The future of finance and the outlook for regulation

Remarks by Vítor Constâncio, Vice-President of the ECB,
at the Financial Regulatory Outlook Conference organised by the Centre for International Governance Innovation and Oliver Wyman, Rome 9 November 2017

Ladies and gentlemen,

I am grateful to the organisers for the opportunity to publicly address some important issues related to regulation and the future of finance. Ten years since the outbreak of the financial crisis and still ahead of fully concluding the subsequent regulatory reform, we are already seeing attempts to roll back financial regulation.

The reform has been successful in building a safer financial system and priority should be given to completing the agenda of Basel III. Subsequently, there will be time to assess its effects and possibly adjust it with some amendments that may improve its effectiveness. Right now, the world economy is enjoying a moment of synchronous recovery and, if anything, the concerns arise from possible excesses of financial market buoyancy, not from a lack of finance to support the recovery.

It is still premature to assess the strength of the current regulatory pushback but not soon enough to try to prevent its success. We should not allow the memory of the financial crisis we went through to be dissipated in the fog of vested interests. Euro area output is now 19% below the level it would have achieved had the trend growth in the 15 years prior to 2007 continued thereafter. Were the economy to have grown from now on at that same trend, the accumulated loss of output until 2030, properly discounted, would represent more than three times the annual output in 2008. The crisis left behind a permanent economic loss with its correspondent human costs that help explain the populist backlash that is spreading at each election in our democracies.

The crisis represented a remarkable failure of macroeconomics which has ignored that the economy is not swiftly self-correcting towards a good equilibrium. Public policies are thus needed. At the same time, the crisis showed that the financial sector

can endogenously generate imbalances with significant consequences for the real economy. Furthermore, finance theory, endorsing the Efficient Market Hypothesis, contributed to the views favourable to light regulation and supervision. Several past regulatory changes reflect those views: the Glass-Steagall repeal; the 1995 Basel Accord allowing the use of banks' internal models for the assessment of market risk; the 2004 Basel II Accord extending the use of internal models to credit risk; the 2003 U.S. Securities & Exchange Commission (SEC) decision allowing mortgage Asset Based Securities (ABS) to be used in repurchase agreements (repos) and the subsequent changes in 2005 to the U.S. Bankruptcy Law, excluding repos from bankruptcy processes thus rendering them a "safe haven".

The crisis and the expansion of finance

As in past cases, the recent financial crisis had its origins in excessive leverage and excessive credit or debt creation in the financial system as a whole.

These excessive imbalances were not considered a risk by the economic thinking of the time. As credit expanded and assets grew, the share of the financial sector in total GDP increased exponentially. In Europe, this led to strong growth of some important universal banks. In the euro area, total bank assets represented 116% of GDP in 1985 but increased to 219% in 2000 and to 320% in 2008. Already in 2002, the assets of the 12 biggest banks in Europe represented 64% of GDP and as Bayoumi states in his recent book, "they were already becoming too big to fail".[1]

Bayoumi, T. (2017) "Unfinished Business: The unexplored causes of the Financial Crisis and the lessons yet to be learned", Yale University Press.

In the U.S., the increase in finance was mostly due to the expansion of the so-called "shadow banking" sector. In 2007, total assets in the shadow banking sector equalled the level of total bank assets. Figures concerning non-banks' involvement in credit intermediation are also remarkable: the size of euro area investment funds more than tripled from 2007 to the present, from 13% of total banking assets to the present 41%. Profits are a further indicator of the sector's expansion: in the U.S.

financial sector profits climbed from 8% of the non-financial firms' profits at the beginning of the 1980s to a peak of 68% in 2003, hovering around 30% in the past few years.[2]

Source: US NIPA series of Domestic Financials Profits (excluding the Federal Reserve) over Non-Financial Corporate profits with inventory valuation adjustment.

The expansion of the financial sector was not enabled by savings invested in the capital of financial institutions but mostly by a redefinition of risk capital and its endorsement by regulators. On the eve of the crisis, a few significant European banks had a leverage ratio (equity over total assets) of just 1.5% to 2% while capital ratios were well above the regulatory minimum of 8%. The "magic" of internal models to calculate risk weights in regulatory capital explains the difference, although the low leverage ratio meant that a loss of 3% of total assets would wipe out banks' capital.

The second development underlying the expansion of finance relates to the rapid growth of the shadow banking sector, especially in the U.S. To be precise, the appropriate concept of shadow banking conflates entities and activities involved in a vast array of services related to securitisation, repos and securities financing transactions (SFTs), as well as over-the-counter (OTC) derivatives. These instruments contributed to the creation of a market-based credit system funded by secured short-term market funding.

The motivation for this new credit system relates to the emergence of very sizeable cash pools that could not find safety in banks' insured deposits and were in search of safer forms of placing that cash in the short-term.[3]

See Pozsar, Z. (2011), "Institutional Cash Pools and the Triffin Dilemma of the U.S. Banking System", IMF Working Paper 11/190; Claessens, S. and L. Ratnovski (2014), "What Is Shadow Banking?", IMF Working Paper 14 /25; Singh M. (2012), "Puts" in the shadow", IMF Working Paper 12/229; Perotti E. (2013), "The roots of shadow banking", CEPR Policy Insight 69; Pozsar, Z. (2014), " Shadow Banking: The Money View", Office of Financial Research WP 14-04.

Those three main instruments were used to create supposedly “safer” private short-term assets. The crisis came when crashing housing prices raised doubts about securitisations and when chains of inside liquidity created by repos with re-hypothecation and re-use of the same securities,[4]

See Singh, M. and P. Stella (2012), “Money and Collateral”, IMF Working Paper WP/12/95.

collapsed with rising haircuts and resulting illiquid markets. That is why Gary Gorton characterises the 2007/2008 financial crisis as a “run on repo”.

We live now in a collaterised financial system where unsecured interbank transactions have been continuously declining.[5]

See Gorton, G. and P.He (2016), “Optimal monetary policy in a collateralized economy”, NBER Working Paper No. 22599.

