Finance Watch

Making finance serve society

A missed opportunity to revive "boring" finance?

A position paper on the long term financing initiative, good securitisation and securities financing

December 2014

We cannot solve our problems with the same thinking we used when we created them.

Albert Einstein

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Executive summary

The long term financing initiative is part of a broader set of initiatives from the European Commission aimed at promoting sustainable growth and job creation. While other projects such as Europe 2020 will define which measures and investments are necessary, the long term financing initiative **complements them and focuses on how these projects are financed.**

Many of the proposals are very promising, such as promoting seed capital, crowdfunding or deepening bond markets. Others however might create systemic risks and **we chose to focus this paper on the financing channels that, in our view, raise some concerns.**

More broadly the long term financing initiative also promotes capital market financing and investment banking over traditional banking.

This is consistent with an often heard consensus view that Europe is over-reliant on bank lending and that due to new regulation banks will have to lend less in the future. Additionally, according to the consensus narrative banks caused the crisis and we therefore need less banks and more capital markets, in order to diversify and increase access to finance while making the financial system more resilient. **We find this, however, to be a simplified narrative and believe that:**

There are structural causes holding back growth and job creation such as the rise of inequalities. 1

Therefore while it is important to prevent credit supply restrictions, policies aimed at creating sustainable growth should address this issue and not only focus on the availability of financing.

Bank lending does not have to decline as a consequence of deleveraging or regulation. 2

It is also not clear that the European economy is more reliant on banks than the United States.

The crisis did not show that banks were too risky and that we consequently need more capital markets. 3

It showed instead that some investment banking activities were too risky and that we need more well capitalised traditional banks with robust funding structures. **It is essential to distinguish between banks' business models** and promote those which have proven both more robust and focused on financing the real economy.

SMEs' lack of access to finance is mostly an issue of geographical fragmentation 4

... i.e. SMEs of comparable health but located in different Member States have unequal access to finance, rather than an overall shortage of credit supply. It is also not clear whether securitisation can be a sustainable financing channel for SMEs.

Public private partnerships have a mixed track record in terms of value for money for taxpayers and democratic accountability. 5

Increasing transparency and ensuring periodic reviews would help address these concerns.

A revival of securitisation would enable some borrowers to access a wider range of investors and increase banks' profitability and competitiveness. 6

However depending on the type of securitisation it might also create a number of risks, including higher interconnectedness, higher procyclicality, higher risk of joint banks default and higher reliance on external credit assessments. It would not make banks less risky and the financial system safer if it is anything other than basic securitisation. **While recent initiatives to define good securitisation go in the right direction, they should go further to comprehensively address systemic concerns.**

A revival of securitisation would also strengthen the central role of collateral in our financial system. 7

It would create new high quality liquid assets for securities financing**, whereas the risks and negative externalities of securities financing transactions have yet to be comprehensively addressed.** Securities financing transactions enable procyclical leverage creation and excess elasticity in our financial system, and they increase interconnectedness and the risk of asset fire sales. SFT being leverage creation, it also raises the question of how much leverage do we really need? More fundamentally, while collateralised funding is extremely useful at times of stress when trust disappears, it may be unhealthy to make it the new norm.

While significant work has been done post crisis on micro-prudential regulation 8

... to ensure the soundness of individual institutions, **much remains to be done on a macro prudential level** to address systemic risks.

Recommendations

Based on all of the above, we believe that the following recommendations are key to promote a sustainable financing of the real economy that does not create systemic risk or generate negative externalities:

1 Promote traditional banking

Agreeing with the Nobel prize-winning economist Joseph Stiglitz, we believe that *"regulations should have been designed to encourage banks to go back* to *the boring business of lending"*[1]. Yet by promoting the investment and universal banking model via a revival of securitisation and securities financing transactions, the long term financing initiative seems to be promoting instead the model that required a bail out during the crisis and whose vulnerabilities have yet to be comprehensively addressed.

Traditional banks create fewer systemic risks and negative externalities, as they are associated with short intermediation chains, lower procyclicality, no reliance on external ratings and proved more resilient during the crisis. They also have more robust funding structures, are explicitly backstopped by public safety nets and their focus is on lending to the real economy. For all these reasons we believe that well capitalised traditional banks with robust funding structures should be promoted instead of the investment banking model.

In addition, institutional investors' further involvement should only be promoted to the extent that it enables a reduction in maturity transformation, provides a countercyclical element and does not require significant asset transformation. This would be consistent with the European Commission's objective of promoting patient capital investing in real assets.

1 Stiglitz, J., *The Price of Inequality: How Today's Divided Society Endangers Our Future*, Penguin, April 2013

2 Within securitisation, promote only basic structures with short intermediation chains

... that link borrowers and savers more directly, that include pooling but no tranching or external credit enhancements. Only these structures should see their prudential treatment revised to reflect the fact that they create lower systemic risks. As a rule, the shorter the intermediation chain and the less that the assets are transformed, the better.

3 Require credit rating agencies to rate structured finance instruments on a different scale.

In addition, replacing external ratings by banks' internal models would require addressing the discrepancies between banks' assessments.

4 Address the negative externalities of securities financing and incentivise more stable funding

... by introducing a minimum haircut for all securities financing transactions, capping the re-use of collateral and redesigning banks' liquidity ratios to incentivise stable funding over liquid assets. This will curb the procyclicality of leverage creation.

5 Increase institutions' contribution to systemic risk in prudential regulation

... through tying-in capital requirements with an institution's contribution to systemic risk. Together with limiting the creation of pseudo safe assets, curbing procyclicality and curbing the use of securities financing, this should help to make private backstops more robust, internalise negative externalities and reduce moral hazard.

6 Improve the transparency and democratic accountability of public private partnerships

... by requiring public access to the full contracts and regular public reporting on their value for money.

Introduction

The long term financing initiative is part of a broader set of programmes aimed at boosting growth and job creation

In the current context of low growth and weak economic outlook, the European Commission has made it one of its main priorities to promote sustainable, job creating growth and EU competitiveness. A number of promising initiatives have been launched to that effect, including "Europe 2020", "Connecting Europe", "Innovation Union", the "2030 climate and energy package" that will foster among other things education, research & development, the shift to a low carbon economy, the development of energy broadband and transport infrastructure and SME growth.

While these programmes focus on the investments necessary to restore growth and competitiveness, the Long Term Financing initiative complements them and will focus on how these initiatives are financed, and more specifically on the access to financing of infrastructure and SMEs.

It will focus on how these initiatives are financed

In this respect, we understand the overarching purpose of the Long Term Financing initiative to be not so much about promoting long term over the short term but rather about fostering growth, via the promotion of alternative non-bank financing channels. Incidentally the bundling in one initiative of assets with such different maturities as infrastructure and SME loans might also raise the question of what is long term.

Due to Member States' strained public finances and deficit constraints, the Long Term Financing initiative foresees a greater involvement of the private sector in financing infrastructure and SMEs: because the 3% deficit cap in the Maastricht treaty currently prevents Member States governments from investing more to address the lack of aggregate demand, the partial privatisation of European infrastructure via the development of public private partnerships is seen as the second best option.

It promotes alternative non-bank financing channels

The initiative also supports the current shift in bank business models towards investment banking and growth of non-bank lending, in particular the greater involvement of institutional investors, as a means to diversify and improve the availability of financing and to make the financial system more resilient. Consequently the Long Term Financing Initiative needs to be looked at in conjunction with initiatives on shadow banking, as well as the pension reform agenda.

Lastly, we fully support the European Commission's objective of fostering inclusive and sustainable growth but find it important to remember that healthy sustainable growth is not incompatible with stability given the heavy cost of crises; on the contrary as a recent BIS paper[2] put it "*the main lesson from the crisis is that only well capitalised banks are able to provide lending on a sustainable basis*". Also and most importantly, shaping the architecture of tomorrow's financial system requires having learned the lessons from the crisis, including the need for accountability, aligned incentives, the need to incentivise stakeholders to care about risk, the dangers of excessive liquidity transformation and the need to prevent the build-up of new systemic risks.

2 BIS, BIS Papers No. 75, *Long-term finance: can emerging capital markets help?*, 2013d

I. Context, choices and narrative

There is an often-heard consensus view that the current modest growth is linked to credit supply restrictions, that Europe is over-reliant on bank lending, that bank long term lending will decline as banks need to deleverage after the crisis and comply with new prudential regulation. Consequently, as banks will lend less and governments have no money, the only solution is to promote capital market financing in order to diversify and increase the availability of financing. Additionally the consensus narrative holds that as the crisis was caused by banks being too risky, we need less banking and more capital market financing in order to make the financial system more resilient to future crises.

We find this to be a simplified narrative, and given its policy implications, believe that it is essential to look beyond it for the issues that need to be addressed.

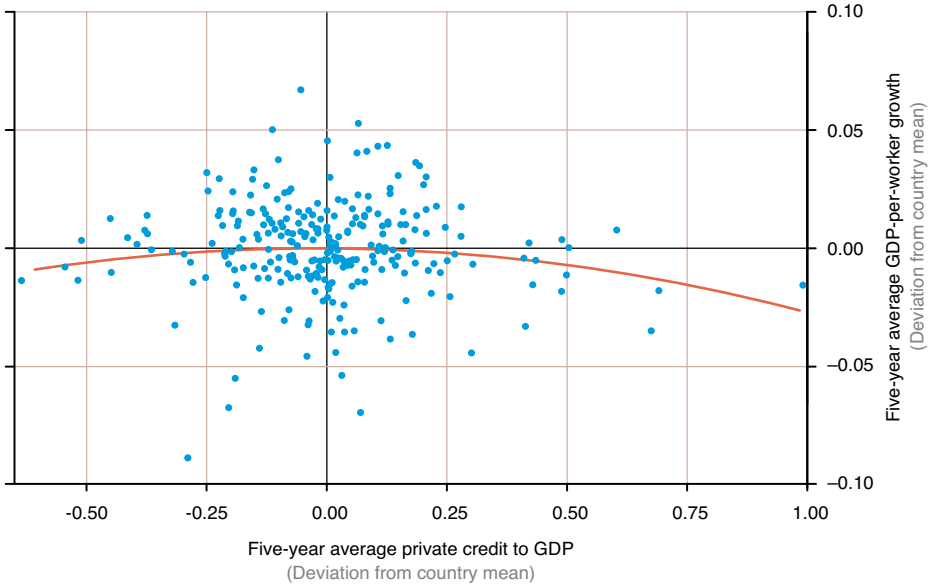
1. On the lack of growth and job creation

The current lack of growth has well-known structural causes

While the crisis played a major role, the lack of growth in developed economies has well-known structural causes dating back from the 1970's, including ageing populations, high unemployment and growing inequalities themselves a consequence of the trends to globalisation and financialization.

Several studies[3] have demonstrated that financial development has a positive effect on growth up to a point, and a detrimental effect afterwards, leading to reduced growth and higher instability: when the financial sector grows beyond a certain level of around 100% of GDP, more credit actually lowers growth, as it increases the probability of crashes and takes resources away from the real economy.

