening a proprietary right for a class of financial claims enhance credit access for some borrowers, and has a positive effect on

the supply of such funding. Yet it also weakens financial responsibility, facilitating risk shifting, with possibly major systemic consequences.

The arguments supporting the bankruptcy change stated that delayed repossession of collateral may lead to limited access to credit, and lead to contagious runs of creditors on borrowers (Glynn, 1998; for a critical view, see Partnoy and Skeel, 2007). Puzzlingly, the inclusion of derivatives under the bankruptcy exceptions was argued on a different rationale, to avoid stress in the credit-default derivative market.

Disruption in any market is clearly undesirable. But why should these claims be granted absolute and unconditional priority over all other? The economic argument is at best weak, certainly as a justification for such extraordinary privileges. Note that the original privilege (created in 1978) was granted only for secured lending backed by Treasury bills, and specific listed futures. The creation of the privilege and the spread of its use did not receive much public scrutiny at the time. For instance, no one seem to have voiced the concern that other lenders could not even see the creation of privileges created by private, unlisted transactions such as derivatives.³

Evidence from the crisis and related proposals

Legal scholars and economists now debate the merit of the bankruptcy exceptions. Various authors have proposed to eliminate them (Jackson and Skeel, 2010), or suspend their effect during financial panics, as recent US regulation does on a modest scale.

Tuckman (2010) suggests limiting the derivatives safe harbour to trades cleared under third-party pricing and collateral management, a sensible proposal to contain short-term funding of illiquid assets. A more decisive measure would be to limit the privileges not to externally cleared but only to centrally cleared transactions on exchanges. A public listing ensures disclosure of pledged collateral, information which is just as relevant for unsecured lenders as it is for regulators.

Other proposals, while not challenging their status, recognise their extraordinary power to do damage. Central clearing providers have been at the centre of regulators' attention to limit the effects of runs (Duffie, 2010). Acharya and Sabri (2010) argue for the establishment of a Repo Resolution Authority to take over these positions in a systemic event, paying out a fraction of their claims and liquidating the collateral in an orderly fashion, ultimately forcing the investors

¹ In the US the creation of these privileges required an amendment to the Bankruptcy Code in 2005. In the EU, it required a series of EU Directives to ensure uniformity across bankruptcy codes of all member countries. The complete list is as follows: (EU Financial Collateral Directive of 6 June 2002 (OJ L 168/43), the EU Settlement Finality Directive in 19 May 1998 on settlement finality in payment and securities settlement systems (OJ L 166/45), Directive 2009/44/EC of 6 May 2009 amending Directive 98/26/EC on settlement finality in payment and securities settlement systems, and Directive 2002/47/EC on financial collateral arrangements as regards linked systems and credit claims.

² A classic example is the creation of limited liability for private corporations in the XVII century, which created the basis for modern corporate governance and financial systems.

³ The ability of Lehman Brothers to hide fifty billions in exposure via the renowned Repo 105 construction depended critically on its repo funding structure, which enabled the position to be self financed and legally segregated, at least until panic struck.

to bear any residual loss. On the opposite front, Gordon (2009) has proposed stopping fire sales of seized collateral by a blanket state guarantee. Gordon and Metrick (2010) propose creating special vehicles they call narrow banks to hold such assets, backed by a public guarantee.

I disagree with extending such public insurance, and believe that we need tools to contain the volume of such quasi money. Perhaps in systemic runs there is little choice but to provide liquidity to back stop fire sales. But bankruptcy exceptions lead to a surrendering of public control over the money supply, which becomes endogenous to the private sector's short-term funding preferences (as *any private security* may be funded with repo). This highlights the urgency of measures to contain the private creation of liquidity risk. A tax able to discourage the build up in liquidity risk is an indispensable tool for a truly preventive macro prudential policy.