It is important to understand these developments because they represent a structural change in our financial systems and go beyond the simple increased role of non-bank financial institutions in credit intermediation. The enhanced role of these institutions is nevertheless relevant as they may contribute to the increase of leverage in the whole financial system that cannot be measured by simply looking at banks’ balance sheets but has to consider synthetic leverage built with derivatives.

History illustrates that there is a spontaneous tendency for finance to increase leverage and maturity transformation without considering the potential social costs of an overall excess of credit and debt and the crashes that may follow. This is particularly true for banks, where incentives are distorted by the safety net ensured by deposit guarantee schemes and by the implicit backstop normally provided by public authorities to avoid the spread of financial crises. There is therefore a difference between private and social costs and benefits that provides a justification for financial regulation.

Finance and growth

The usual arguments against financial regulation rely on the notion that finance is good for growth, and more finance is always better.[6]

See Levine, R. (2005), “Finance and growth: Theory and evidence”, Handbook of economic growth, 1, in: Philippe Aghion and Steven Durlauf (ed.), Handbook of Economic Growth, Edition 1, Vol 1, Chapter 12, pp. 865-934 Elsevier.

Before the financial crisis, the near-consensus in the academic literature was that the relationship between finance and growth was causal and monotonic. The financial crisis prompted a reassessment of this view. More recent evidence has illustrated that the relationship between finance and growth is non-linear: when it grows beyond a threshold level, estimated to be a ratio of private credit to GDP of around 100%, the financial sector stops supporting, and can even start hurting, economic growth.[7]

See Arcand, J., E. Berkes and U. Panizza (2015a), “Too much finance?”, Journal of Economic Growth, 20(2), 105—148. A previous version was published as a IMF Working Paper in 2012 (WP\12\161); Arcand, J., E. Berkes and U. Panizza (2015b), ”Too much finance or statistical illusion: a comment”, Graduate Institute Geneva Working Paper 12-2015; Beck, R., G. Georgiadis and R. Straub (2014), “The finance and growth nexus revisited”, Economics Letters, 124(3), 382—385; Cecchetti, S. and E. Kharroubi (2012), “Reassessing the impact of finance on growth”, BIS Working Paper No 381; Manganelli, S. and A. Popov (2013), “Financial dependence, global growth opportunities, and growth revisited”, Economics Letters, 120(1), 123—125; Zingales, L. (2015), “Presidential address: Does finance benefit society?”, Journal of Finance, 70(4), 1327—1363.

A number of theories, as well as evidence to support them, have been put forth to explain this fact. First, it has been pointed out that financial institutions first exhaust the most productive investment opportunities: too much financial intermediation thus tends to imply excessive support of unproductive investment projects.[8]

See Beck, T., B. Büyükkarabacak, F. Rioja and N. Valev (2012), “Who gets the credit? And does it matter? Household vs. firm lending across countries”, The B.E.

Journal of Macroeconomics, 12(1), 1—46; Cecchetti, S. and E. Kharroubi (2015), "Why does financial sector growth crowd out real economy economic growth", BIS Working Paper No. 490.

Others have suggested that there is a trade-off between economic development and macroeconomic risk which is exacerbated when financial intermediation intensifies.[9]

See Rancière, R., A. Tornell and F. Westermann (2008), "Systemic crises and growth", Quarterly Journal of Economics 123, 359—406; Popov, A. (2014), "Credit constraints, equity market liberalization, and growth rate asymmetry", Journal of Development Economics, 107(C), 202—214.

The third potential explanation for the non-monotonic relationship between finance and growth at high levels of development is the brain drain from the real sector into the financial sector, which led one economist to worry about whether we have too many financiers and too few engineers.[10]

See Philippon, T. (2010), "Financiers vs. engineers: Should the financial sector be taxed or subsidized?", American Economic Journal: Macroeconomics, 2(3), 158—182.

A final explanation relates to increased rent extraction from the real economy by financial firms managing investors' money.[11]

See Woolley, P. (2010), "Why are financial markets so inefficient and exploitive- and a suggested remedy", Chapter 3 in Turner et al (2010) "The future of finance: the LSE Report".

Despite a number of regulatory initiatives to tame finance after the crisis, the financial sector at present is growing faster than GDP. In spite of this, the financial industry argues that finance has been overregulated, especially in terms of high capital requirements. The recovery of credit growth however, seems to disprove this.

It is also important to underline that the studies showing the negative effects of too much finance refer to the growth of credit to the private sector. Indeed, the evidence that most financial crises in history stemmed from excessive private debt, be it

corporate or household debt, is unequivocal. A recent paper analyses financial crises in advanced economies from 1870 to 2008 and finds that “private credit booms, not public borrowing or the level of public data, tend to be the main precursors of financial instability in industrial countries”.[12]

See Jordá, O., M. Schularick, and A. Taylor (2016), “Sovereigns versus banks: credit, crises and consequences”,Journal of the European Economics, 14 (1):45-79; Schularick, M. and A. Taylor (2012), “Credit booms gone bust: Monetary policy, leverage cycles, and financial crises, 1870—2008”, American Economic Review, 102(2), 1029—1061.

In the context of the European crisis, I showed in 2013 that the main driver of the financial and economic imbalances was the fact that credit from banks in core countries to banks in the periphery quintupled from the inception of monetary union until 2008.[13]

Constâncio, V. (2014), “The European Crisis and the Role of the Financial System”, in Journal of Macroeconomics, 39(1).

Even in the absence of crises, high levels of private debt are detrimental to the economy. For example, empirical research has recently argued that excessive corporate debt is one of the root causes of the slow recovery in corporate investment in Europe since the financial crisis as investment is pushed down by corporate debt overhang.[14]

See Kalemli-Ozcan, S., L. Laeven and D. Moreno (2015), “Debt overhang, rollover risk, and investment in Europe”, University of Maryland mimeo.