Figure 1: Private credit to GDP ratio and growth



Source: BIS 2012

3 BIS, Cecchetti, S. G., Kharroubi, E., BIS Working Papers No. 381, *Reassessing the impact of finance on growth*, 2012; IMF, Arcand, J.-L., Berkes, E. and Panizza, U., *Too Much Finance?*, WP/12/161, June 2012a; Stiglitz, J., *Capital Market Liberalization, Economic Growth and Instability*, World Development Vol. 28, No. 6, pp. 1075-1086, 2000

Financial development is positive for growth up to a point and detrimental afterwards

A 2012 report by the consulting firm Bain & Company[4] found that "*the relationship between the financial economy and the underlying real economy has reached a decisive turning point. The rate of growth of world output of goods and services has seen an extended slowdown over recent decades, while the volume of global financial assets has expanded at a rapid pace. By 2010, global capital had swollen to some $600 trillion, tripling over the past two decades*", and is expected to *"expand by half again, to an estimated $900 trillion by 2020." "Today, total financial assets are nearly 10 times the value of the global output of all goods and services. (..) Our analysis leads us to conclude that for the balance of the decade, markets will generally continue to grapple with an environment of capital superabundance. (..) What does a world that is structurally awash in capital look like? Large financial flows are creating dangerous pockets of excess capital in some places, while simultaneously cutting off access in other places where risk premiums are prohibitively high."* In addition the report found that while in normal circumstances investments in tangible assets and research increase growth, in a world saturated with financial assets that classic pattern of wealth creation creates new risks, such as yield hungry investors venturing well beyond sustainable investments in pursuit of illusory returns and inflation showing up not in core prices but in "*asset bubbles, which have moved from being relatively isolated events to system-shaking crises claiming trillions of dollars in losses."*

There is growing evidence that high income inequality can be detrimental to achieving growth

Other studies[5] have also shown that financialization has a detrimental impact on other metrics as it is associated with increased income inequality and unemployment, whereas widening income inequalities has precisely been identified at the 2014 Davos summit as one of the key causes of deficient aggregate economic demand and an issue to be addressed[6]. A recent IMF policy paper[7] acknowledged also that *"income inequality has increased in both advanced and developing economies in recent decades"* and *"there is growing evidence that high income inequality can be detrimental to achieving macroeconomic stability and growth."* As Joseph Stiglitz puts it, "*Moving money from the bottom to the top lowers consumption because higher-income individuals consume a smaller proportion of their income than do lower-income individuals (those at the top save 15 to 25 percent of their income, those at the bottom spend all of their income)"*[8]. In fact this is nothing new, as the Great Depression had already demonstrated decades earlier that increases in concentration of wealth depress aggregate demand and therefore that distribution of income matters. A recent OECD study[9] found that *"higher inequality lowers economic growth. (..) The rationale for addressing the long-term rise in inequality is not only a social or political one: policies that help to limit or reverse inequality may not only make societies less unfair, but also wealthier."*

Additionally it has been found that "*neither a reduction in outstanding bank loans nor a slowdown in the growth of bank lending would necessarily be bad for the macro economy in*

4 Bain & Company, *A World awash in Money*, 2012

5 Assa, J., *Financialization and its Consequences: the OECD Experience*, Finance Research, Vol. 1, No. 1, pp. 35-39, January 2012; Griffith-Jones, S., *The case for prudent financial liberalisation and its policy implications*, Paper prepared for Berlin 'Finance and Development' Conference, 11 December 2013; New York Times, The Opinion Pages, Stiglitz, J., *Inequality Is a Choice*, 13 October 2013

6 Bloomberg, Kennedy, S. and Martinuzzi, E., *Davos Finds Inequality Its Business as Backlash Seen*, 24 January 2014; see also Yellen, J., Speech, *Perspectives on Inequality and Opportunity from the Survey of Consumer Finances*, 17 October 2014; Credit Suisse, *Global wealth report*, 2014

7 IMF, Policy Paper *Fiscal Policy and Income Inequality*, 23 January 2014

8 Stiglitz 2013

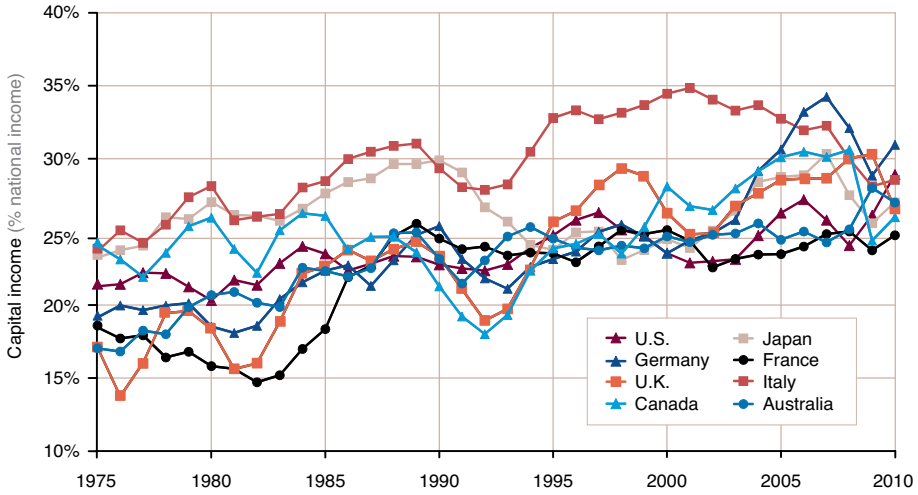
9 OECD, Cingano, F. and Förster, M., *Trends in Income Inequality and its Impact on Economic Growth*, Presentation at the conference "How can we govern Europe", Florence, Italy, 21-13 November 2014; see also OECD Social, Employment and Migration Working Papers No. 163 of the same name and author

the longer term”[10]. In fact a recent study found that *“private sector deleveraging during and after a crisis can even lead to a stronger recovery”*[11].

Addressing inequalities should be part of the policies aimed at promoting growth

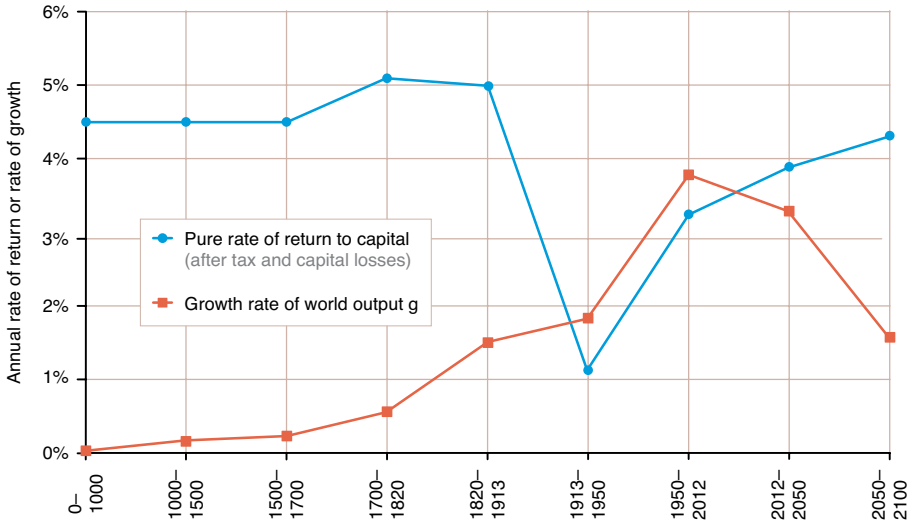
Therefore while it is important to avoid a lack of credit supply post crisis as it would affect growth negatively, one might question whether policy responses should be targeted at the availability of credit, instead of addressing the more fundamental and structural issues behind the lack of aggregate demand such as inequalities. In this respect it has been argued[12] that public policy can make an enormous difference through progressive taxation to limit inequality.

Figure 2: The capital share in rich countries, 1975-2010



Capital income absorbs between 15% and 25% of national income in rich countries in 1970, and between 25% and 30% in 2000-2010. Sources and series: see piketty.pse.ens.fr/capital21c

Figure 3: After tax rate of return vs. growth rate at the world level, from Antiquity until 2100



The rate of return to capital (after tax and capital losses) fell below the growth rate during the 20th century, and may again surpass it in the 21st century.
Sources and series: see piketty.pse.ens.fr/capital21c

Source (Fig. 2/3): Piketty 2014

10 BIS, Cohen, B. H. and Scatigna, M., BIS Working Papers No. 443, *Banks and capital requirements: channels of adjustment*, 2014b

11 Bech et al (2012) quoted in BIS 2014b

12 Piketty, T., *Capital in the Twenty-First Century*, Belknap Press, April 2014

Lastly there is a wide consensus[13] on the fact that the structure of the financial system, whether capital market based or bank based, is secondary from a growth perspective, and that what matters instead is to have a sound legal framework including contract enforcement and investor protection. It follows that **policymakers should not aim at promoting one over the other** or at creating a particular mixture of financial markets and intermediaries. Therefore while it may serve other objectives, the promotion of non-bank lending is unlikely to have a material impact on growth in itself.

2. On the expected decline of bank lending

One of the main arguments in favour of promoting alternative sources of financing is that banks need to deleverage following the crisis and adjust to new prudential regulation, which will impair their ability to lend at long maturities.

Deleveraging does not necessarily imply a decline of bank lending to non-financial corporations and households

If by ability we mean balance-sheet capacity, we find this argument to be a debatable shortcut: first deleveraging can be achieved through different channels, including retaining earnings, shrinking some activities, issuing new equity and getting rid of bad assets. Deleveraging through restructuring and selling non-performing assets might require banks to be willing to recognize losses in the short term, yet this is the deleveraging that is needed. In this respect the 2014 asset quality review by the ECB will provide the right incentives for banks to continue to repair their balance-sheets and free up liquidity that might still be stuck with bad assets.

Secondly, even if a bank chooses to deleverage by reducing the size of some activities, this does not automatically mean that lending to the real economy will decline: according to the High Level Expert Group on reforming the structure of the EU banking sector[14], loans to households and non-financial corporations represent 28% of European banks balance-sheets, while deleveraging is expected to represent roughly 7.5% of total assets[15]. It follows that **bank lending does not have to decline**, and that deleveraging via reducing lending to non-financial corporations and households would be a bank's management choice to allocate capital to more profitable activities.

As the European Commission put it *"there is no one-to-one relationship between changes in the size of banks' balance sheets and the provision of loans to the economy, let alone sustainable economic growth. Put differently, balance sheet reductions and deleveraging can be achieved without reducing real economy lending – for example through reductions in intra-financial system exposures and by cutting lengthy intermediation chains"*[16].

The ECB's recent decision to introduce conditionality to its Long Term Refinancing Operation by linking the provision of cheap ECB loans to banks to those banks' additional lending was long overdue and might contribute to refocus banks on lending instead of using the money to buy sovereign debt and earn the interest rate differential. Some, however, are sceptical that it will incentivise more lending as the conditions are so easy to meet[17].

13 IMF, Allard, J. and Blavy, R., *Market Phoenixes and Banking Ducks - Are Recoveries Faster in Market-Based Financial Systems?*, WP/11/213, September 2011b; Levine, R., *Bank-Based or Market-Based Financial Systems: Which is Better?*, William Davidson Working Paper Number 442, February 2002

14 European Commission, *Final report of the High-level Expert Group on reforming the structure of the EU banking sector* (Liikanen Report), 2 October 2012

15 Deloitte, *Capital gain, asset loss, European bank deleveraging. The Deloitte Bank Survey 2012*, 2012

16 European Commission, Staff Working Document *Economic Review of the Financial Regulation Agenda* (SWD(2014) 158 final), 15 May 2014e

17 Financial Times money supply blog, Jones, C., *TLTRO: how well has the ECB targeted its loans?*, 3 July 2014

Additionally a recent BIS report found that even a decline in bank credit to the private sector does not necessarily constrain economic recovery: in the past 39 crises changes in bank credit did not correlate meaningfully with growth, therefore they find a lack of association between deleveraging and the speed of recovery. "*Our results contradict the current consensus that private sector deleveraging is necessarily harmful for growth*"[18].

It is essential to distinguish between bank business models when discussing the size of the banking sector

It might also be worth investigating whether some types of banks' business models more focussed on lending to retail customers and non-financial corporation might prove more useful and should be promoted. Traditional banks with a focus on core lending are not only big lenders to the real economy, they can also be very successful, and neither caused the crisis nor required any bailout, contrary to a common misperception that all banks caused the crisis. When designing new regulations, **we must not forget that the crisis was indeed a crisis of shadow banking and investment banking, not of traditional commercial banking**.

As an example Svenska Handelsbanken, a "boring bank" that has no sales targets, does not pay bonuses, has no credit scoring system but a decentralised management, enjoys exceptionally low loan loss rates, funding costs among the lowest in the sector and is very successful[19]. And yet surprisingly the bank model that is being promoted in the Long Term Financing initiative is the investment banking / universal model, a model that tends to prefer allocating its capital to more profitable alternatives than lending and that proved very fragile during the crisis.

A recent BIS study[20] found that *"that **institutions engaging mainly in commercial banking activities have lower costs and more stable profits** than those more heavily involved in capital market activities, mainly trading."*

A recent study[21] asking whether the growth of universal banks has led to Europe being overbanked does not highlight enough the fact that this growth was not in the commercial arm doing loans funded by deposits but in capital markets activities funded by wholesale funding. This has fundamental implications: **if we do not make this distinction, we may conclude erroneously that we need to shrink the size of EU banking sector as a whole and promote capital market financing**. On the other hand if we recognise that what has grown is not traditional lending but capital market activity funded by the shadow banking sector, then the conclusion is the opposite, namely that we may need to shrink banks' capital market activities and shadow banking and revive traditional banking.

