Regulation, valuation and systemic liquidity

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It is a commonly held view that International Financial Reporting Standards (IFRSs), adopted by the European Union in 2005 and by other jurisdictions, compounded the recent financial crisis. Application of the IAS 39 rule that governs loan-loss provisions and extends mark-to-market valuation of assets meant that when credit prices fell sharply in 2007 and assets were revalued using the new lower prices, it triggered a need for institutions to raise capital by selling assets, which pushed prices down further, causing more revaluations and more selling in a vicious circle. Mark-to-market volatility added to this unstable dynamic by keeping new buyers away. Fair value accounting rules are pro-cyclical and can contribute to the systemic disappearance of liquidity.[1] The price of assets if they were to be sold immediately fell substantially below the price of the same assets if they were to be held to maturity or for some time period beyond the crisis. This liquidity premium was no longer a fraction of a percentage point, but tens of percentage points. A number of observers have concluded that mark-to-market accounting should be suspended during a crisis. On its own, I believe this initiative would further weaken incentives for responsible lending in the good times. Nor would it solve the problem in bad times. The pro-cyclical use of market prices is not the preserve of accounting standards –it also lies at the heart of modern financial regulation.

Financial crashes are not random. They always follow booms. Offering forbearance from mark-to-market accounting or other rules during a crisis, yet using these rules at other times, such as during the preceding boom, would promote excessive lending and leverage in the good times. This asymmetry would contribute to more frequent and severe crashes. Second, crises are a time where a rumour becomes a self-fulfilling prophesy, as panic and fear spread. It is, arguably, not the time to generate a rise in uncertainty by changing accounting standards. There is room for a revision to the application of mark-to-market rules, but not a revision based on relying on the messenger's every last word in good times and shooting him in the bad times.

But the mechanisms that lead market participants to greet price declines with sell orders have not all to do with value accounting. Current prices, including spot and forward prices, play an important role in the market risk and credit risk management systems approved by financial regulators. Risk limits and sell orders are triggered in response to a rise in price volatility and/or a fall in price. The very philosophy of current banking regulation –risk sensitivity– is about incorporating market prices into the assessment and response to risk. It should be no surprise that if prices, both prices for current and future delivery, are pro-cyclical, then placing an increasing emphasis on price in the management and regulation of risk, will lead us to systemic collapse. This article examines the role of valuation and systemic liquidity and argues that an approach to how we apply mark-to-market accounting and market prices or risk that is driven more by an economic view can improve the systemic resilience of the financial system.

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1 *See A. Persaud and J. Saurina (2008).*

FROM BANK FINANCE TO MARKETS FINANCE

The zeitgeist of finance over the last decade was the "marketisation" of banking: the shift from bank finance to market finance.[2] Loans were originated and securitised by banks, rated by agencies and then relocated to investors. A cynic might say that a better description of what went on was regulatory arbitrage. Risks were transferred, on paper at least, from the regulated sector to the unregulated sector.[3] But it is important to recall that bank supervisors, especially in Europe, welcomed the "marketisation" of banking risk. They looked favourably on a process that appeared to distribute risks away from a small number of large and systemically important banks to a large number of investors. In the defense of regulators it should be pointed out that at the time, and not for the first or last time, financial institutions had not proved to be terribly good at managing risk on their balance sheet. In the late 1980s and early 1990s, a US based bank regulator would have had the Latin American debt crisis, the Continental Illinois collapse[4] and the Savings & Loan disaster[5] ringing in his ears, each threatening widespread dislocation if tax payers money were not liberally spent or put at risk.

The marketisation of banking required the greater use of market prices in the measurement and control of bank risks. During quiet or normal times, market-based finance appeared to offer greater liquidity, lower risk premium, and more sophisticated and nuanced risk management.[6] This was also more conducive to increased transparency and frequency of reporting which was viewed as reducing the opportunity for fraud and increasing the opportunity for market discipline to influence bank behaviour. In the minds of bank supervisors all this reinforced the view that "marketisation" was the future of banking –and the future was bright. It is tempting to forget today but the marketisation of banking was not so much a conspiracy of the gnomes of Zurich as the gnomes of Basle. It was part and parcel of the approach to banking embedded in the European Capital Requirement Directive and the new Basle accord on capital adequacy of internationally systemic banks (Basle II).