Moreover, recent evidence shows that high household debt is inevitably associated with a slowdown of GDP growth and an increase in unemployment rates.[15]

See Mian, A., A. Sufi and E. Verner (2017), “Household debt and business cycles worldwide”, Quarterly Journal of Economics, forthcoming.

The outstanding corporate debt in the euro area almost doubled during the decade preceding the global financial crisis, from EUR 5.3 trillion in 1999 to EUR 9.6 trillion in 2008. Corporate debt continued to rise throughout the crisis, albeit at a

slower pace, and reached just over EUR 11 trillion in 2016. We saw similar developments in household debt over these two decades, with household debt rising particularly strongly in the decade preceding the global financial crisis, almost doubling from EUR 3.2 trillion in 1999 to EUR 5.8 trillion in 2008, and rising further since then – albeit at a slower pace, to reach EUR 6.3 trillion in 2016. Importantly, during these two decades, there is no clear causal relationship between developments in either outstanding corporate debt or in outstanding household debt and productivity growth.

These facts explain why macroprudential policy, born in the wake of the crisis, tries to smooth out credit booms and tame finance by acting at the level of the system as a whole.

FinTech and regulation

Another challenge to regulation comes from the spread of FinTech: the use of new technologies to develop and distribute financial products and services. The evident benefits of FinTech relate to the potential reduction of transaction costs and the prospect of greater financial inclusion around the world. In the view of its enthusiasts, FinTech will be radically disruptive, breaking industry boundaries and upending financial intermediation by eliminating traditional banks. There is a lot of exaggeration in this view. The footprint of new FinTech firms is still rather small. The new technologies – notably blockchain, artificial intelligence, machine learning and decision algorithms – are already being used by incumbent banks and asset managers who are not about to be swarmed by a host of nimble small FinTech firms.

Nevertheless, some usage can be significantly transformative. The use of artificial intelligence and machine learning by asset managers is one example that will create new risks and may contribute to further concentration in the sector. Another example is the change in Real Time Gross Settlement systems run by central banks. Private big banks are already developing projects based on blockchain technology to create their own networks to clear and settle all types of transactions among themselves.

Some central banks have been working on similar systems collaborating with private banks. The Ubin project is continuing in Singapore whereas, last May, the Bank of Canada concluded that its own Jasper project showed that the technology was not sufficiently mature. In some countries, the use of cash, notes and coins is declining at fast rates and we cannot disregard its possible disappearance in the future. In most jurisdictions however, that possibility is very far away, if it ever occurs. In the euro area, issuance of bank notes has more than tripled since 2001 and is still growing at about 5% a year.

All the developments I mentioned would not materially change the nature of our financial system, the concept of money or the effectiveness of central banks' monetary policy. The so-called private "crypto-currencies" can never prevail as general money substitutes. Their designation is a misnomer as they are not a currency but just a commodity used as a speculative asset and as a restricted medium of exchange in very special circumstances, comprising criminal activities or failed States with collapsed institutions. Instead, the use of the blockchain by central banks to create digital currency open to all citizens without limits would be really disruptive. This would be a radical political choice that could end banking as we know it and is therefore unlikely to happen.

Ignoring that possibility and regarding current banking activity, FinTech has penetrated mostly into payment systems. Banks' payment-related income has decreased but some is retained as bank accounts are still the ultimate way of settling. Where FinTech can have a big impact is in cross-border payments by using the blockchain technology to eliminate several intermediate steps, speed up global transfers and promote worldwide financial inclusion.

Concerning credit, peer-to-peer (P2P) or crowdfunding, FinTech lending is still very small in general, with the exception of the U.S. where mortgage origination is significant, even if the online firms do not keep the exposures in their small balance sheets.[16]

See Buchak, G., G. Matvos, T. Piskorski and A. Seru (2017), Fintech, Regulatory Arbitrage, and the Rise of Shadow Banks.

This progress is naturally due to the fact that FinTech firms are much less regulated than traditional institutions under the presumption that it is good to allow new competition. The hope of FinTech enthusiasts is that its spread will lead to much lighter financial regulation.

However, new technologies generate new risks and do not eliminate the old ones which provide the rationale for financial regulation in the first place. Asymmetries of information and default externalities do not disappear with the introduction of new ways of supplying financial services. FinTech does not provide an excuse for less regulation. It is the specific nature of finance in our economies that provides the rationale for financial regulation which is different from the one applied to other sectors, particularly those related to privatised former public utilities. In this case, it is insufficient competition that justifies the regulatory bias in favour of new firms entering the sector. This principle is not a major driver of regulation in the financial sector where competition is in general sufficient, prices do not need to be regulated and no special protection is warranted for new entrants, especially when they offer only part of the services assured by the incumbents.

Another principle is that we need a financial system with bank-like institutions to provide deposit liquidity services and maturity transformation. Narrow banking or similar approaches do not guarantee the amount of credit to finance investment and economic growth.[17]

See Constâncio, V. (2016), Challenges for the European banking industry, lecture at the Conference on “European Banking Industry: what’s next?”, organised by the University of Navarra, Madrid, 7 July 2016.

The solution proposed by FinTech enthusiasts of substituting banks by a sort of money market funds or even by investment funds, offering securities’ accounts with provision of liquidity services, confronts the difficulty that in stressful situations there

is no guarantee that funds' units can be redeemed at par. For good reasons, mutual or investment funds cannot legally offer cheque accounts.

Historically, bank regulation was created to ensure depositors' protection and to prevent bank runs. The imposition of capital ratios and the creation of deposit guarantee schemes emerged at the beginning of the last century as the minimum regulatory solutions to attain those objectives. Similar concerns subsequently led to the supervision of individual banks' asset quality and liquidity position, completing the micro-supervisory instruments to ensure the robustness of individual institutions. The deposit contract is indeed the specific service that distinguishes a bank from other financial institutions. Several other financial entities can provide credit. However, only when the credit is funded by regularly collected funds from the public and redemption at the same nominal value is guaranteed, is a financial institution considered a bank, subject to the respective regulation. Regulators should not lose sight of these basic concepts when allowing FinTech firms to get out of their facile regulatory "sandboxes".