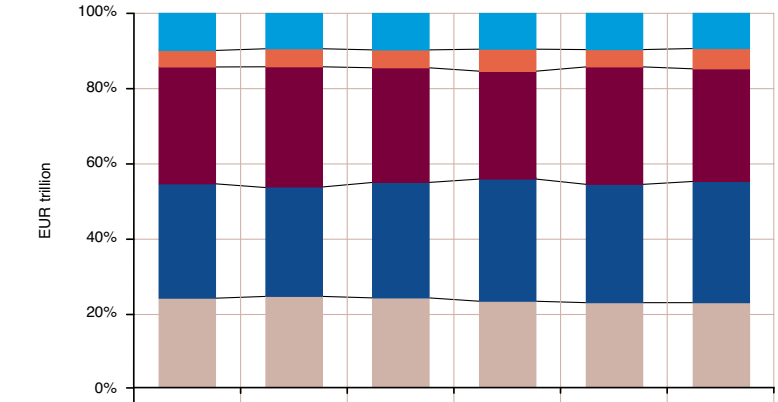
18 BIS, Takáts, E. and Upper, C., Working Paper 416, *Credit and growth after financial crises*, 2013c

19 Daily Telegraph, Wilson, H., *Handelsbanken is championing an old way of doing new UK business*, 24 August 2013

20 BIS, Roengpitya, R., Tarashev, N. and Tsatsaronis, K., *Bank business models*, BIS Quaterly Review, December 2014e, pp. 55-65

21 ESRB, Reports of the Advisory Scientific Committee No. 4, *Is Europe Overbanked?*, 2014a

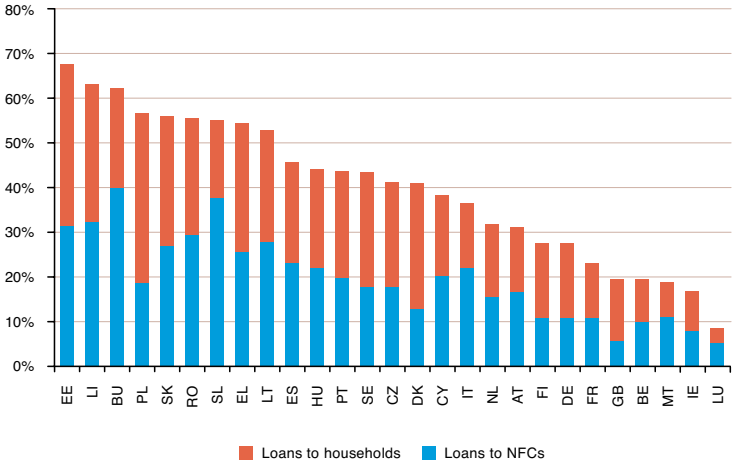
Figure 4: EU27 MFI Loan breakdown by Counterparty



	2007	2008	2009	2010	2011	2012
Other loans	2.19	2.25	2.22	2.27	2.20	2.31
Loans to GOV	1.03	1.03	1.07	1.29	1.24	1.23
Loans to MFI	6.91	7.34	6.89	6.58	7.37	6.93
Loans to HH	6.80	6.57	6.88	7.34	7.47	7.55
Loans to NFC	5.29	5.60	5.43	5.41	5.44	5.27

Source:
EBF, European banking sector facts and figures 2013

Figure 5: Ratio of loans to NFCs and households to total assets of MFIs, by country



Source:
EC 2012 (Liikanen report)

On the argument that prudential regulation constrains lending, **new bank prudential regulation requiring banks to be better capitalised will make them able to lend more, not less**: because banks have access to unlimited refinancing from the central bank, the supply of bank credit can only be limited by their capital and by the amount of eligible collateral that they can provide to the central bank. Therefore the more capital they have, the more they can lend.

Admittedly banks’ reduced levels of profitability, concerns about asset quality and the lack of credibility of the calculation of risk weighted assets might make it more difficult for them to issue fresh capital. However recent data[22] indicates a growing investor appetite towards European bank debt and equity including for the EU periphery, reflecting improvements in bank balance sheets.

As highlighted by the European Commission[23], the argument that the forthcoming liquidity ratios will curb lending and maturity transformation is also a shortcut: banks can improve

22 ESMA, EIOPA and EBA, Joint Committee Report on *Risks and Vulnerabilities in the EU Financial System*, 2014; Financial Times, Thompson, C. and Hope, K., *Greek bank borrowing costs fall*, 24 April 2014; Financial Times, Thompson C., Ross A., *EU banks binge on capital to avoid stress test failure*, 6 May 2014

23 *“It does not follow per se that rules that limit the ability of banks to use short-term funding in this way translate into reduced lending for the real economy.”* European Commission, *Green Paper Long-term financing of the European economy* (COM(2013) 150 final), 25 March 2013b.

CRD IV liquidity ratios do not mechanically imply a decline in bank lending

their liquidity either by attracting more funding with a maturity above one year or by shifting their assets towards assets considered more liquid, such as government debt. The higher cost of stable funding[24] and the preferential prudential treatment of sovereign debt might entice banks to favour the latter choice[25], with the consequence that government bonds crowd out loans[26], however this would mostly plead in favour of a healthy recalibration of the prudential treatment of sovereign debt and not giving banks the choice.

The new liquidity ratios will also only curb maturity transformation between one day and 12 months, and are thus unlikely to prevent long term lending requiring maturity transformation between 12 months and 20 years (subject to future calibration by the European Banking Authority). In any case, the current observation period prior to the introduction of these ratios is precisely aimed at identifying and addressing potential unintended consequences[27].

In fact recent research concluded that *"concerns about over-regulation and its impact on lending have so far proved unfounded"*[28] and that *"the bulk of the adjustment has taken place through the accumulation of retained earnings, rather than through sharp adjustments in lending or asset growth"*[29].

Overall according to the European Banking Federation, while some national markets have suffered from specific difficulties linked to weaker local economies, "*overall the credit supplied by banks appears to have broadly matched the credit demand*"[30]. Similarly the European Savings and Retail Banking Group assessed that "*on the supply side in the vast majority of cases the availability of funding is not problematic in this crisis. Generally speaking, there is no fundamental supply-side shortage of lending*"[31].

The data no longer seem to support the assumption that Europe is more reliant on bank lending than the US

Europe's heavy reliance on banking compared to the United States is also mentioned as a reason to promote capital market financing. It should first be highlighted that heavy reliance is not the same as overreliance, and does not imply in itself a need to change the European model. More importantly, **the data no longer seem to support the assumption that US financing is about 70% bonds and 30% loans, while Europe is the opposite**. A recent study[32] found that loans now make up more of the mix in the US than in Europe: "*In the three years before the credit crunch, loans were the most used source of finance for corporates in the U.S., making up 74% of the mix, compared to 18% for bonds and 8% for equity. Similarly in Europe (excluding the UK) loans accounted for 75%, bonds for 15% and equity for 10%. (..) In the past three years in the U.S. loans have averaged 68%, bonds 26% and equity issues 6%. In Europe, loans accounted for 60%, bonds 31% and equity 8%. One explanation could be the exclusion of financial institutions and real estate companies from this analysis.*"

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24 The cumulative cost impact of the liquidity ratios is expected to be between 16 bps (IMF, BIS, EC) and 80 bps (ECB) according to ESBG, *Economic demonstration of the economic impact of liquidity ratios in particular for SME lending*, January 2014

25 *"Banks will always tend to replace SME loans by other more profitable or less risky assets."* ESBG 2014

26 *"The average regulatory capital requirement for corporate loans is 4.7%, more than 10 times higher than the 0.4% requirement on sovereign debt."* Fondation Robert Schuman, European Issue n°307 *Investment in and the financing of the European Economy*, March 2014

27 BIS, Basel Committee on Banking Supervision, Consultative Document, *Basel III: The Net Stable Funding Ratio*, 2014a

28 RBS Credit Research, *The Silver Bullet | Basel: steering (again) in the wrong direction*, 13 January 2014

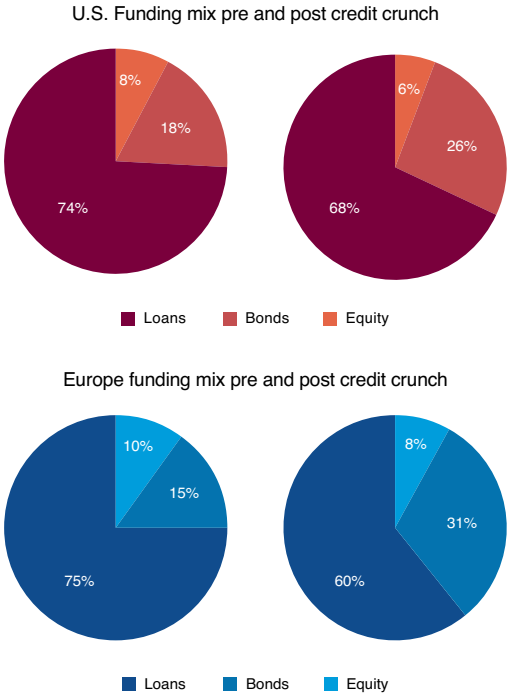
29 BIS 2014b

30 EBF, Proskurovska, V., *European banking sector facts and figures 2012*, 2012

31 ESBG, *ESBG Response to the Green Paper on the Long-Term Financing of the European Economy*, 2013

32 Allen & Overy, *Corporate funding monitor: the changing face of finance*, 2014

Figure 6: U.S. and Europe funding mix pre and post credit crunch

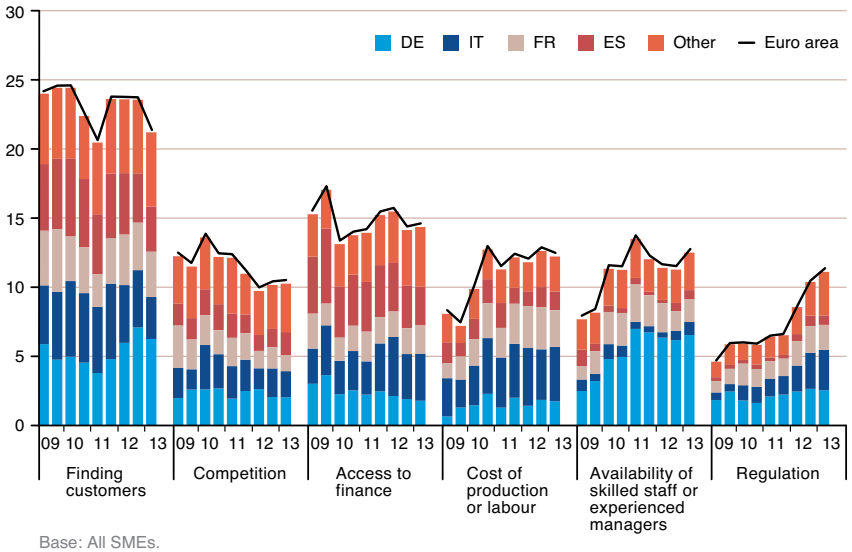


Source: Allen & Overy 2014

3. SME access to finance: how to address fragmentation

SMEs’ lack of access to finance is one of the overarching arguments in favour of promoting alternative financing channels. On the demand side, the ECB SME Access to Finance (SAFE) survey[33] found that 16% of SMEs reported in 2013 “*access to finance*” as their second main concern, after “*finding customers*” and before “*finding skilled staff or experienced managers*”. Data on the outcome of loan applications is consistent with 65% of SMEs on average reporting obtaining all the funding they requested against 12% reporting that their loan application had been rejected. The ECB notes, however, that the proportion of successful outcomes had increased as banks eased their credit standards[34].