Related literature on liquidity risk

The crisis of 2007-2008 has been described as a wholesale bank crisis, or a repo run crisis (Gorton, 2008). The rapid withdrawing of short-term debt was responsible for the propagation of shocks across investors and markets (Brunnermeier, 2009). Brunnermeier and Oehmke (2010) show that creditors have an incentive to shorten their loan maturity, so as to pull out in bad times before other creditors can. This, in turn, causes a lender race to shorten maturity, leading to excessively short-term financing. Increased collective reliance on repo funding weakens solvency constraints in repo runs (Martin, Skeie and von Thadden, 2010).

A tax able to discourage the build up in liquidity risk is an indispensable tool for a truly preventive macro prudential policy

Acharya and Viswanathan (2010) model sudden drying up of liquidity when bank need to refinance short-term debt in bad times. When asset price shocks increase incentives for risk shifting, illiquid banks may not be able to roll over debt. As short-term debt is cheap to issue in good times, it also results in entry of firms with less capital or high leverage, with weaker solvency incentives. Acharya and Merrouche (2009) show that UK banks with more wholesale funding contributed more to the transmission of shocks to the interbank market. This is consistent with a strong negative risk externality of unstable funding across intermediaries.

Conclusions

The excess credit wave in mortgage lending could not have occurred without a nearly unlimited supply of funding, designed to carry

none of the credit risk. Short-term and prioritised funding and hedging was the fuel – the steroids, so to speak – that enabled mortgage originators to pursue poor quality lending, bad loans to be recklessly securitised and traders to scale up pure carry trades, which earned them the sum of risk spreads and term spreads until the boom lasted. These spreads were booked as profits, supporting large bonuses and dividends. When the panic struck and the hot money ran, losses were shouldered by stable investors and taxpayers.

The bankruptcy privileges allowed some intermediaries to front run the sale of collateral and bear no losses, while spreading risk to other intermediaries

A critical debate rages on whether the special bankruptcy exception for repos and derivatives is justified (Skeel, 2009). Intuitively, the static effect is to secure stronger rights for some lenders or insurers, at the cost of undermining the solidity of other claims. The bankruptcy privileges allowed some intermediaries to front run the sale of collateral and bear no losses, while spreading risk to other intermediaries. Even if these privileges improve additional credit access for weaker borrowers, collective runs have been made much more severe.⁴

Additional distortions arise when newly established proprietary right are recognised. In this sense, it is remarkable that such rights are not subject to full disclosure, as the lack of reporting on repo and unlisted derivative positions indicates. Lack of understanding the effect of the change in relative debt priority created unrecognised risk for passive or unaware lenders, and triggered confusion and even panic when disclosed. The right to front run in liquidity crises also accelerate fire sales to the advantage of a few lenders, leading to disruption for other intermediaries and finally increasing costs on deposit insurance. This makes the issue of extreme relevance for regulatory reform.

Repealing the bankruptcy exceptions is probably an impossible task, notwithstanding compelling arguments. Suspending the privileges for unlisted transactions seems a bare minimum. But surely, if some investors claim such privileges which potentially create such negative systemic externalities, they should not just be subject to full disclosure, but pay for the privilege.

Ultimately, it is now important to understand the full effect of short-term funding and bankruptcy exceptions not just on losses during liquidity runs, but also on ex ante lending quality. The critical problem with super safe bank funding is that it imposes no discipline on the intermediaries. Its suppliers are guaranteed such

⁴ During the crisis, access to repo refinancing by overexposed banks came under intense pressure, contrary to the claim that the bankruptcy privileges would ensure greater access when credit conditions tightened.

a rapid exit that they never bear any risk arising from banks' credit decisions – regardless of how poor those decisions are.

It is true that demandable deposits may also run. But retail deposits did not run because they were insured, a privilege for which they paid a premium. Large lenders have no claim on public insurance, and surely not on escaping scrutiny and fair treatment.