It would appear the regulators were blinded by this vision of the future. The principal reason why we regulate the banking system over and above standard corporate regulation is because markets fail. When markets failed with respect to credit risk, the pre-eminent role of market price in the measurement, reporting and control of risks, first led, as the price of risk overshot on the downside, to a redoubling of imprudent lending, and later, as the price of risk overshot on the upside, to systemic collapse. Value accounting played a role in that for sure, but the use of contemporary prices of risk was more pervasive than the accounting of losses. If accounting was based on historic costs, but we have bank regulation that incorporates current market prices as an input in risk assessments and spawns market-sensitive risk systems in the operation of banks and in their assessment of lending to others, then the pro-cyclical effects we observed would have been similar. However pleasing it might be, we cannot blame the liquidity crisis entirely on the accountants. We can blame it on a mode of thinking about financial risk that the accountants, bankers and regulators have all followed. There had been warnings before that the marketisation of risks contained a Faustian bargain: greater liquidity, lower risk premia and the appearance of sophisticated risk management in quiet times, at the expense of systemic liquidity when markets were under stress.[7] The gnomes of Basle largely brushed these warnings aside.

2 *I first heard the term, the "marketisation of finance", as well as separately the term "macroprudential" risks from one of the leading experts in this field, Claudio Borio.*
3 *Professor Charles Goodhart makes the important point that one of the problems with the originate, rate and relocate model is that many banks were too greedy to relocate the risks very far and often put them into their own bank sponsored structured investment vehicle (SIV) or hedge fund. Indeed, the collapse of Bear Sterns started with a collapse of a Bear Sterns hedge fund.*
4 *The Continental Illinois National Bank and Trust Company was at one time the seventh-largest bank in the United States as measured by deposits. In May 1984, the bank became insolvent due, in part, to bad loans purchased from the failed Penn Square Bank N.A. of Oklahoma—loans for the Oklahoma and Texas oil boom of the late 1970s and early 1980s.*
5 *The Savings and Loan crisis was the failure of 747 Savings and Loan associations (S&Ls) in the United States in the late 1980s and early 1990s. The ultimate cost of the crisis is estimated by a financial audit of the Resolution Trust Corporation set up to rescue the S&Ls, was around USD160.1 billion.*
6 *One of the problems of Basle 1 was that it did not take a nuanced view of risk, but allocated risk between crudely defined buckets and over time it was felt that banks were "gaming" these distinctions to take more risk than it appeared.*
7 *See Eatwell and Persaud (2008); Persaud (2000).*

One of the consequences of making market prices central to the management and control of risks and capital is that when markets fail and liquidity disappears, the authorities are left with no option but to intervene to set a floor in the market price of assets they would not normally purchase. The marketisation of banking has been associated with a switch in the role of the central bank from lender of last resort, to buyer of last resort.[8] This reason alone is sufficient for the Banque de France and other members of the European system of central banks to pay more attention to the macro-prudential aspects of regulation.

LIQUIDITY PROBLEMS OF THE MICRO-STRUCTURE OF NEW BANKING

The focus of banking regulation has been historically on identifying good practices at banks and making these practices a standard for others to comply with. Protagonists of Basle II oddly boast that it better aligns regulatory capital with what best banks are doing anyway. This patently does not address the social externality. Because of the liquidity transformation and the quasi money of bank deposits, banking is systemic. A focus by banks' on their private interests will lead them to an underinvestment in systemic stability. This is a glaring and damning omission from banking regulation, but it is also a well-traversed subject in the economics literature.[9] What I would like to explore further is the systemic liquidity effects of using market prices in the measurement, reporting, control and trading of risk.

To appreciate the problem it is important to understand that financial market liquidity is not about how big a market is, but how diverse it is. If a financial market has two people in it, but whenever one wants to buy an instrument the other wants to sell it, it is a very liquid market. If a market had one thousand people in it, and they are all using the best practice valuation, risk-management and accounting systems and the same prudential controls based on public credit ratings, so that when one wants to sell an instrument in response to these systems, so does everyone else, it would not be liquid. At any one time there will only be buyers or only sellers; you need both for liquidity. This market is far bigger than the two-person market, yet it is thinner in terms of systemic liquidity.