Figure 7: Country contributions to the most pressing problem faced by Euro area SMEs

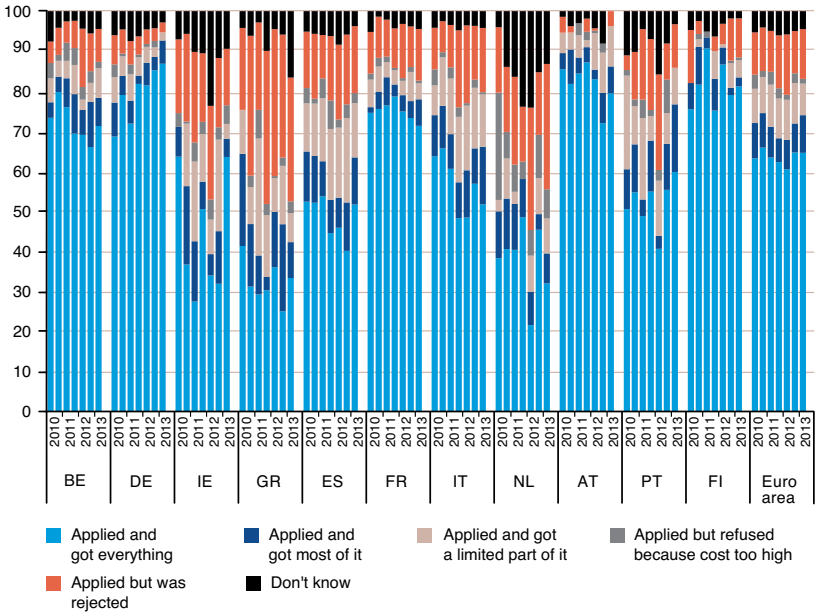


Source: ECB 2013

33 ECB, *Survey on the access to finance of small and medium-sized enterprises in the Euro area*, 2013

34 Ibid.

Figure 8: Outcome of the application for bank loans by SMEs across Euro area countries



Base: SMEs that had applied for bank loans.

Firms that applied for a bank loan (new or a renewal; excluding overdrafts and credit lines)
(over the preceding six months, in percentages)

	BE	DE	IE	GR	ES	FR	IT	NL	AT	PT	FI	Euro area
April–September 2013	25	23	12	17	27	30	29	17	23	15	17	25

Source: ECB 2013

Geographical fragmentation seems a bigger issue than overall shortage of credit supply for SMEs

When looking in detail, what is far more striking than the average is the wide disparity between countries, with countries such as Germany (87%) and Finland (81%) on one side, and Greece (33%) and the Netherlands (32%) on the other. The data confirms that lack of credit supply is a real issue in some cases. It also suggests that perhaps more than overall credit supply, **geographical fragmentation is a real issue to address**: SMEs of comparable health should have comparable access to credit irrespective of the country where they are located. Different factors explain this fragmentation, from the health of national banks and governments, to the degree of reliance on foreign banks that retreat within their borders during crises, to local economic contexts.

A strong banking union should address this issue

In this respect the forthcoming banking union could significantly contribute by introducing single resolution and supervisory mechanisms, and there is already evidence of reduced funding spreads across Member States, partly mitigating the effect of the sovereign debt crisis on banks’ funding costs[35].

We also understand addressing fragmentation to be one of the objectives of the Long Term Financing initiative: by promoting capital market financing and in particular securitisation, it is expected that it will reduce SMEs reliance on their national banks and open their access to international sources of financing. While this is a valid argument, it is not obvious that capital markets are better than banks at differentiating between healthy and non-viable companies. Foreign investors will also take into account in their lending decisions local economic contexts and national sovereign risks just as banks did[36]. It is also not clear that

35 Bain & Company and Institute of International Finance, *Restoring Finance and Growth to Europe's SMEs*, 2014

36 In this respect asset backed securities of national pools of loans will not address the issue.

foreign investors will prove less procyclical than foreign banks in case of crises and provide the type of non-cyclical funding that is needed. Furthermore some[37] argue that increased competition from non-bank lenders is likely to weaken local and national banks with a low profitability, with the related risk of increasing fragmentation. Lastly, it is far from obvious that SME ABS[38] will prove better than Sovereign debt at addressing fragmentation and completing European financial integration.

As recently noted by prominent officials[39], financing SMEs via capital markets is difficult, in particular direct access to bond and equity markets. Consequently investment funds and securitisation of SME loans are the most favoured capital market channels, especially the latter. However while seed capital and venture capital are very useful sources of funding complementing bank lending, SME loan securitisation raises several concerns in our view:

There is a qualitative difference between bank lending and capital market financing via securitisation

First there is a **qualitative difference between bank lending and capital market financing via securitisation**, in terms of flexibility for the borrower (revolving stand-up features of bank loans, flexibility to negotiate revised terms and conditions) and in terms of quality of the risk assessment: assessing the credit risk of an SME requires not only reading its financial statements, but also knowing the local economic context and competition and assessing the personality of its management by meeting them. A bank will be able to do that via the relation its local branch has with the SME, whereas an investor will not. Additionally the bank will usually manage the personal finances of the CEO of the SME, giving it a wider picture and earlier warning signs of troubles. The global lasting relationship between the bank and the SME might also make bank lending less procyclical: a bank might be more willing to support its client during difficult times as the history of the relationship gives it confidence that the SME will get through it. Also by having the credit intermediation performed by one entity instead of a chain of different entities, bank lending creates less interconnectedness and potential for conflicts of interests.

Secondly because banks are far better positioned due to their relationships to integrate these qualitative elements and perform a sound and comprehensive risk assessment, investors purchasing securities backed by SME loans will rely for a large part of their risk assessment on the bank’s original screening and due diligence. Because SME lending is a risky activity, SME securitisation is likely to involve tranching, and institutional investors are thus also likely to rely for a part on the external credit ratings of the asset backed security and on the due diligence performed by the junior tranche holders.

This **increased reliance on external credit assessments** not only requires fully aligned incentives between the different stakeholders, but is also surprising in a context where the European Commission made it an explicit objective to reduce overreliance on external credit assessments.

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37 ESBG 2013

38 Asset-backed securities

39 “*For SMEs accessing non-bank finance is often simply not an option. Indeed, non-specialised investors and lenders are often wary of firms facing high degrees of competition and limited growth prospects, particularly if those firms have only existed for a short while. That is why SME lending is currently highly concentrated among a handful of large banks that have the scale and capacity to diversify idiosyncratic risks by investing or lending to a broad enough range of SMEs*” - Speech by Mr Yves Mersch, Member of the Executive Board of the European Central Bank, at the Deutsche Börse - Clearstream "Exchange of ideas" event, London, 7 April 2014 (Mersch, Y., Speech, *Banks, SMEs and securitisation*, 7 April 2014); “*Given the difficulty of developing market based direct financing mechanisms for smaller companies based on bond or equity vehicles, the time needed to improve significantly the profitability of EU banks and the potential credit crunch and recession in some EU countries, revitalising SME loan securitisation is key to the solution.*” Jacques de Larosière, president of EUROFI (de Larosière, J., *Time has come to revive a sound and safe securitization market in Europe*, April 2014)

Current work on risk retention, transparency and standardisation will admittedly enable investors to rely less on credit rating agencies than in the past, however still comparatively more than intermediaries directly sourcing the loans such as banks.

Unfortunately there is no easy way around the high cost of assessing information about SME creditworthiness. Current work to develop credit scoring would also not address the issue of relying on external risk assessments, and is also surprising at a time where many banks are moving in the other direction, concluding that a mechanistic and mostly quantitative approach did not provide the elements necessary to make a sound credit decision.

It is not clear that SME loan securitisation will prove a sustainable and economically viable alternative

Thirdly, given the need to remunerate not only the originating bank making the loan, but also the arrangers of the securitisation and the investors, many industry stakeholders recognise **that SME loan securitisation will be too costly** to be economically viable, and will provide a more expensive source of funding for SMEs. The higher cost of this funding source also comes from the fact that investors are only remunerated by the interest on the loan, unlike banks where the global relationship provides several sources of remuneration. The same stakeholders consequently push for public subsidisation of SME securitisation to make it economically viable, including via ECB purchases and EIB support. National initiatives that are successful such as KfW in Germany typically provide a subsidised funding rate as well as lower prudential requirements to investors[40]. While market failure justifies a public intervention, it raises the question of whether a funding source that only works with subsidies is a sustainable proposal. It also raises the question of whether public intervention should not aim instead at redeveloping bank lending as a more sustainable alternative. To be clear, we do agree that an alternative source of financing such as securitisation can prove very valuable for companies when banks are under extreme stress, but we are not sure that it should be promoted as a sustainable alternative to bank lending.

All these concerns come on top of more general concerns about some types of securitisation, as we will develop in the next part.

SME loan securitisation hardly exists in the US

Interestingly a recent study pointed out that "***SME loan securitisation practically does not exist in the United States***, *yet US SME financing has become more available since late 2009, most likely due to the early clean-up of the banks and effective policies to foster economic growth*"[41].

For all these reasons, we are not convinced that SME loan securitisation should be put forward as a sustainable alternative and believe that it is far more important to ensure the effectiveness of the banking union to recapitalise banks in stressed countries in order to address SMEs lack of access to financing and fragmentation.

4. Public private partnerships, value for money and democratic accountability

Given strained public finances and high levels of indebtedness in some Member States, public private partnerships (PPPs) are being promoted as the best way to increase investments in infrastructure without putting more strain on stretched public resources.

Public-private partnerships are long-term contracts between a public sector entity and a private sector entity, requiring the provision by the private partner of a certain long-life asset

40 KfW Bankengruppe, Rahe, A., *SME securitisation in Europe - The German perspective*, 15-16 May 2008

41 Bruegel, Darvas, Z., Paper for European Parliament, *Banking system soundness is the key to more SME*, 2013

such as a highway, a railway or some other public infrastructure, against the payment of services by the public partner, the end-user, or both based on availability or demand[42].

Infrastructure is already a booming asset class with too much capital chasing too few assets

A development of public private partnerships would conveniently address the shortage of assets to buy for the massive amounts of private capital looking to invest in infrastructure. Indeed **the currently low levels of institutional investors' asset allocation to infrastructure might hide the fact that infrastructure is already a booming area with growing amounts of capital being earmarked for this "new asset class"**: institutional investors increased their input into European infrastructure by 465% between 2010 and 2013 compared with the previous four years[43].

A recent survey found that private equity "dry powder", the money raised from investors for investments in infrastructure, real estate, venture capital and credit and not yet invested, stands at a record $1.07 trillion[44]. It was also found that investors continually do not meet their target allocations for infrastructure[45], as too much money is chasing too few assets. Industry stakeholders acknowledge that "*every pension plan on earth is focusing on these assets*"[46] and that "*the amount of capital chasing the sector has never been greater and the competition has never been fiercer*"[47]. "*There is no fundamental scarcity of private capital*"[48], in fact "*it is not a lack of private finance that is the obstacle to a revival in European infrastructure, but the lack of assets to buy, or appropriately structured projects to invest in*" according to recent analyses[49].

Is it desirable to privatise the funding of quasi-public goods like infrastructure?

On the pension side, the development of a new asset class providing stable and attractive returns for retirees is also a very timely development, in a context where traditional sovereign debt investments are no longer seen as safe and remunerative enough, and where the growth of private pension funds is being encouraged. A recent analysis noted indeed that "*the volume of institutional money will grow especially if and when countries introduce compulsory pension savings*"[50].

This partial privatisation of European infrastructure raises however a number of questions. One might first wonder **whether it is desirable to further privatise the funding and operation of quasi-public goods like infrastructure**, and whether the growth of private financing will interfere with their public good features and increase excludability.

Because the discussions are premised on a reasonable financial return to attract investors, these approaches are also viable only to the extent that infrastructure generates revenues. Given the constraints on governments' budgets and their reluctance to further increase taxes, it is likely that user charging will become a more common policy. This raises questions in turn about the public willingness to pay tolls on more highways, and also about

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42 IMF, Monteiro, Rui S., *PPP and Fiscal Risks Experiences from Portugal*, Presentation at the International Seminar on Strengthening Public Investment and Managing Fiscal Risks from Public-Private Partnerships , Budapest, Hungary, 7 March 2007

43 Linklaters, *Set to revive: Investing in Europe's infrastructure*, Full Report, 10 March 2014

44 Preqin press release, *Private Equity Industry Ends 2013 with Record $1.074 trillion of Dry Powder*, 19 December 2013

45 World Economic Forum, Wyman, O., *Infrastructure Investment Policy Blueprint*, February 2014

46 Financial Times, Liinanki, C., *Danish pension fund changes to infrastructure*, 23 February 2014

47 Financial News, Russell-Walling, E., *Infrastructure goes down the capital markets road*, Issue 882, 13 January 2014

48 World Economic Forum 2014

49 EIB, Engel, E. M. R. A., Fischer, D. and Galetovic, A., *The economics of infrastructure finance: Public-private partnerships versus public provision*, 2010, Linklaters 2014 and World Economic Forum 2014 provide detailed analyses of the obstacles preventing more investments in infrastructure. Regarding the lack of project pipeline specifically, Linklaters observes that "*Governments are reluctant to launch projects in a time of austerity and to privatise assets in a political climate increasingly hostile towards private ownership.*"

50 Deloitte, *The fork in the road ahead – An in-depth analysis of the current infrastructure funds market*, 2014

whether favouring user-fee based projects is compatible with the objective of promoting sustainable and inclusive growth. It is also essential to ensure value for money services for users, by making sure that more private financing of quasi monopolistic assets does not lead to rent seeking situations.