References

- Acharya, Viral, Lasse Pedersen, Thomas Philippon, and Matthew Richardson (2009), "Regulating Systemic Risk", in Viral Acharya and Matthew Richardson (eds.), *Restoring Financial Stability: How to Repair a Failed System*, Wiley, March.
- Acharya Viral and Sabri Oncu, "The Repo Market and Systemic Risk: A Reform Proposal", NYU Stern memo, (based on chapter from Acharya et al., *Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance*, October 2010, Wiley)
- Allen, Franklin, Anna Babus and Elena Carletti (2010), "Financial Connections and Systemic Risk", mimeo, Wharton
- Brunnermeier, Markus (2009), "Deciphering the Liquidity and Credit Crunch 2007-08", *Journal of Economic Perspectives* 23(1), 77-100.
- Caballero, Ricardo and Arvind Krishnamurthy, forthcoming. Global Imbalances and Financial Fragility. *American Economic Review*
- Gorton, Gary (2009), "Slapped in the Face by the Invisible Hand: Banking and the Panic of 2007", paper prepared for the Federal Reserve Bank of Atlanta's 2009 Financial Markets Conference, May.
- Gorton, Gary, and Andrew Metrick, "Regulating the Shadow Banking System", Yale University mimeo, 2010
- Haldane, Andrew, *The \$100 Billion Question*, Bank of England, March 2010
- Krishnamurthy, Arvind, forthcoming, Amplification Mechanisms in Liquidity Crises. *American Economic Association Journals - Macroeconomics*.
- Perotti, Enrico, and Javier Suarez (2009a), "Liquidity Insurance for Systemic Crises", *CEPR Policy Insight* 31, February.
- Perotti, Enrico, and Javier Suarez (2009b), "Liquidity Risk Charges as a Macro Prudential Tool", *CEPR Policy Insight* 40, November
- Perotti, Enrico, and Javier Suarez (2010), "Liquidity Risk Regulation", DSF mimeo
- Skeel, David A., "Bankruptcy Boundary Games", ILE discussion paper 09-25, University of Pennsylvania (2009a)
- Jackson, Thomas and Skeel, David A., "Bankruptcy Reform Will Limit Bailouts", *Wall Street Journal*, April 21, 2010
- Tuckman, Bruce, "Amending Safe Harbors to Reduce Systemic Risk in OTC Derivatives Markets", mimeo, Centre for Financial Stability, New York, 2010

Enrico Perotti is Professor of International Finance at the University of Amsterdam. He received his PhD in Finance at the Massachusetts Institute of Technology. He is Research Fellow at the Centre for Economic Policy Research (CEPR) in London, and currently serves on the Council of the European Economic Association.

He has held visiting appointments at the University of Oxford, London Business School, London School of Economics, and Central European University. His research is in corporate finance and banking, theory of the firm, political economy of finance, economic and legal innovation, and financial development. His publications appear in top academic journals, such as the *American Economic Review*, *Journal of Political Economy*, *Journal of Financial Economics*, *Journal of Financial and Quantitative Analysis*, *RAND Journal*, *Management Science*, *Journal of International Economics*, *Journal of Economics*, *Law and Organization*, and the *European Economic Review*.

Prof. Perotti has been a consultant to the IMF and World Bank on issues of banking, financial reforms and financial stability. He was senior policy advisor to the Russian Ministry of Finance and Russian Central Bank in 1996-2000. He has been a visiting scholar at the IMF research department six times since 1992. He directs since 1998 the Amsterdam Center for International Finance (CIFRA).

The **Centre for Economic Policy Research**, founded in 1983, is a network of over 700 researchers based mainly in universities throughout Europe, who collaborate through the Centre in research and its dissemination. The Centre's goal is to promote research excellence and policy relevance in European economics. CEPR Research Fellows and Affiliates are based in over 237 different institutions in 28 countries. Because it draws on such a large network of researchers, CEPR is able to produce a wide range of research which not only addresses key policy issues, but also reflects a broad spectrum of individual viewpoints and perspectives. CEPR has made key contributions to a wide range of European and global policy issues for over two decades. CEPR research may include views on policy, but the Executive Committee of the Centre does not give prior review to its publications, and the Centre takes no institutional policy positions. The opinions expressed in this paper are those of the author and not necessarily those of the Centre for Economic Policy Research.