This is not an unfamiliar result in the literature on markets and systems. Any system in which market participants have the same tastes and use the same information will collapse. Try modeling any market in which the market participants behave as if they are one.

An inclusive financial system has natural diversity in it. A pensioner, a young saver putting aside savings for a distant future, an insurance company and a charitable endowment, all have different investment objectives and different capacity for risks and these should be reflected in different valuation and risk management systems. For example, an illiquid 5-year bond backed by good collateral would be a risky asset for an investor funded with overnight money, but a safe asset for an institution with no cash commitments over the following six years, like a young pension fund. The risk management, valuation and accounting system that the institutions with overnight funding should use, should also be different than the one a long-term investor should use. The trend however for the same transparency, valuation, accounting and risk management rules reduces this natural diversity and increases systemic fragility. Some of the special investment vehicles (SIVs) that were forced to sell assets in the credit crunch, adding to the turmoil, were forced to do so, not because their funding dried up, but merely because they were using the same accounting, risk and prudential rules that the banks used even though they had a different and longer-term funding structure than the bank as a whole.

One of the key lessons of the crisis is that a critical factor in systemic risks is funding liquidity. When the system freezes, those with short-term funding topple over. Those with long-term funding are the system's stabilisers. They are risk absorbers. However, by using common mark-to-market accounting, valuation and risk rules we do not make any distinctions between those with a funding liquidity issue and those without. We do not distinguish between risk traders who are short-term

8 *I was led to this idea by Professor Willem Buiter who was one of the first to write about central bankers becoming buyers of last resort.*
9 *See Persaud (2008).*

and risk absorbers who, as a result of long-term funding liquidity have a capacity for market and liquidity risks. This absence of any distinction at the regulatory and accounting level and therefore the absence of any encouragement of risk absorbers led to the disproportionate growth of risk traders.[10] This has worsened the systemic liquidity and resilience of the system.

The key problem with the originate, rate and relocate model is that risks were transferred to a varied group of investors, who may have structurally different objectives, but through common valuation, accounting and risk systems and prudential controls, they in fact behaved as one investor. We ended up with a greater spread across legal entities, but less diversity. Spreading risk from a few disparate players to a large number of players, who behave homogenously, concentrates risk.

We have highlighted the importance of diversity in financial liquidity, but heterogeneity is also about the quality of lending in a way that casts a poor light on the "originate, rate and relocate model". A good bank is one that lends to those that others do not, because of their superior knowledge of the credit. It is one that does not lend to those that others do, because of their superior knowledge on the credit. The "originate, rate and relocate" model does away with the advantage of superior proprietary, particular, knowledge in the name of common standards. Banking is done using common, public data, and on the basis of public ratings. If banks are not incentivised to know credits well, they will not invest in doing so. Elements of this can be found in problems in the subprime mortgage market.

The trend of common standards is actually championed by the banks under the guise of equal treatment. Their interest is to reduce any advantage others may have in the financial system and allow them to set up investment subsidiaries even though their capacity for long-term investment risk is low. However, if some activities are treated differently by regulators, because they have a different built-in capacity for risk, perhaps through a genuinely different funding structure, then preserving these differences would support systemic liquidity. Equality of treatment would do the opposite. Accounting, valuation, risk management and transparency standards, and the equality of treatment are all generally good, but it must be understood that in some cases there is a trade-off between search liquidity in the good times and systemic liquidity and macro financial stability in the bad times. If standards are a force for more homogeneity in the financial system then we must think again about applying them to everyone.

LIQUIDITY IMPLICATIONS OF BROADENING "RISK-SENSITIVE" REGULATION

The crisis has been an occasion for renewed calls for the greater regulation of independent hedge funds and private equity firms. This is especially so in Europe. Our analysis so far points to three issues in consideration of the greater regulation of these institutions. First, "alternative investors" did not play a pivotal role in the crisis. The credit crunch centred on the banks and the banks own in-house investment vehicles. Second, spreading these common rules across from banks to hedge funds, private equity firms, pension and insurance firms and others while continuing to ignore the distinction between risk absorption and risk trading, will make the financial system even less safe. It is within this group of investors that some of those with long-term funding –the natural stabilisers of the financial system– reside.