Public private partnerships do not provide additional resources and shift the cost to future generations

It is also interesting to note that PPPs are not less costly for citizens, **they are a form of regulatory arbitrage and shift the cost of projects to future generations**. As an EIB paper puts it "*since fiscal accounting rules keep most PPPs off the balance sheet, governments have used them to anticipate spending and to sidestep the normal budgetary process, much in the same way that off-balance sheet vehicles helped banks to elude capital requirements and prudential regulation*"[51].

A 2011 UK Treasury Committee report on Private Finance Initiative (UK's PPP framework) concluded that "*efforts to meet fiscal rules at a national and European level may have contributed to the misuse of PFI. Rules designed to promote fiscal sustainability have had the paradoxical effect of incentivising the use of off-balance sheet finance—which is likely to prove less sustainable. Given the salience of the public debt statistics in the current political climate, the attractiveness of the PFI method for any government has been evident whether it provides value for money or not.*" A 2014 report from the French senate[52] called PPPs "*budgetary time bombs*".

Quoting again the EIB paper "*It is perhaps fair to say that the alleged financial advantages of PPPs have been one of the main reasons for their popularity. Newspaper articles often mention that PPPs release government funds, thus expanding the set of projects that governments can undertake. By contrast, we conclude that there is no prima facie financial reason to prefer PPPs over public provision and that PPPs hardly ever free public funds. The exceptions are the case of credit-constrained governments and even then, the increased availability of funds occurs only under very special conditions.*" "***Contrary to intuition [PPPs] do not provide additional resources***. *Either the investment must be repaid through availability payments and thus the country incurs the same obligations as under a loan. Alternatively, the resources are derived from user fees*"[53].

On the second point "*because PPP contracts delay and smooth the flow of payments from the government to private partners, the perceived impact of costs and risks is reduced, effectively allowing costs and risks to be shifted from present to future generations, and inducing too much risk acceptance by governments*"[54].

Public private partnerships have a mixed track record

Last but not least **PPPs have historically a mixed track record** with multiple examples of inflated costs, mismanagement, poor value for money for taxpayers and failure, whether in Portugal, Denmark, United Kingdom or Canada[55].

A 2011 UK Treasury Committee report[56] on PPPs found them to be more expensive, inflexible, prone to sub-standard building quality and theoretically unsound.

Interestingly, its conclusion also mentioned that "*Replacing some PFI with direct public sector investment would not necessarily result in a higher financial liability for the Exchequer. It would mean that the debt was more transparent, as it would be held directly*

51 EIB 2010

52 Sueur, J-P. and Portelli, H., *Les contrats de partenariats : des bombes à retardement ?*, Rapport fait au nom de la commission des lois, no. 733 (2013-2014), 16 July 2014

53 Fischer R., *The Promise and Peril of Public-Private Partnerships: Lessons from the Chilean Experience*, LSE International Growth Centre, Working Paper 11/0483, June 2011

54 IMF 2007

55 Greve, C., Ejersbo, N., Paper for Nordisk Kommunalforskningskonference, *When Public-Private Partnerships Fail*, 2002; Polaris Institute, *Public interests at risk for SNC-Lavalin's profits*, 27 June 2013; Daily Telegraph, Gilligan, A., *It's a scandal how our money is going down the Tube*, 18 December 2009

56 UK Treasury, *Private Finance Initiative*, Seventeenth Report, 18 July 2011

by government rather than through the intermediary of an SPV[57]. An increase in government debt to replace PFI investment should also not necessarily make it any harder to meet the fiscal mandate. Continuing to use an inefficient funding system such as PFI is likely in many cases to increase the overall burden on taxpayers for the provision of public sector capital projects. If, rather than using PFI, the lower financing costs of government are utilised, we have seen evidence that investment can be increased significantly for the same long term funding costs."

More transparency and periodic reviews are necessary to ensure value for money and democratic acountability

We believe that such an important issue would benefit from a democratic debate, as it is likely to influence European citizens' lives for decades to come.

At the very least more transparency is needed in order to ensure a fair sharing of risks and returns, value for money for taxpayers and democratic accountability, and we should mandate the full disclosure of PPP contracts as well as periodic reviews of their value for money compared to the alternatives.

5. The channelling of retail savings to long-term investments

Some of the initiatives also aim at mobilising more household savings for financing long-term investment, such as the creation of an EU saving account.

Given the amount of financial capital, it is not clear that we need to encourage more retail savings

While we fully support the intention of channelling more existing retail savings towards investments financing the real economy, we are not convinced that mobilizing additional complementary retail savings, as is sometimes mentioned, would be desirable. Not only are European savings ratios relatively high and stable, but there is also already plenty of financial capital looking for investment opportunities[58], with total assets under management in the European asset management industry close to €16,000 bn last year[59] and financial capital globally expected to rise 50% from $600trn to $900trn by 2020[60].

Additionally **what is needed right now for the purpose of growth and job creation seems to be more consumption, not more savings**. Any measure aimed at encouraging complementary savings such as auto-enrolment schemes may therefore be paradoxical with the long term financing objective, and have more to do with the pension reform agenda. Indeed a speech by the European Commissioner responsible for Employment, Social Affairs and Inclusion last year highlighted that "*in the White Paper [on pension reform] we highlighted that in order to ensure adequate and sustainable pensions, Europeans will need to work both more & longer – and – save more for their retirement*"[61].

Such measures may have more to do with a future pensions reform

Secondly a greater involvement of retail investors either directly or via their pension fund in PPPs might create a conflict between citizens as users of services and as (future) pensioners and weaken consumer protection advocacy. To take an extreme example, should the number of toll roads increase in the future, any consumer protest is likely to be met with the argument that it is good for retail investors and pensioners.

Thirdly the debate about how to channel more effectively retail savings towards long term investments seems to focus on new initiatives such as long term investment funds or European saving accounts but to forget that bank deposits do finance long term

57 Special purpose vehicle

58 Bain & Company 2012; Eurostat, News release, *Euro indicators 14/2014 Household saving rate nearly stable at 13.0% in the euro area and 10.7% in the EU28*, 28 January 2014

59 FT Adviser, Hughes, E. A., *Half of managers have had no inflows for three years*, 2 October 2013

60 Bain & Company 2012

61 European Commission, Speech by László Andor, *Ensuring the sustainability of EU pension systems*, 25 February 2013a

investments in the real economy, in that they provide stable funding (thanks to deposit guarantee schemes) that can be used for loans. Therefore as much as we support the current initiatives, we believe that bank deposits should not be forgotten in this debate, especially in a context where banks will need more stable funding in the future.

6. On the need to revive securitisation

Four key reasons seem to explain the current push to revive securitisation. While these are less frequently mentioned, we believe that they play a major role.

Reviving securitisation will boost bank profitability

First **a revival of securitisation will improve bank profitability**: securitisation being the process by which banks repackage loans and sell them to investors, it frees up banks' balance sheets and enables them to use their capital to lend several times and therefore to collect margins on new loans several times. Banks that are structuring and originating securitisations also collect fees for these activities. Lastly, securitisation enables banks to access the cheapest source of funding namely repo: by securitising loans, banks transform them into more liquid and tradable assets that can be used as collateral; banks can then lend these assets temporarily against cash. Because this source of funding is fully guaranteed by the securities put up as collateral, the financing rate is usually very low. In a world of alleged "collateral scarcity", securitisation is an enabler of securities financing transactions by creating more assets that can be used as collateral.

This is not new and the growth of securitisation pre-crisis was seen as part of the adaptation of banks' business models to changes in financial intermediation. By moving into alternative business lines relying less on interest-based revenues (loans) and more on fee-based revenues (investment banking activities including securitisation) banks have preserved their overall profitability[62]. As loan growth, one of the key elements of ROE expansion is currently slow and leverage is unlikely to return to its ROE-maximising heights, banks are looking for more opportunities for non-interest income and securitisation is one of them[63].

Arguments have also been put forward that new prudential regulation will reduce banks' profitability[64] and return on equity, with the consequence that it will prevent them from issuing new equity. Banks' increased capital will indeed mechanically reduce the return on equity, as the same profits will be divided by a larger number of shares. A lower return on equity as a result would if anything raise the question of whether return on equity is the right metric or whether we should instead look at the return on assets.

More generally, better capitalised banks will be less risky, and it should be reflected over time by a lower expected return from shareholders. Should that fail to be the case, we would need to question other factors getting in the way of investors' confidence, such as the lack of transparency on banks' balance sheets (which is addressed by the ECB's Asset Quality Review) and the failure of bank prudential regulation CRDIV/CRR to make Tier one capital a credible measure of solvency: by allowing banks to use their internal models to calculate their risk weights, CRDIV/CRR allows for wide disparities between banks for similar assets. CRDIV/CRR excessively complex methodology is another constraint, and it has also already

62 Federal Reserve Bank of New York, Cetorelli, N., Mandel, B.H. and Mollineaux, L., *The Evolution of Banks and Financial Intermediation: Framing the Analysis, Economic Policy Review*, Volume 18 Number 2, July 2012a, pp. 1-12

63 Epoch Investment Partners Inc., *Too Big To Ignore*, 2013

64 de Larosière 2014

been demonstrated that Tier 1 capital has a very weak predictive power of bank failure[65]. Addressing these issues should contribute to reduce shareholders expected return on equity.

The push to revive securitisation and increase profitability is linked in large part to **competitiveness concerns about Europe's financial industry** compared to the US.

It might also be linked to banking structure reform: should there be a meaningful separation of banking activities, it would lead to a loss of funding subsidy for investment banks, and a revival of securitisation might thus compensate for the related loss in profitability.

It also aims at creating new high quality collateral assets

A second major reason to promote a revival of securitisation is **collateral creation to improve the transmission of monetary policy** throughout the Euro area and fight deflation more effectively[66]. Central bank toolkits to ensure relatively stable prices includes raising or lowering target short term interest rates, the purchase or sale of government bonds to help manage the money supply and altering banks' reserve requirements. When these traditional tools become less effective, as when interest rates are already very low, they can resort to additional tools such as quantitative easing: by purchasing financial assets, the central bank increases the demand for these assets, which leads to a price increase for these assets, which leads mechanically to a decline in the yield return of these assets[67]. The lower return rate of these assets influences long term interest rates generally, making long term credit cheaper and incentivising investments.

While this process to transmit monetary policy via capital markets works well, it is more difficult to influence banks' long term lending rates: measures such as the LTRO[68], providing cheap funding to banks, do not necessarily influence the level at which they are willing to lend long term.

In this context, the securitisation of bank loans would create more tradable assets that can be used as collateral, that the central bank could then borrow or purchase to push long term rates lower, and that financial institutions could use to lend amongst themselves. Because the assets purchased would be securitised bank loans, instead of the more common government debt, it is hoped that this would incentivise banks more directly to lend to SMEs than the current Long Term Refinancing Operation programme. The ECB has recently eased its collateral eligibility criteria on asset backed securities of SME loans for that very purpose.