Overview of the regulatory reform and its limitations

As mentioned at the start, ahead of the conclusion of the post-crisis regulatory reform, there are already attempts to roll back financial regulation. The main points under pressure are the Leverage Ratio (LR), the limitation of the use of internal models to assess credit risk and corresponding capital requirements, the Net Stable Funding Ratio (NSFR) and the Fundamental Review of the Trading Book.

Regarding capital requirements, the mandatory LR applied to banks was one of the most important reforms introduced. Basel III fixed the LR at 3% of Tier 1 capital which still corresponds to total assets about 33 times Tier 1 (against 50 times equity for some EU banks pre-crisis). There are pressures to exclude repos, sovereign bonds and export credits from the LR. This weakening of the standard should be avoided as it increases the probability of crises and output losses.[18]

Cline, W. (2017), “The economic cost of weakening capital requirements for large banks”, Peterson International Institute of Economics, September 2017. Cline calculates that for US GSIBs the LR would come down from the present 7.1% to 5.6% or 5% with induced effects. This would increase the probability of crises and, in different scenarios, this could produce a GDP loss between 0.5 to 1.4%.

In his recent book, William Cline (2017)[19]

Cline, W. (2017), “The right balance for banks: theory and evidence on optimal capital”, Peterson International Institute of Economics.

estimates optimal LR at 7% to 8% for significant U.S. banks, corresponding to 12% to 14% of risk-weighted capital ratio (RWCR). Morris Goldstein (2017)[20]

Goldstein, M. (2017), “Banking’s final exam: stress testing and bank capital reform”, Peterson International Institute of Economics.

shows that the LR is more accurate in predicting bank failures than RWCRs since the latter have been affected by misuse of internal models by large banks. In fact, for U.S. banks, Goldstein shows that the ratio between risk-weighted assets and total assets came down from 70% in 1993 to 40% in 2011 with no apparent link to the credit portfolio composition.

The binding risk-weighted common equity capital ratio was fixed by Basel III at 7%. Euro area significant banks now have, on average, common equity tier 1 ratio of 14%. A number of studies to calibrate an optimal capital ratio against a reasonably low crises probability have been carried out. In preparation for Basel III[21]

BCBS (2010) “An assessment of the long-term economic impact of stronger capital and liquidity requirements”.

, studies identified that banking crises occur every 20 to 25 years, corresponding to a 4.6% probability per annum. It is shown that a four percentage point increase in the capital ratio lowers this annual probability to less than 1%, while a one percentage point reduction in the annual probability of banking crises results in an expected drop in output of 0.6%. The study did not try to estimate an optimal level of capital but a

2015 Bank of England paper maps this analysis into a desirable range of 16 to19%,[22]

Brooke, M., O. Bush, R. Edwards, J. Ellis, B. Francis, R. Harimohan, K. Neiss and C. Siegert (2015), “Measuring the macroeconomic costs and benefits of higher UK bank capital requirements”, Bank of England Financial Stability Paper No. 35.

while an earlier paper puts this range at 15 to 20%.[23]

Miles, D., J. Yang and G. Marcheggiano (2011), “Optimal bank capital”, Bank of England, External MPC Unit, Discussion Paper No. 32.

Recently, Jordá, Richter, Schularik and Taylor (2017)[24]

Jordá, O., B. Richter, M. Schularik, M. and A. Taylor (2017) “Bank capital redux: solvency, liquidity and crises“, NBER Working Paper No. 23287.

illustrate that RWCR are not good predictors of bank crises and recall that in the 1920s, the capital ratios above 20% did not prevent the host of bank failures in the Great Depression. The analysis shows that higher capital reduces the severity of the crises as better capitalised banks tend to provide more credit.[25]

This is also confirmed in Gambacorta, L. and H. Shin (2016), “Why bank capital matters for monetary policy”, Journal of Financial Intermediation.

Some authors argue that the introduction of the concepts of Total Loss-Absorbable Capacity (TLAC) and Minimum Requirements for Eligible Liabilities (MREL) for the purpose of bank resolution could implicate a lower capital ratio to start with.[26]

See Brooke et al (2015) ibid.

However, a more recent FED paper, considering the potential effect of TLAC still reaches an optimal range of capital ratio between 13 and 25%.[27]

Firestone, S., A. Lorenc and B. Ranish (2017), “An empirical economic assessment of the costs and benefits of bank capital in the US”, Finance and Economics Discussion Series, Federal Reserve Board, Washington, D.C., No. 2017-034.

Considering these studies, there is no justification to weaken the LR standard, nor is there rationale for not restricting the use of internal models for credit risk, to be

finalised before the year-end. Without an agreement to finalise Basel III, we run the risk of contributing to the fragmentation of international regulation and helping those who want to destroy the multilateral approach that has served us well.

But beyond solvency and high capital ratios, the crisis has illustrated liquidity risk, thus the importance of liquidity management rules introduced for the first time in Basel III standards. Particularly in Europe, banks relied too much on wholesale funding reaching an average credit-to-deposit ratio of 145% in 2007, a level that stands now at 120%. In this perspective, a mandatory NSFR is quite relevant and should not be weakened or delayed.

Maturity transformation by banks is very much driven by housing financing and long-term mortgages. This has generated proposals to change the terms of housing financing to further reduce the risks of funding mortgage credit with short-term deposit liabilities. Many ideas have been put forward to change this[28]

See Goodhart, C. and E. Perotti (2017), “Containing maturity mismatch”, VoxEU.

including tilting even more the NSFR to correct that bias; encouraging more securitisation with low maturity transformation; creating a new type of financial institutions specialised in mortgages or, introducing a new type of mortgage contract that would have more equity participation by lenders in exchange of sharing the returns of appreciating housing prices, proposed by Mian and Sufi in “House of debt”.[29]

Mian, K. and A. Sufi (2014), “House of debt”, University of Chicago Press.