Where hedge funds and more recently private equity funds contribute to worsening systemic risks is through their use of leverage. Hedge funds and investment banks in general, are far more leveraged than commercial banks.[11] When things go wrong de-leveraging has systemic and contractionary consequences. However, hedge funds do not generally generate leverage on their own. In large part they get leverage from the commercial banks. It is therefore possible to regulate the systemically important part of what these institutions do, by regulating the way commercial banks give them leverage. This would be a far more effective form of regulation of institutions that for a variety of reasons are often domiciled in offshore locations and where their principals are footloose.

10 *See Persaud (2007).*
11 *See Greenlaw, Hatzius, Kashyap and Shin (2008).*

In the 2007/8 credit crunch, one of the systemic issues was that the supply of leverage to non-banks is regulated by the commercial banks, in a homogenous manner, reflecting the way they are regulated. The common rules that turn on and off leverage from the commercial banks to hedge funds, investment banks and private equity firms and the common approach that these rules take to valuing and managing risk is a major source for a reduction in the diversity of behaviour and the increase in financial fragility. (This is also an important example of where mark-to-market risk systems, echoing those being applied on the banks, are driving the instability, rather than fair value accounting systems). Where hedge funds have been a point of stress over the past twelve months it is often as a result of weakness in a market, causing its counter-party bank, using its internal, short-term model of risk and value, to cut leverage to a fund which is then forced to off-load assets on to a weak market, causing more market weakness and more forced sales. This is not a mechanism for reducing risks but spreading risks. The regulation being proposed to extend regulation to these counter-parties of banks is about reinforcing these systemically risky processes not disrupting them.

The solution to these issues is two-fold. First, capital requirements should be counter-cyclical and this should regulate the flow of leverage to bank counter-parties. Second, regulators should resist calls for equal treatment by the banks and make a distinction between those financial institutions, whatever they are called, that have short-term funding, less than 12-24 months say, and those that have longer-term funding. Those with short-term funding would be required to follow bank capital adequacy requirements. Those with long term funding, may receive an exemption from this regime. They will be required to provide disclosures to the regulators that make the regulators comfortable that they do not have a funding liquidity risk, but they are not required to follow the capital regime. Instead they are required to follow a long-term solvency regime that takes into account long-term valuations, but through a level of disclosures about the assets and third party pricing that limits the opportunities for fraud. This would focus regulation on systemic activities and it would incentivise long-term investors to behave like long-term investors.

LIQUIDITY, RISK ABSORPTION AND PENSION FUNDS

There is an understandable instinct that wishes to shield pension funds from risk. But of course pension funds can only generate returns for their members by taking some risk. The issue therefore is not how to stop pension funds from taking risk, but how to support them taking the right risk. It is my contention that regulation is pushing pension funds to take the wrong kind of risk and exposing them to inappropriate danger. In thinking about what the right kind of risk to take is it is important to understand that there has not one kind of risk, but several and that "riskiness" has less to do with instruments and more to do with behaviour.

As we have discussed above, a "risky" instrument held by a bank may be a "safe" instrument if it is held by a pension fund. There are broadly three types of risk: market risk, credit risk and liquidity risk. The way to diversify market and liquidity risk is through time. The way to diversify credit risk is actively across different types of credit. A young pension fund has the ability to earn the market and liquidity premium, but not clearly the credit risk premia. They should therefore invest in high quality credits with poor liquidity or assets with strong long-term prospects but much short-term volatility.

What they should not do is buy highly liquid instruments and low volatility instruments with large credit premia. And yet this is the route they are chased down by accounting and regulatory standards. A pension fund required to match the duration of its assets to its liabilities, mark-to-market its assets, and earn a high yield to limit contributions is inexorably led down the path of buying liquid instruments with poor credit. In buying liquid instruments they are paying up for a liquidity that they do not need and in poor credits they are earning a risk premia they do not have a natural capacity to earn as they do not have ready access to active hedging of credit risks. The person who loses from this unnatural asset allocation, is not the consultant, actuary or manager, but the pensioner.

In a similar vein banks have been pushed towards the wrong kind of risks. A bank has short-term funding. It therefore has little capacity for liquidity

and market risks. However, it has much capacity for credit risks as it is an expert in credit origination and through its origination activity it is able to actively source and hedge across a variety of credit risks. Yet, what do banks do today? They sell their credit risk to pension funds and they fund private equity and hedge funds that are effectively taking liquidity and market risk.