It is not clear, however, that the provision of easy credit will create enough growth quickly enough, whereas if rates stay low for too long they are likely to create another credit bubble, and the question of "*when to take the punchbowl away*"[69] is a difficult one. As Larry Summers[70] recently said about the US economy "*A strategy that relies on interest rates significantly below growth rates for long periods of time virtually guarantees the emergence of substantial bubbles and dangerous build-ups in leverage. The idea that regulation can*

65 OECD, Blundell-Wignall, A. and Roulet, C., *Business models of banks, leverage and the distance-to-default*, OECD Journal Financial market Trends, No 103, January 2013

66 Mersch 2014; "*The rebound in securitised issuances is primarily driven by the desire to create securities that are eligible as collateral for the Eurosystem.*" Noyer C., *The conditions to revive a safe and efficient securitization market in Europe*, The Eurofi High Level Seminar 2014, Newsletter 31 March-1 April 2014 ; Financial Times, Jones C., Barker A., Thompson C., *EU to ease rules on 'toxic sludge' to boost credit*, 26 March 2014

67 The higher the price, the lower the implied rate of return of the asset.

68 Long Term Refinancing Operation

69 William McChesney Martin, former chairman of the United States Federal Reserve Bank, famously said that the job of the Federal Reserve is "*to take away the punch bowl just as the party gets going.*"

70 American economist, former chief economist of the World Bank, former undersecretary for international affairs of the United States Department of the Treasury and president emeritus of Harvard university

allow the growth benefits of easy credit to come without the costs is a chimera. If we were to enjoy years of healthy growth under anything like current credit conditions, there is every reason to expect we would return to the kind of problems we saw in 2005-07 long before output and employment returned to trend or inflation picked up again"[71].

While creating bubbles is considered by some to be part of the toolkit of central banks and an acceptable price to pay to boost growth, others would argue that a more politically difficult yet more sustainable alternative to easy credit and related boom/bust cycles would be to truly increase the purchasing power of the middle class[72].

In his last book[73] Nobel prize in economic sciences Joseph Stiglitz argued that *"rather than spurring real investments that lead to higher long-term growth, the greater availability of credit can lead to bubbles. (..) One of the responsibilities of monetary authorities, in ensuring economic stability, is to discourage the formation of such bubbles. (..) Some have even made the heretical (for central bankers) suggestion that until the economy's unemployment rate is substantially lower, unemployment, not inflation, ought to be the "target" of monetary policy."*

Interestingly ex Bank of England governor Mervin King recently highlighted the decreasing importance of central banks in terms of stimulating economic growth: *"They were vital in the period 2008 and 2010… [but] we have to accept that central banks are no longer the answer."*[74] *"The secret to recovery now will depend on other policies: partly on policies to boost productivity and raise future incomes; and partly more flexibility on exchange rates, and these things will be needed to re-balance the world economy."*

The revival of securitisation also aims at pursuing European financial integration, with the hope than ABS will prove more stable at all times than sovereign debt

It has also been argued[75] that the purpose of recent efforts to re-launch European securitisation markets is to **accelerate European financial integration** by developing market-based activities. By unifying the legal framework for the cross-border use of collateral in 2002, the ECB designed a framework that treated all Eurozone sovereign debt as equal collateral. The purpose was to *"create a de facto fiscal union, where financial institutions would provide market liquidity to all sovereigns, thus eroding differences in funding costs"* and *"enable national banking champions to become global players, competing successfully with US financial institutions"*. This worked in normal times as the *"yield differentials between Eurozone sovereigns narrowed substantially"*. However when the crisis hit, investors started to be concerned about some Member States and yields started diverging massively and quickly, creating fragmentation and shattering the idea of sovereign debt as the ultimate safe asset.

In this respect by reviving European securitisation markets, policymakers pursue what they started by promoting the integration of the repo market. However as government debt failed to live up to its status as the ultimate safe asset, the *"repo market has become inconvenient for the financial integration narrative since it highlights the dependence of European banks on government debt for funding, and the importance of government debt for financial stability*"[76]. Consequently it is now hoped that high quality securitisation will be the new EU safe asset, substituting government debt as reliable collateral and reducing the bank / sovereign feedback loop.

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71 Financial Times, Summers, L., *Washington must not settle for secular stagnation*, 5 January 2014

72 New York Times, The Opinion Pages, Stiglitz, J., *Inequality is holding back the recovery*, 19 January 2013; Furman, J. and Stiglitz, J., *Economic Consequences of Income Inequality*, Proceedings - Economic Policy Symposium - Jackson Hole, pages 221-263, 1998

73 Stiglitz 2013

74 CNBC News, Holliday, K., Mervyn King: *This is European banks' 'last chance'*, 4 August 2012

75 Gabor, D., *Banking union: a response to Europe's fragile financial integration dreams?*, UWE Bristol, Economic Policy Brief No. 3, April 2014a

76 Ibid.

One might of course ask whether this new promise will prove more realistic than the earlier one: while government debt issued by the different Member States was treated as equal collateral in normal times, in times of stress investors quickly differentiated between government debt issued by Member States perceived as safe such as Germany and that issued by Member States perceived as more risky such as Greece, which led to the quick disintegration of the government bond market and growing differences in investor appetite and yield between the different Member States. It remains to be seen whether securitisation of high quality SME loans will prove to be the new EU safe asset and not follow the fate of government debt, with investors quickly differentiating in times of stress between say securities backed by German SME loans and securities backed by SME loans from troubled countries when some Member States experience difficult economic conditions.

Securitisation will create assets that fit institutional investors' preferences...

The fourth reason in our view for the revival of securitisation is that it is **one way to bridge the gap between financial capital with limited risk appetite and real investment needs**, in order to attract more institutional investors as well as providing them with a new source of allegedly safe and remunerative assets. As the Bank of England's then executive director for financial stability Andrew Haldane puts it *"one of the reasons we have securitisation as our priority is that they are a way of making the match between the needs of companies and the needs of investors."*

Institutional investors such as insurers and pension funds traditionally invest in so called safe assets such as investment grade rated government bonds. Investing directly in infrastructure or lending to SMEs might prove too risky for a number of them, outside of their investment mandates, and requires a specific expertise that many do not currently possess.

Consequently one way to bridge the gap between investors' expertise, investment mandates and risk appetite and identified investment needs is to use securitisation to create new "safe" assets: through tranching the securitisation process issues different types of securities against a pool of underlying assets. One type of security will absorb the first losses in the whole pool of assets and be compensated by a higher return. A second type of security will absorb the losses once they exceed the first tranche, and the same process continues for the senior tranches. Thanks to the buffer provided by the more junior tranches and to credit enhancement mechanisms[77], the senior tranche is usually considered very safe, unlikely to experience losses and consequently often gets the highest rating.

...however it may create new risks

The reduced risk and good rating of senior tranches of asset backed securities make them eligible investments that can match the risk appetite of institutional investors. It also provides them with new investment opportunities, as "*highly rated sovereign debts no longer provide sufficient returns to cover inflation*"[78].

However as we will discuss in the next part, not only are these assets not risk free and rather equivalent to catastrophe bonds, but the type of securitisation that issues these assets creates a number of systemic risks.

77 Such as purchasing an insurance from a third party

78 ESBG 2013

Based on all of the above we believe that:

- There are structural causes holding back growth and job creation, and the current lack of credit growth is for a large part due to a lack of aggregate demand. While it is important to prevent credit supply restrictions, policies aimed at increasing the availability of financing will not address rising inequalities, a major cause of depressed demand. It has also been shown that policies aimed at promoting one financing channel over another do not increase growth.
- Bank lending does not have to decline. It is also not clear that the European Union is over reliant on banking and that there is a need to change the model. The lesson from the crisis is not that all banks are too risky and that we need more capital markets, but rather that some investment and universal banks were too risky whereas traditional banks proved more resilient and more focussed on lending.[79]
- SMEs' lack of access to finance is more an issue of geographical fragmentation than an overall shortage of credit supply. It is also far from obvious that securitisation of SME loans will prove to be a sustainable alternative to bank lending.
- Public private partnerships have a very mixed track record in terms of value for money and democratic accountability and we should learn the lessons from past and current experiences.
- A revival of securitisation would aim at increasing banks' profitability, addressing fears of lower EU competitiveness, pursuing EU financial integration and at creating collateral. While these objectives are less frequently mentioned, we believe that they are as significant as the headline reason of increasing financing for the real economy.

The long term financing initiative is not merely about promoting long term financing

We conclude that the European Commission’s Long Term Financing initiative is not merely about increasing long term financing for the real economy but results from a number of choices, such as further privatising European infrastructure and promoting capital market financing and the investment banking model over the traditional banking model.

It results from a number of choices such as privatising European infrastructure and promoting capital market financing and the investment banking model

These choices are likely to have profound implications on the architecture of our financial system and on EU citizens' lives for decades to come. Among other things, we must ensure that these choices do not create new risks that would outweigh their benefits and get in the way of the objective of creating inclusive and sustainable growth.

79 Banks like Northern Rock and some Spanish cajas that experienced difficulties during the crisis were not pure traditional banks as they relied on wholesale funding and some were involved in securitisation.

When defining "high quality securitisation" that will benefit from a softer prudential treatment we must ensure that we don't create new systemic risks

II. Securitisation 2.0

We are not opposing bank intermediation and capital market financing

The European Commission's agenda on Long Term Financing includes a number of initiatives and the promotion of several financing channels, from crowdfunding to securitisation, private equity, bond and equity markets etc.

We have no preference on the type of financing channel, as long as it fulfils the objective of providing the type of a-cyclical sustainable funding that is needed, incentivises long term investment and does not create more systemic risks and negative externalities than alternative sources of financing.

Hence we are not opposing bank intermediation and capital market financing. Just as some capital market channels are sounder and more useful than others for the purpose of lending to the real economy, the same is true of banking models. This is also not about advocating a return to the "It's a wonderful life"[80] model of banking as modern credit intermediation is complex, but rather about ensuring the soundness of the channel. We look at each channel from the point of view of its contribution to the objective and from a systemic risk angle, since sustainable growth implies reducing the frequency of crises and making the system less fragile.

Some capital market channels and techniques are sounder than others, the same is true of bank business models

In this respect some initiatives are very good and complementary to bank lending, such as developing seed capital and venture capital, facilitating access for non-public companies to capital markets, but some others raise some concerns, such as the revival of securitisation and related promotion of securities financing.

Re-establishing sustainable securitisation markets has been high on the agenda of the Group of Twenty (G20), the Financial Stability Board (FSB), and other international organisations and national governments since the onset of the crisis[81]. Before discussing the potential related concerns and what is good securitisation, we will start with a quick reminder about this technique for non-expert readers.

1. Definition

Securitisation is the practice of pooling together and repackaging a number of illiquid loans and issuing tradable debt securities sold to investors that will be repaid as the underlying loans are reimbursed.

There are different types of securitisation

There are different types of securitisation, as the process has evolved to become more complex over time. In this section, we will give a simplified overview, building from the simple to the more complex securitisations that were found at the height of the crisis.

a. Basic securitisation

A bank will select and pool together a number of homogenous loans amongst those it originated. The loans will then be sold to a special purpose vehicle (SPV), a bankruptcy

80 As per the 1947 movie from Frank Capra: Capra, F., *It's a wonderful life*, Liberty Films, USA 1947

81 BIS, Basel Committee for Banking Supervision, *Report on asset securitisation incentives*, 2011a

remote legal entity especially created for the operation. The originating bank will provide the SPV with representations and warranties about the loans quality.

Basic securitisation is the technique used to pool and repackage loans and sell them to investors

The SPV will then issue tradable debt securities sold to investors where the investors will be repaid by the reimbursements of the underlying loans. The money raised through this issuance will enable the SPV to pay for the loans.

A servicer – usually the originating bank – tasked with processing payments and interacting with borrowers, and a trustee responsible for managing the SPV are appointed. The ultimate debtors, the people who took out the loans, need not be aware of the sale, they continue making payments on their loans, but these payments now flow to the new investors. The notes will then be rated by at least two credit rating agencies and sold to investors.

As the loans have been sold, the credit risk has been transferred to investors who bear the risk of loans not being repaid. This type of ‘pass-through’ securitisation thus provides the issuing bank with both additional funding and risk reduction, enabling it to issue more new loans.

b. Structured finance securitisation

More complex types of securitisation involve several mechanisms to improve the rating of the securities issued

Several credit enhancement mechanisms can be added in order to reduce the risk and improve the credit rating of the securities issued and thus appeal more to investors. The purpose of credit enhancement is, as the name suggests, to issue securities that are less risky and thus better rated than the underlying loans.

The first such mechanism is called subordination or tranching: as before, an originating bank will pool together a number of loans and sell them to an SPV. However here an additional complexity is the fact that the bank will not issue one type of security against the pool of loans, but several types with different seniorities, much in the same way that banks issue equity, subordinated debt and senior debt.