Housing credit has been growing in importance for banks in many jurisdictions over the past decades. In 17 developed countries, the weight of real estate bank lending in total credit increased 40% from 1970 to 2007.[30]

Jordá, O., M. Schularik and A. Taylor (2014), “The great mortgaging: housing finance, crises and business cycles”, NBER Working Paper No. 20501.

New regulations restricting the role of banks in mortgage lending would therefore be a significant structural change in our financial systems.

In addition to new capital and liquidity requirements, the regulatory reform had some success in addressing the question of too-big-to-fail (TBTF) institutions. The international agreement in the Financial Stability Board (FSB) about a set of key attributes for bank resolution and the introduction of TLAC, created conditions for more credible resolution regimes. The Dodd-Frank Act in the U.S. and the Bank Recovery and Resolution Directive in the EU marked a shift away from the previously prevailing bailout approach to a bail-in regime. In what regards cross-border resolutions, the new framework still has some issues to clarify, especially if the U.S. abolishes the Orderly Liquidation Authority and the respective Fund. In general, the new regime can be entrusted to deal with one or a few failing institutions. This is important to ensure market discipline and avoid moral hazard.

However, the remaining concern is that the framework may not be appropriate to deal with general financial crises like the one we just had, when the problem is the existence of too-many-to-fail banks. Examining the history of crises, it is hard to avoid the conclusion that such situations require public intervention to backstop liabilities and recapitalise the system. Exceptional interventions that were carried out in the crisis are however no longer legally possible in several jurisdictions.[31]

For the U.S. see Geithner, T. (2016), “Are we safer? The case for strengthening the Bagehot arsenal”, Per Jacobson Lecture at the 2016 Annual Meetings of the IMF and WB.

Also, there is no crisis management framework ready should another episode of generalised banking crisis emerge. In fact, public interventions may reduce overall income losses for the population stemming from economic distress. The Troubled Asset Relief Program in the U.S. that was totally repaid by the banks or the public intervention in the Nordic banking crisis of the 1990s, that penalised shareholders and reduced the costs for the State, are examples of how to avoid both losses for the public and moral hazard.

Turning now to non-banks, the role of the shadow banking sector in the crisis greatly related to the use of securitisation, repos and OTC derivatives. The crisis

revealed the important contribution of these dynamics in derivatives and SFT to systemic stress.[32]

Brunnermeier, M.K. and , L.H. Pedersen (2008), “Market Liquidity and Funding Liquidity”, Review of Financial Studies 22(6), 2201-2238. Biais, B., F. Heider and M. Hoerova, “Optimal Margins and Equilibrium Prices”, forthcoming. Brunnermeier, M.K. (2009), “Deciphering the Liquidity and Credit Crunch 2007-2008”, Journal of Economic Perspectives 23(1), 77-100. Adrian, T. and H.S. Shin (2010), “Liquidity and Leverage”, Journal of Financial Intermediation 19, 418-437. Geanakoplos, J. (2010), “The Leverage Cycle”, NBER Macroeconomics Annual 2009 24, 1-65. Adrian, T. and H.S. Shin (2014), “Procyclical Leverage and Value-at-Risk”, Review of Financial Studies 27(2), 373-403. Gorton, G. and G. Ordoñez (2014), “Collateral Crises”, American Economic Review 104(2), 343-378. Brumm, J., M. Grill, F. Kubler and K. Schmedders (2015), “Margin Regulation and Volatility”, Journal of Monetary Economics 75, 54-68.

For SFTs, particularly repos, a key concern relates to excessive reliance on short-term wholesale funding via these transactions. Indeed, SFTs were identified as a major source of leverage in the financial system and as an important determinant of banks’ vulnerability to funding and liquidity shocks.[33]

Adrian, T. and H.S. Shin (2010), “Liquidity and Leverage”, Journal of Financial Intermediation 19, 418-437.

The creation of inside liquidity by repos was important for the funding of the housing bubble[34]

See Bayoumi, T. (2017) ibid , page 73.

. The 2003 decision by the SEC to allow mortgage ABS to be used for repos and the 2005 legal amendment excluding repos from bankruptcy processes led to the increase of the repo market. Similar changes took place at the same time in Europe.[35]

Quoting from Perotti, E. (2010), “Systemic liquidity risk and two bankruptcy exceptions”, CEPR Policy Insight No. 52: “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."

As stated in Perotti (2010) "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". We know what happened in the crisis, once again proving the statement by Douglas Diamond: "Financial crises are everywhere and always about short-term debt".[36]

Douglas Diamond in a Panel Discussion on Financial Regulation at the Becker Friedman Institute, University of Chicago, 6 Nov 2010 (video at eight minutes mark) quoted in Ricks, Morgan (2016) "The money problem: rethinking financial regulation" The University of Chicago Press.

The crisis itself made securitisations and repos shrink significantly. In the U.S., broker-dealers changed into banks, making the shadow banking sector smaller. Post-reform, securitisations became less attractive being now subject to higher capital charges, securities vehicles were consolidated with bank sponsors and repos and OTC derivatives have become subject to central clearing. The overall progress in reducing risk in STFs and derivative markets has been significant, but might not be sufficient. Very little has been done to prevent the expansion and misuse of those instruments in any future euphoric episode. The recent recommendations by the FSB are in my view not sufficiently far-reaching regarding the re-hypothecation and re-use of securities in repos.[37]

See Financial Stability Board (2017), “Non-cash collateral re-use: Measure and metrics”, Policy Report and Financial Stability Board Policy Report (2017), “Re-hypothecation and collateral re-use: Potential financial stability issues, market evolution and regulatory approaches”.

Regarding the use of margins and haircuts, the FSB recommendations to introduce minimum initial levels are also quite narrow: they exclude sovereign paper and transactions between regulated institutions and apply only to non-centrally cleared operations. Going forward, more may have to be done.