Both of these examples of inappropriate risk taking –pension funds eschewing illiquid instruments and banks pursuing illiquid ones– lead to a net reduction in systemic liquidity. Pensions funds are not there to buy assets that have fallen sharply in price and banks run into trouble in stressful times when they pull lines on private equity and hedge funds that force them to sell assets.

Conclusions and a new supervisory framework

The marketisation of banking and the pre-eminent role of market prices provides a coherent system – if you include the necessary intervention of central banks ever so often. Indeed, in the responses to the current crisis from lobby groups for bankers or committees of regulators,[12] there is little sign of an abandonment of this system. A stylised view of the system is as follows. Risks are to be marketised. This requires pricing or rating of debt and debt portfolios and market pricing in value accounting, risk management and banking regulation. This broadens the inclusiveness of finance, which helps to lower risk premia and supports "search" liquidity in quiet times. Search liquidity is the cost in terms of time and price of finding a buyer for a security most of the time when the financial waters are calm and there are no strong, systemic, currents.[13] Some assets exhibit better "search" liquidity than others. But every five to seven years, markets fail. In the crisis, through the role of price in accounting and risk management and even ratings, declines in prices feed further declines in prices. Liquidity disappears. The government is inevitably forced to underwrite risks in the financial sector for some period of time before calm breaks out, markets catch breath, and the cycle repeats itself. Some policy makers argue that the wider benefits experienced for seven years or so[14] outweighs the costs of the year of crisis. There is a legitimate trade-off to consider.

I am not convinced that the trade-off of improving "search" liquidity in quiet times in return for worsening "systemic" liquidity in stressful times is a good idea. Systemic liquidity is the cost in terms of time and price to sell assets at a time of strong systemic currents.[15] Some markets exhibit better systemic liquidity than others. Today developed country financial markets are large, but they offer poor systemic liquidity.

The full consequences of the liquidity crisis, which started in 2007, have yet to be realised as this chapter goes to press. Estimates of the first round effects of losses amount to around USD 250 billion in the middle of 2008 but are likely to climb.[16] And then there are the likely and potentially more serious second round effects. During a surprisingly lengthy period from July 2007 through to July 2008, banks lost confidence in other banks, hoarded liquidity and distanced themselves from each other. It is therefore likely that private individuals will have a lasting loss of confidence in the banking sector, which would lead to a reduced willingness to use financial instruments to save, with negative spillover effects for investment in the productive sectors.

Recall that the housing market boom in the United States and Europe was partly a result of investors eschewing mutual funds after the dotcom bezzle of 1999-2001. It is a measure of public disillusionment with financial markets when real estate agents are more trusted than fund managers. It would be reasonable to expect banks to respond to recent developments with a lower risk appetite and reduced lending which in turn would threaten levels of economic activity more generally. Forecasts of economic growth have been revised sharply lower during 2008. Initiatives to make the benefits of

12 *See, recent reports from the Financial Stability Forum (FSF), representing the views of regulators and the Institute of International Finance (IIF), representing the views of the large banks.*
13 *See Lagana, Perina, von Koppen-Mertes and Persaud (2006).*
14 *It seems more frequent to me. In the space of 20 years I recall the 1988-89 S&L crisis, the 1992-93 EMS crisis, the 1994-95 Tequila crisis, the 1997-98, Asian financial crisis, the 1998 LTCM crisis, the 2000-01, Dotcom crisis, the 2007-08 Credit Crunch.*
15 *ibid*
16 *Public loans and gifted equity capital to Northern Rock alone already amounts to USD 100 billion.*

finance more inclusive will also likely fall victim to this new conservatism. Central banks have also paid a potentially hefty cost in terms credibility.

This litany of woe above does not even include issues of moral hazard as the authorities make necessarily hasty efforts to preserve the financial system. Bad banks as well as good banks are saved by the rising tide of government guarantees. It is alleged that banks are using the opportunity of central bank offers to buy assets to offload bad assets at the central bank while hoarding good assets they would normally repo at the central bank. This is rational private behaviour, but it was not the intention of the emergency liquidity assistance.