An entity called the underwriter will decide how many tranches and in which proportions are to be issued, based on potential investors’ appetite, rating agencies requirements and on the quality of the underlying loans. Each type of security will get its own rating.

Let's take the example of a pool of 1000 loans each worth €10,000 on average. The SPV issues three tranches of securities, a so-called equity tranche, for €500,000, a subordinate tranche for €1,500,000, and a senior tranche for €8,000,000. The equity tranche will be the first to absorb the non-repayments of the entire portfolio. It is therefore the most risky security and consequently pays the highest interest rate. If non-repayments on the loans in the pool exceed €500,000, the losses in the pool will then be absorbed by the subordinated tranche. The senior tranche will absorb losses only when losses exceed both the equity and the subordinated tranche. Consequently this is the least risky tranche as it is protected by the existence of the more junior tranches, the one that pays the lowest interest but has the best rating.

Tranching is one of these mechanisms: it involves issuing different types of securities, some of which absorb losses first on the entire pool of loans

Tranching enables the issuer to have a large proportion of the issued notes with a better rating, which makes it easier to sell them to investors. To put it differently, tranching also enables banks to securitise loans of poorer quality than pass-through securitisation. Tranching is thus called a credit enhancement mechanism in that it enables the creation of securities with a lower risk than the underlying loans.

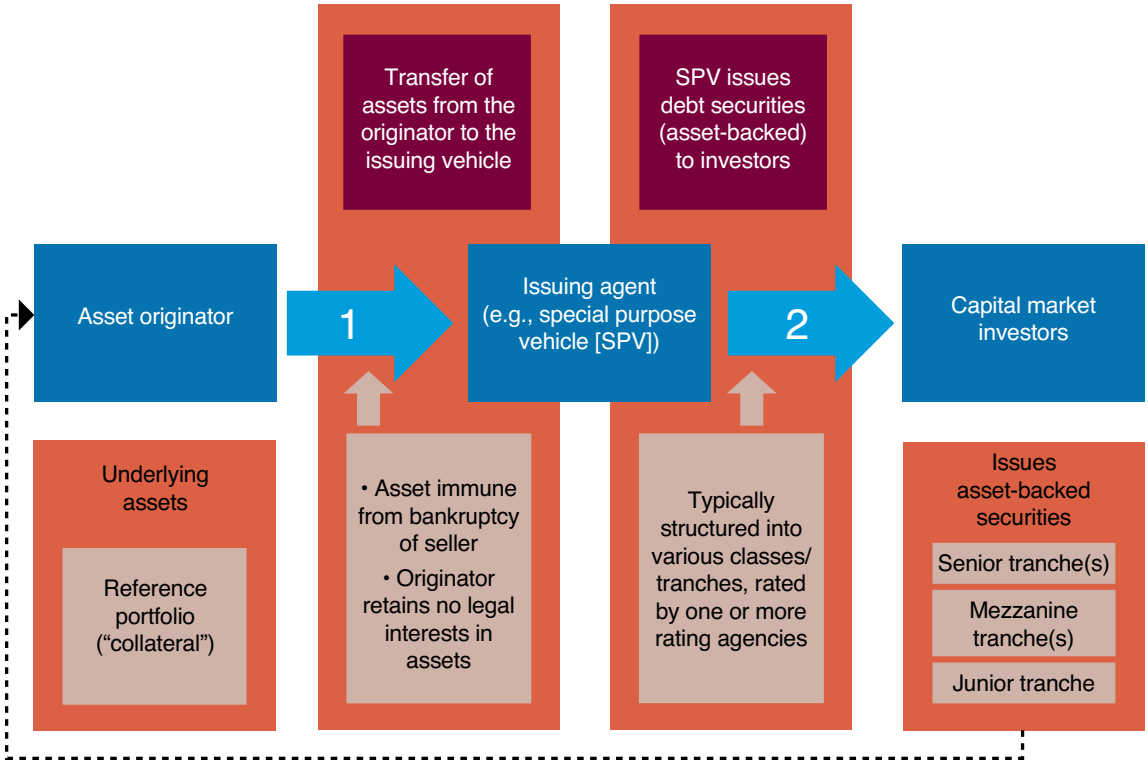
Credit enhancements can as well be achieved by way of overcollateralization, namely issuing fewer securities than the total value of the loan pool in order to create a buffer against potential losses. Other mechanisms exist such as excess spread (in which

Buying an insurance policy against the non-repayment of loans in the pool is another credit enhancement mechanism

remaining net interest payments from the loans are kept in a reserve account to account for potential losses), shifting interest (allocating loan payments in priority to the senior tranches over the early years in order to maintain subordination) or performance triggers (accelerated payment of bond principal when loan delinquencies reach a certain level).

Credit enhancement mechanisms also include external mechanisms such as purchasing a guarantee from an insurance company or getting a guarantee from the sponsoring bank. These credit enhancement mechanisms "*are in effect the 'magic elixir' that enables banks to convert pools of even poorly rated loans or mortgages into highly rated securities*"[82]. This explains as well "*how over the course of less than a decade, securitisation had created the most AAA-rated securities*", more than corporate bonds and sovereign debt combined between 1997 and 2007.

Figure 9: How securitization works



Source: IMF 2008b

c. ABCP conduits, liquidity and maturity transformation

Conduits are entities set up to securitise loans and other assets on an on-going basis

In this type of securitisation, the SPV that purchased the loans then sells them to an asset backed commercial paper conduit (ABCP conduit, so called as the notes it issues are short term commercial paper), a special purpose vehicle set up by one or several banks in order to purchase loans and finance them by issuing tranched securities.

Unlike asset-backed securities, conduits are going concerns, they are permanently capitalised, have an active management team and their assets are revolving and fluctuating.

Another difference is that while in ABS the collateral is mostly homogenous, ABCP conduits buy a variety of assets ranging from credit card receivables to mortgage investments and highly rated CDOs.

82 Federal Reserve Bank of New York, Mandel, B.H., Morgan, D. and Wei, C., *The Role of Bank Credit Enhancements in Securitization*, Economic Policy Review, Volume 18 Number 2, July 2012b, pp. 35-46

Another major difference is that the securities that they issue often have a shorter maturity (30 days on average) than the average maturity of their assets, enabling them to earn the spread between both, much like banks do. The mismatch created by this maturity transformation exposes them to a liquidity risk in case they cannot roll over their liabilities. To address that, a sponsor – usually the bank that set up the conduit or an asset manager – provides a partial or full liquidity support to the conduit, in addition to managing its assets. Because of this, when the sponsor is the originating bank the risk is not fully transferred to outside investors.

The underlying assets that have benefited from credit enhancement at the SPV level may be further enhanced at the conduit level.

d. Further complexity

More complex forms of securitisation existed pre-crisis, such as securitisations of securitisations

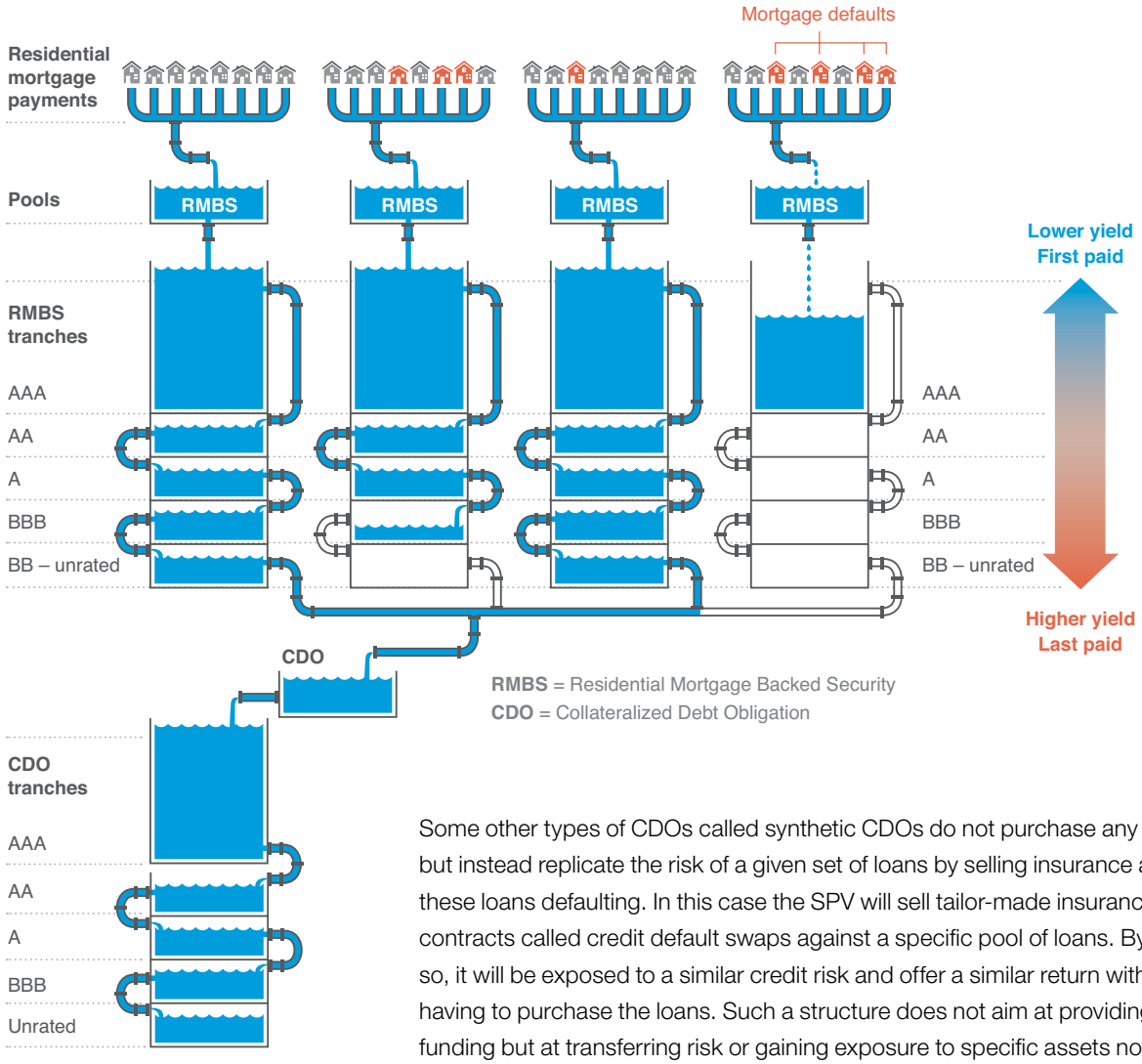
Collateralised debt obligations (CDOs) of asset backed securities are a type of securitisation that was very prevalent before the crisis. While originally the underlying assets of CDOs were corporate loans and bonds, they evolved over time to include asset backed securities. The structure is similar to a standard securitisation but includes additional steps:

- The originator (the bank that originated the loans) will select the loans to be securitised into ABS. The assets are bought by an SPV.
- An underwriter will design the securities to be issued, deciding on the credit enhancements necessary to obtain the desired ratings.
- The SPV will then issue several tranches of asset backed securities.
- Some tranches of the ABS will then be pooled and sold to another SPV where further credit enhancement will be added.
- The second SPV will then issue several tranches of collateralised debt obligations that will be rated and sold to investors.
- Investors include hedge funds, investment banks and pension funds. Some of these investors in turn finance their purchase by issuing short term notes or borrowing short term in the market from entities such as money market funds.

Some structures go further and resecuritise tranches of CDO into CDOs of CDOs (also called CDO squared), adding further complexity and lengthening the number of steps.

The number of steps in the process varies depending on the structure. The number of steps or the quantity of credit enhancement is usually inversely proportional to the quality of the underlying assets: the lower the quality, the more steps or the more enhancements are needed to “improve” their credit quality and obtain a good rating. Typically a CDO of ABS exists to resecuritise and further enhance poorly rated tranches of ABS.

Figure 10: How the financial system created AAA-rated assets out of subprime mortgages



Source: IMF 2008a

Some other types of CDOs called synthetic CDOs do not purchase any loans but instead replicate the risk of a given set of loans by selling insurance against these loans defaulting. In this case the SPV will sell tailor-made insurance contracts called credit default swaps against a specific pool of loans. By doing so, it will be exposed to a similar credit risk and offer a similar return without having to purchase the loans. Such a structure does not aim at providing funding but at transferring risk or gaining exposure to specific assets not owned. Because there is no limit on the number of CDOs that can reference a specific portfolio of assets, you can potentially create more CDOs than say the number of existing mortgages would normally allow, magnifying in the process the impact of potential losses on these mortgages.