In regulatory circles, the potential for setting margins and haircuts as a policy tool to address systemic risks in derivatives and SFT markets was already identified shortly after the global financial crisis. Indeed, the BIS Committee on the Global Financial System (CGFS) concluded, already in 2009, that margining practices in OTC derivatives and haircut-setting in SFTs are a source of procyclicality in the financial system, and recommended enhancements to these practices in order to dampen the build-up of leverage in good times and soften the system-wide effects in bad times.[38]

CGFS (2009), “The Role of Valuation and Leverage in Procyclicality”, CGFS Papers No. 34. CGFS (2010), “The Role of Margin Requirements and Haircuts in Procyclicality”, CGFS Papers No. 36.

Furthermore, the CGFS encouraged macroprudential authorities to consider measures that involve countercyclical variations in margins and haircuts.

In the ECB’s response to the European Commission’s consultation on the review of the European Market Infrastructure Regulation (EMIR), we suggested “that macroprudential intervention tools be included in Level 1 of EMIR” and noted “two policy instruments that potentially could reduce or limit leverage through derivatives and SFTs and the pro-cyclicality of margins and haircuts: (a) permanent minimum requirements, and (b) time-varying minimum requirements or buffers”.[39]

See ECB response to the European Commission’s consultation on the review of the European Market Infrastructure Regulation (EMIR), September 2015.

Setting minimum margins and haircut floors would limit the build-up of leverage and reduce the procyclicality of current margin and haircut setting practices.[40]

See Constâncio, V. (2016), Margins and haircuts as a macroprudential tool, remarks at the ESRB international conference on the macroprudential use of margins and haircuts, 6 June 2016; see also Constâncio, V. (2017), Macroprudential policy in a changing financial system, remarks at the second ECB Macroprudential Policy and Research Conference, 11 May 2017.

On the other hand, I welcome the release of policy recommendations by the FSB to address structural vulnerabilities arising from asset management activities. They cover liquidity mismatch between fund investments and redemption terms, operational risk, securities lending activities and leverage reporting by investment funds, including synthetic leverage built up usually with OTC derivatives. Leverage requirements for investment funds, already partially introduced in Europe, represent an important point. The final aim should be to extend LR requirements to a broader set of financial institutions and to account for the risks posed by synthetic leverage from the use of derivatives as recently proposed by Dirk Schoenmaker.[41]

A convincing argument for a wide application of leverage ratios can be found in Schoenmaker, D. and P. Wierts (2016), “Regulating the Financial Cycle: An Integrated Approach with a Leverage Ratio”, Duisenberg School of Finance - Tinbergen Institute Discussion Paper, TI 15- 057 / IV / DSF 93. The risks from synthetic leverage have been outlined in ECB Financial Stability Review (2015) “Synthetic leverage in the investment fund sector” Box 7, May. See also V. Acharya (2014), “A Transparency Standard for Derivatives,” in Risk Topography: Systemic Risk and Macro Modeling, M. Brunnermeier and A. Krishnamurthy (eds), Chapter 6.

The last point I want to address concerns macroprudential policy. It is well known that this new policy emerged as one of the lessons of the crisis, namely the realisation that while individual institutions could be seen as robust, the system as a whole could be generating imbalances and vulnerabilities. Externalities stemming from excessive leverage, liquidity mismatch and network interconnectedness were indeed building

up before the onset of the crisis. Since then, debate about regulatory reform adopted this overall angle of analysis which then shaped the instrument calibrations. Two objectives are normally assigned to macroprudential policy: to increase the resilience of the system and to smooth the amplitude of the financial cycle.[42]

See Constâncio, V. (2016) Principles of macroprudential policy, remarks at the ECB-IMF Conference on Macroprudential Policy, Frankfurt am Main, 26 April 2016.

I want to underline the second goal as a complement to monetary policy to manage the financial and the business cycle, respectively.

By using instruments like the counter-cyclical capital buffer and borrower-based debt-to-income and loan-to-value tools in housing credit, macroprudential policy can use a targeted way of containing credit expansion, especially if associated with real estate. In turn, monetary policy, precisely because “it gets in all of the cracks”[43]

See Stein, J. (2013), “Overheating in Credit Markets: Origins, Measurement, and Policy Responses”, remarks at Restoring Household Financial Stability after the Great Recession: Why Household Balance Sheets Matter, Research Symposium sponsored by the Federal Reserve Bank of St. Louis, 7 February 2013.

, is too blind an instrument to try to contain particular credit booms. If used to address systemic risks, it may unnecessarily lead to recessions that inflation conditions would not justify. This is even more the case in a monetary union where vulnerabilities identified in each country can be addressed with macroprudential policy, allowing for the appropriate heterogeneity, while countries remain subject to a single monetary policy. Another aspect of the problem is that when asset returns are going up sharply, for instance in housing, the increase in interest rates would have to be quite sizeable to have any effect in curbing an asset price boom. In general, a monetary policy of “leaning against the wind” for financial stability reasons could induce significant output losses.[44]

See Svensson, L.E.O. (2016b), Monetary Policy and Macroprudential Policy: Different and Separate; Svensson, L.E.O. (2017a), “Cost-Benefit Analysis of Leaning Against the Wind: Are Costs Larger Also with Less Effective Macroprudential

Policy?", CEPR Discussion Paper DP11739, revision of IMF Working Paper WP/16/03; Svensson, L.E.O. (2017b), "How Robust Is the Result That the Cost of 'Leaning Against the Wind' Exceeds the Benefit? Response to Adrian and Liang", CEPR Discussion Paper DP11744; Ajello, A., T. Laubach, D. Lopez-Salido and T. Nakata (2016), "Financial stability and optimal interest rate policy", Federal Reserve Paper 067.

Macroprudential policy and monetary policy rely on separate tools and aim to achieve different objectives. Yet, they need to be co-ordinated, which is a non-trivial task given that financial and business cycles can be de-synchronised. It is my contention that without an effective macroprudential policy, advanced economies will not be able to safeguard financial stability. It is therefore an important endeavour to keep fighting for the appropriate tools and policies to smooth the financial cycle and to sufficiently tame finance in order to avoid crises that may threaten the future of our economies.