There is also the issue of political economy. In 2008, taxpayers are underwriting risks, created by bankers who paid themselves substantial bonuses before retiring. There is resentment that these bonuses were often lightly taxed, offshore. It is understandable therefore that the political response to the credit crunch is partly fuelled by the moral outrage of voters. The clear and present danger going forward is that this, understandable, outrage leads to a regulatory response that is too distracted by the ethical failure of the private sector to deal effectively with the more systemic regulatory failure.[17] The scale of the 2007/8 credit crunch could have been avoided by central bankers and supervisors who had both sufficient information and the necessary instruments to respond, but failed to do so for a variety of reasons. These reasons included an absence of political will, a convenient intellectual entanglement with the prevailing zeitgeist of finance and a general neglect of systemic liquidity.

The current process of regulation is that we begin with the banks and regulate them for holding risk. Regulation is a tax. Like all businesses the banks try to avoid the tax by shifting risks to say, investment banks. So, we regulate the investment banks. Who in turn shift risk to pension funds and insurance companies or SIVs and hedge funds. So we plan to regulate these, but they will only shift risks to some other place. What is the logical conclusion of this game? It is that the system will be heavily regulated, but it will not hold much risk. Risk will instead have shifted and shifted until it has arrived at a spot where it can no longer be seen. This does not strike me as a good model.

We saw an element of this during the current credit crisis. Banks shifted credit risks to off-balance sheet investments where they were not very visible. Basle II correctly addresses off-balance sheet instruments by requiring banks to hold capital against contingent liabilities that may arise from these off-balance sheet instruments. But while this responds to the specific issue of off-balance sheet instruments, it does not really deal with the more general problem that the old distinctions of instruments and institutions are less relevant today. What matters is whether an activity is systemic, not whether it is called a bank or an SIV. Activities where there is a mismatch between funding liquidity and asset liquidity are likely to be systemic, but those that are not can only play a systemically stabilizing role if they are not part of the same regime.

A better model of banking regulation would be based on three pillars.

The first pillar of supervision would be about doing away with distinctions based on legal entities of banks or investors and instead, focusing on risk capacity of activities and systemic risks. In some regards this would be a broader regime –incorporating institutions, off-balance sheet and other investment vehicles not currently regulated– but also a more focused regime. Those institutions with little funding liquidity (like a traditional bank) have little capacity to hold market and liquidity risk and should follow a capital adequacy regime. In calculating risk-adjusted assets under the capital adequacy regime, short-term measures of value and risk, mark-to-market accounting and high standards of transparency would apply. This would be pro-cyclical, but this issue should be addressed explicitly by the second pillar.

Those activities with long-term funding liquidity (like a traditional pension fund or endowment fund) can be exempt from the capital adequacy regime in return for disclosures that satisfy the regulator that this is appropriate and adherence to a new "solvency regime" that allows institutions to use long term measures of valuation and risk

17 *It is argued that this was the fate of efforts in the United States in 2001-2002 to respond to the major corporate accounting scandals, which culminated in the Sarbanes Oxley Act of 2002.*

in determining and reporting their solvency. This approach will be attacked by banks for creating an unlevel playing field, but it seeks to deliberately support the natural diversity in the financial system and supports the systemically beneficial role of risk absorbers.

The second pillar of supervision should be about putting the credit cycle back at the heart of the capital adequacy regime. Capital adequacy requirements should rise and fall with the overall growth in bank assets, not least because measurement of the value and risk of these assets are pro-cyclical. Contra-cyclical mechanisms face tough political resistance and they should be supported with clear rules.[18] They should be formulated closely with the monetary authorities.

The third pillar of supervision is about investor protection. Issues of transparency and disclosure are really about investor protection not liquidity and this means re-emphasizing the depth of disclosure relative to its frequency. Institutions that take in depositors' money should also be required to have some minimum, transparent level of deposit insurance, which is provided privately, in large part. This may serve to reduce the moral hazard of deposit insurance.

These three ideas should form the basis of efforts to reform current banking regulation. This crisis like almost all crises before was associated with embezzlement and fraud, especially in the brokerage of mortgages in the United States and perhaps also in the selling of securities, but even if there were no fraud, the crisis would still have happened. It was an inevitable consequence of modern finance, its regulation and the sad neglect of systemic liquidity by regulators. While there is a limit to what we can do about the ethical standards of bankers, I hope I have shown that there is much we can do to facilitate or destroy systemic liquidity.

18 *See Goodhart and Persaud (2008).*

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