Thank you for your attention.

---

[1] Bayoumi, T. (2017) "Unfinished Business: The unexplored causes of the Financial Crisis and the lessons yet to be learned", Yale University Press.
[2] Source: US NIPA series of Domestic Financials Profits (excluding the Federal Reserve) over Non-Financial Corporate profits with inventory valuation adjustment.
[3] See Pozsar, Z. (2011), "Institutional Cash Pools and the Triffin Dilemma of the U.S. Banking System", IMF Working Paper 11/190; Claessens, S. and L. Ratnovski (2014), "What Is Shadow Banking?", IMF Working Paper 14 /25; Singh M. (2012), "Puts" in the shadow", IMF Working Paper 12/229; Perotti E. (2013), "The roots of shadow banking", CEPR Policy Insight 69; Pozsar, Z. (2014), " Shadow Banking: The Money View", Office of Financial Research WP 14-04.
[4] See Singh, M. and P. Stella (2012), "Money and Collateral", IMF Working Paper WP/12/95.
[5] See Gorton, G. and P.He (2016), "Optimal monetary policy in a collateralized economy", NBER Working Paper No. 22599.
[6] See Levine, R. (2005), "Finance and growth: Theory and evidence", Handbook of economic growth, 1, in: Philippe Aghion and Steven Durlauf (ed.), Handbook of Economic Growth, Edition 1, Vol 1, Chapter 12, pp. 865-934 Elsevier.
[7] See Arcand, J., E. Berkes and U. Panizza (2015a), "Too much finance?", Journal of Economic Growth, 20(2), 105—148. A previous version was published as a IMF Working Paper in 2012 (WP\12\161); Arcand, J., E. Berkes and U. Panizza (2015b), "Too much finance or statistical illusion: a comment", Graduate Institute Geneva Working Paper 12-2015; Beck, R., G. Georgiadis and R. Straub (2014), "The finance and growth nexus revisited", Economics Letters, 124(3), 382—385; Cecchetti, S. and E. Kharroubi (2012), "Reassessing the impact of finance on growth", BIS Working Paper No 381; Manganelli, S. and A. Popov (2013), "Financial dependence, global growth

opportunities, and growth revisited", Economics Letters, 120(1), 123—125; Zingales, L. (2015), "Presidential address: Does finance benefit society?", Journal of Finance, 70(4), 1327—1363.
[8] See Beck, T., B. Büyükkarabacak, F. Rioja and N. Valev (2012), "Who gets the credit? And does it matter? Household vs. firm lending across countries", The B.E. Journal of Macroeconomics, 12(1), 1—46; Cecchetti, S. and E. Kharroubi (2015), "Why does financial sector growth crowd out real economy economic growth", BIS Working Paper No. 490.
[9] See Rancière, R., A. Tornell and F. Westermann (2008), "Systemic crises and growth", Quarterly Journal of Economics 123, 359—406; Popov, A. (2014), "Credit constraints, equity market liberalization, and growth rate asymmetry", Journal of Development Economics, 107(C), 202—214.
[10] See Philippon, T. (2010), "Financiers vs. engineers: Should the financial sector be taxed or subsidized?", American Economic Journal: Macroeconomics, 2(3), 158—182.
[11] See Woolley, P. (2010), "Why are financial markets so inefficient and exploitive- and a suggested remedy", Chapter 3 in Turner et al (2010) "The future of finance: the LSE Report".
[12] See Jordá, O., M. Schularick, and A. Taylor (2016), "Sovereigns versus banks: credit, crises and consequences", Journal of the European Economics, 14 (1):45-79; Schularick, M. and A. Taylor (2012), "Credit booms gone bust: Monetary policy, leverage cycles, and financial crises, 1870—2008", American Economic Review, 102(2), 1029—1061.
[13] Constâncio, V. (2014), "The European Crisis and the Role of the Financial System", in Journal of Macroeconomics, 39(1).
[14] See Kalemli-Ozcan, S., L. Laeven and D. Moreno (2015), "Debt overhang, rollover risk, and investment in Europe", University of Maryland mimeo.
[15] See Mian, A., A. Sufi and E. Verner (2017), "Household debt and business cycles worldwide", Quarterly Journal of Economics, forthcoming.
[16] See Buchak, G., G. Matvos, T. Piskorski and A. Seru (2017), Fintech, Regulatory Arbitrage, and the Rise of Shadow Banks.
[17] See Constâncio, V. (2016), Challenges for the European banking industry, lecture at the Conference on "European Banking Industry: what's next?", organised by the University of Navarra, Madrid, 7 July 2016.
[18] Cline, W. (2017), "The economic cost of weakening capital requirements for large banks", Peterson International Institute of Economics, September 2017. Cline calculates that for US GSIBs the LR would come down from the present 7.1% to 5.6% or 5% with induced effects. This would increase the probability of crises and, in different scenarios, this could produce a GDP loss between 0.5 to 1.4%.
[19] Cline, W. (2017), "The right balance for banks: theory and evidence on optimal capital", Peterson International Institute of Economics.
[20] Goldstein, M. (2017), "Banking's final exam: stress testing and bank capital reform", Peterson International Institute of Economics.
[21] BCBS (2010) "An assessment of the long-term economic impact of stronger capital and liquidity requirements".
[22] Brooke, M., O. Bush, R. Edwards, J. Ellis, B. Francis, R. Harimohan, K. Neiss and C. Siegert (2015), "Measuring the macroeconomic costs and benefits of higher UK bank capital requirements", Bank of England Financial Stability Paper No. 35.
[23] Miles, D., J. Yang and G. Marcheggiano (2011), "Optimal bank capital", Bank of England, External MPC Unit, Discussion Paper No. 32.
[24] Jordá, O., B. Richter, M. Schularik, M. and A. Taylor (2017) "Bank capital redux: solvency, liquidity and crises", NBER Working Paper No. 23287.
[25] This is also confirmed in Gambacorta, L. and H. Shin (2016), "Why bank capital matters for monetary policy", Journal of Financial Intermediation.
[26] See Brooke et al (2015) ibid.

[27] Firestone, S., A. Lorenc and B. Ranish (2017), “An empirical economic assessment of the costs and benefits of bank capital in the US”, Finance and Economics Discussion Series, Federal Reserve Board, Washington, D.C., No. 2017-034.
[28] See Goodhart, C. and E. Perotti (2017), “Containing maturity mismatch”, VoxEU.
[29] Mian, K. and A. Sufi (2014), “House of debt”, University of Chicago Press.
[30] Jordá, O., M. Schularik and A. Taylor (2014), “The great mortgaging: housing finance, crises and business cycles”, NBER Working Paper No. 20501.
[31] For the U.S. see Geithner, T. (2016), “Are we safer? The case for strengthening the Bagehot arsenal”, Per Jacobson Lecture at the 2016 Annual Meetings of the IMF and WB.
[32] Brunnermeier, M.K. and , L.H. Pedersen (2008), “Market Liquidity and Funding Liquidity”, Review of Financial Studies 22(6), 2201-2238. Biais, B., F. Heider and M. Hoerova, “Optimal Margins and Equilibrium Prices”, forthcoming. Brunnermeier, M.K. (2009), “Deciphering the Liquidity and Credit Crunch 2007-2008”, Journal of Economic Perspectives 23(1), 77-100. Adrian, T. and H.S. Shin (2010), “Liquidity and Leverage”, Journal of Financial Intermediation 19, 418-437. Geanakoplos, J. (2010), “The Leverage Cycle”, NBER Macroeconomics Annual 2009 24, 1-65. Adrian, T. and H.S. Shin (2014), “Procyclical Leverage and Value-at-Risk”, Review of Financial Studies 27(2), 373-403. Gorton, G. and G. Ordoñez (2014), “Collateral Crises”, American Economic Review 104(2), 343-378. Brumm, J., M. Grill, F. Kubler and K. Schmedders (2015), “Margin Regulation and Volatility”, Journal of Monetary Economics 75, 54-68.
[33] Adrian, T. and H.S. Shin (2010), “Liquidity and Leverage”, Journal of Financial Intermediation 19, 418-437.
[34] See Bayoumi, T. (2017) ibid , page 73.
[35] Quoting from Perotti, E. (2010), “Systemic liquidity risk and two bankruptcy exceptions”, CEPR Policy Insight No. 52: “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.”
[36] Douglas Diamond in a Panel Discussion on Financial Regulation at the Becker Friedman Institute, University of Chicago, 6 Nov 2010 (video at eight minutes mark) quoted in Ricks, Morgan (2016) “The money problem: rethinking financial regulation” The University of Chicago Press.
[37] See Financial Stability Board (2017), “Non-cash collateral re-use: Measure and metrics”, Policy Report and Financial Stability Board Policy Report (2017), “Re-hypothecation and collateral re-use: Potential financial stability issues, market evolution and regulatory approaches”.
[38] CGFS (2009), “The Role of Valuation and Leverage in Procyclicality”, CGFS Papers No. 34. CGFS (2010), “The Role of Margin Requirements and Haircuts in Procyclicality”, CGFS Papers No. 36.
[39] See ECB response to the European Commission’s consultation on the review of the European Market Infrastructure Regulation (EMIR), September 2015.
[40] See Constâncio, V. (2016), Margins and haircuts as a macroprudential tool, remarks at the ESRB international conference on the macroprudential use of margins and haircuts, 6 June 2016; see also Constâncio, V. (2017), Macroprudential policy in a changing financial system, remarks at the second ECB Macroprudential Policy and Research Conference, 11 May 2017.
[41] A convincing argument for a wide application of leverage ratios can be found in Schoenmaker, D. and P. Wierts (2016), “Regulating the Financial Cycle: An Integrated Approach with a Leverage Ratio”, Duisenberg School of Finance - Tinbergen Institute Discussion Paper, TI 15- 057 / IV / DSF 93. The risks from synthetic leverage have been outlined in ECB Financial Stability Review (2015)

"Synthetic leverage in the investment fund sector" Box 7, May. See also V. Acharya (2014), "A Transparency Standard for Derivatives," in Risk Topography: Systemic Risk and Macro Modeling, M. Brunnermeier and A. Krishnamurthy (eds), Chapter 6.
[42] See Constâncio, V. (2016) Principles of macroprudential policy, remarks at the ECB-IMF Conference on Macroprudential Policy, Frankfurt am Main, 26 April 2016.
[43] See Stein, J. (2013), "Overheating in Credit Markets: Origins, Measurement, and Policy Responses", remarks at Restoring Household Financial Stability after the Great Recession: Why Household Balance Sheets Matter, Research Symposium sponsored by the Federal Reserve Bank of St. Louis, 7 February 2013.
[44] See Svensson, L.E.O. (2016b), Monetary Policy and Macroprudential Policy: Different and Separate; Svensson, L.E.O. (2017a), "Cost-Benefit Analysis of Leaning Against the Wind: Are Costs Larger Also with Less Effective Macroprudential Policy?", CEPR Discussion Paper DP11739, revision of IMF Working Paper WP/16/03; Svensson, L.E.O. (2017b), "How Robust Is the Result That the Cost of 'Leaning Against the Wind' Exceeds the Benefit? Response to Adrian and Liang", CEPR Discussion Paper DP11744; Ajello, A., T. Laubach, D. Lopez-Salido and T. Nakata (2016), "Financial stability and optimal interest rate policy", Federal Reserve Paper 067.
Speaking engagements
Request form
Guiding principles

European Central Bank
Directorate General Communications
Sonnemannstrasse 20, 60314 Frankfurt am Main, Germany
Tel.: +49 69 1344 7455, E-mail: media@ecb.europa.eu
Website: www.ecb.europa.eu