The securitisation process involves credit, maturity and liquidity transformation just like bank intermediation

The process of securitisation mimics the classic banking functions of credit, maturity and liquidity transformation. A key difference is that bank based intermediation performs these functions under a single entity, whereas in securitisation the risks are supported by a chain of multiple entities. Another key difference is that traditional banking is supported by explicit public sector backstops such as deposit guarantee schemes and access to the central bank as a lender of last resort.

As the process transforms illiquid assets such as future cash flow streams from loans into liquid easily tradable securities, it involves liquidity transformation. As the securitised assets created are often funded on a shorter basis than their maturity, it also involves maturity transformation, where wholesale funding plays the role that deposits have in traditional banking. Lastly, the process involves as well credit transformation via the aforementioned credit enhancement mechanisms.

In comparison, traditional banks’ credit transformation is backed by diversification (mutualising the risk through a large diversified portfolio of loans) and limited subordination

(as banks' equity absorbs losses first and thus protects depositors). Traditional banks' maturity and liquidity transformation is backed by the aforementioned explicit and direct access to public sector backstops.

Any asset with predictable future cash flows can be securitised

As long as it offers a fairly predictable stream of future cash flows, any asset can be securitised, from mortgages to student loans, but also unpaid taxes due to the Italian government or even future royalties on music albums, as did rock singer David Bowie in 1997[83].

2. Benefits of securitisation

Securitisation offers a cheap form of funding for the issuer

From an originator's perspective, **securitisation offers access to a cheap source of funding**: as the securities created are fully collateralised, credit enhanced and insulated from the originator, they can obtain a higher rating and offer a lower rate than the originating institution, thus providing a cheaper source of funding than issuing bonds or borrowing.

Securitisation also enables banks and ultimate borrowers to access a wider range of investors by tailoring different tranches of an asset-backed security to investors' risk appetite and preferences.

Securitisation enables borrowers to access a wider range of investors

By transferring credit risk to outside investors, **securitisation also frees up bank regulatory capital**, enabling banks to provide more loans.

Compared to other forms of collateralised funding, asset encumbrance associated with securitisation is lower: in other forms of collateralised funding the bank uses assets as collateral but does not sell them. The proportion of assets in a balance sheet earmarked as collateral and thus out of reach of ordinary creditors in a bankruptcy is called asset encumbrance. When it is high, it may deter investors from purchasing a bank's unsecured debt.

Credit risk transfer, cheaper funding and the fees earned in the process also significantly increase profitability.

From an investor's perspective, if properly structured, securitisation can provide highly rated assets that match their investment mandates and offer attractive yields, since the risk-adjusted return on ABS is typically higher relative to similarly rated non-securitisation investments[84]. While in principle investors could extend loans directly, often in practice they do not have the expertise, infrastructure or the mandate to invest in illiquid loans.
It can also provide them with access to other asset classes and geographical areas, such as US student loans or Canadian credit card receivables, although the crisis showed that the diversification benefits were often lower than expected.

It also creates highly rated and liquid assets that match investors' preferences and can also be used as collateral

From a central bank's perspective, by freeing up banks' balance sheets **securitisation could support the transmission of accommodative monetary policy insofar as freed up capital is used to provide more loans** to non-financial corporations and households.

A revival of securitisation would also deepen the supply of highly rated collateral in a context where, for better or worse, collateral is increasingly becoming the lubricant of all transactions.

Lastly, it is also claimed that by contributing to the diversification of funding and broader distribution of risks, securitisation will in the long run help the European economy to

83 Chisholm, A., *An introduction to capital markets: products, strategies and participants*, Wiley Finance, 2009

84 BIS 2011a

sustain future crises better[85] and be beneficial to financial stability[86]. The argument is that the transfer of risk to non-bank investors will reduce the risk in banks' balance sheets and spread it among a wider range of stakeholders while providing borrowers with access to a wider pool of potential lenders, hence reducing their reliance on local banks. As we will discuss in the next part, the validity of this claim strongly depends on the type of securitisation that will reemerge.

3. Risks of securitisation

Much has been written about the risks of securitisation. Without aiming to be exhaustive, we will try to describe the major risks linked to securitisation, both risks for individual institutions and systemic risks as well as the features that create these risks. We will also try to distinguish whenever possible between general risks and risks and features that grew specifically in the years pre-crisis.

GENERAL RISKS

a. Procyclicality of leverage creation and excessive leverage

Securitisation however increases the procyclicality of our financial system...

Procyclicality is endemic to finance, but is especially high in securitisation. Leverage is said to be procyclical when it is positively correlated with the overall state of the economy, giving more amplitude to trends. Practically this takes the form of more lending during booms and a reduction in lending during downturns.

A number of factors contribute to this procyclicality:

1. Use of Value-at-Risk and market value accounting

... which in practice means more lending during booms and a bigger reduction of lending during downturns

First, the procyclicality of leverage is a consequence of banks targeting their capital to a fixed proportion of their own Value-at-Risk[87] joined with the widespread practice of market value accounting which makes the value of banks assets strongly depend on the price changes of assets traded in financial markets[88]: in a boom scenario, the measured risk of banks' assets declines and the Marked-to-Market value of the banks' equity rises[89], providing banks with additional capacity to increase their holdings of securities and leverage. The additional holdings of securities lead to more upward pressure on asset prices, providing more capacity and feeding an upward spiral. Conversely a decline in asset prices will feed a downward spiral of leverage and asset prices.

As holding securitised exposures leads to a higher proportion of banks' assets being valued Marked-to-Market compared to a loan portfolio, it entails a higher procyclicality of the size of banks' balance sheets and of banks' leverage.

2. Tranching

Securitisation and the use of CDS[90] enable banks to diversify more their risk. However it also leads to banks having global asset portfolios more similar to one another instead of local loans portfolios. While this enables banks to reduce their individual risk, the correlation

85 European Commission, Communication on *Long-Term Financing of the European Economy* (COM(2014) 168 final), 27 March 2014c

86 Bank of England and ECB, Discussion paper, *The case for a better functioning securitisation market in the European Union*, May 2014; European Parliament, Own Initiative Report on *Long-term financing of the European economy* (2013/2175(INI)), 26 February 2014a

87 Value-at-Risk is a metric used to measure the risk of loss on a portfolio of financial assets.

88 Adrian and Shin (2010a) in Baglioni et al., *Leverage pro-cyclicality and securitization in US banking*, 2012

89 BIS, Song Shin, H., Working Paper No 304 *Financial intermediation and the post-crisis financial system*, March 2010

90 Credit Default Swap: financial contract equivalent to an insurance policy where the seller commits to compensating the buyer should a specific event occur, like the default of a company. The buyer pays the seller a premium fort his insurance. CDS can be used to hedge undiversified exposures when they are bought, or to gain exposures to assets, when they are sold.

between bank balance sheets increases, which is a challenge from a systemic risk or macro prudential perspective, as risk is shifted in the tail.

Tranching also introduces a risk of contagion between tranches that increases risk in the system, as it can create cliff effects and fire sales when investors in senior tranches have to sell assets after a rating downgrade, thus contributing to additional procyclicality.

3. Market driven lending decisions and pre-selection bias

As an example, when issuers are more preoccupied with obtaining a good rating than with assessing the creditworthiness of borrowers...

In securitisation, credit rating agencies have replaced loan officers and credit committees. This entails a number of consequences: because rating agencies are at a distance from the borrower, they can only process hard information such as credit scores and loan to value ratios, and have no knowledge of the detailed soft information that loan officers collect to assess borrower credit worthiness. In turn, this meant that originators focused on obtaining a good rating stopped collecting this useful information and focused instead only on ensuring that borrowers had good credit scores and observable low loan-to-value ratios[91]. Credit evaluation no longer incorporates the accumulation of knowledge about borrowers over time in stable conditions.

Instead credit rating agencies seek statistical correlations between groups of assets with aggregated credit scores and their probability of repayment[92]. This quantitative approach to lending transforms the traditional lending business from a relationship based into a more market driven transaction, increasing the dependence of decision making on more general market movements[93] and hence increasing procyclicality.

... lending decisions become more based on market driven factors

This procedure is applied not only after the securitization of the assets but also in the construction of the portfolio as loans are selected to meet a particular probability of repayment in order to obtain a good rating, not by the past history of the borrowers. This process therefore creates a pre-selection bias to meet rating agencies’ criteria and does not incorporate the knowledge about borrowers over time in stable conditions. It means as well that the influence of credit rating agencies’ methodologies impacts not only the rating of the securitisation but also the original lending decision – approval of credit lines, volumes granted and prices charged – due to originators’ strong desire to get a good rating.

In addition, credit rating agencies focus not on the overall credit worthiness of the borrower but on inherently uncertain predictions about the future success of one investment project. Traditional banks, by contrast, are ongoing enterprises and when granting a loan they want to know not only whether the borrower will repay this particular loan but also more importantly whether the bank can lend to this client again, and they also care about not breaking the relationship. Because banks’ credit assessments are not based only on the fragile cash flow predictions of one project but on a wider overall assessment of creditworthiness and with a longer term view on a client's ability to borrow again, they will have a larger margin of safety and be less likely to require adjustments. These differences make the traditional lending approval processes not only more robust but also less procyclical. On the contrary, some argue that intensifying the link to the capital markets is likely to weaken the classical properties of relationship lending: insurance against adverse developments on the firm level[94].

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91 Diamond, D. W., Rajan, R., *The Credit Crisis: Conjectures About Causes and Remedies*, National Bureau of Economic Research, Working Paper No. 14739, 2009

92 Kregel, J., Public policy brief *Minsky's cushions of safety: Systemic risk and the crisis in the US subprime mortgage market*, Jerome Levy Economics Institute of Bard College, No. 93, 2008

93 Hänsel, D. and Krahnen, J. P., *Does credit securitization reduce bank risk? Evidence from the European CDO market*, Jerome Levy Economics Institute of Bard College, Public policy brief No. 932006, 2006

94 Ibid.

4. Herding and compensation structures

Despite the fact that securitization involves a greater number of participants and should thus lead to a greater diversity of opinion and actions, competition and misaligned compensation structures may induce more correlation in behavior than desirable, leading to increased procyclicality[95].

Also securitisation attracts less sophisticated investors that rely more on rating agencies...

As argued by former IMF chief economist Raghuram Rajan, securitization attracts new unsophisticated investors that focus on certain pieces of readily available public information. As these unsophisticated investors tend to move the market in ways that are hard to counteract, sophisticated investors "*may reduce their search for alternative, less-public sources of information. The market may become informationally less diverse as it becomes more at arm's length, increasing risks if public information becomes less reliable. While in a "Hayekian" market, aggregating all manner of information is the ideal of market proponents, the incentives for information acquisition may become muted and, instead, market participants may focus excessively on some readily available sources that they believe everyone else is focusing on*"[96].

... whereas rating agencies require more credit enhancements during downturns and vice versa to maintain ratings stable...

Compensation structures can also incentivize herding as asset managers' performance is benchmarked against their peers': herding provides the comfort that the asset manager will not significantly underperform his peers, overweighting the fact that herding means following asset prices away from their fundamental value during booms. "*It takes a very brave investment manager with infinitely patient investors to fight the trend, even if the trend is a deviation from fundamental value*"[97]. However herding is correlation in behavior and therefore amplifies trends and procyclicality.

5. Performance triggers

As mentioned by the BIS, some credit enhancement mechanisms embedded in the structure of securitisations can further increase procyclicality. One example is "*performance triggers (such as early amortisation triggers in revolving securitisations or market value triggers), which during the crisis proved they could be highly interrelated, correlated and procyclical.*"[98]

Performance triggers are clauses in the contract that can stipulate for example that provided some thresholds in terms of losses and number of delinquent loans are not crossed after a given period, money held in reserves is released to pay back some subordinated tranches, increasing their value and reducing their risk. As losses and delinquent loans are affected by the economic cycle, triggers based on them are procyclical: a property boom will lead to lower losses and delinquencies in mortgages, which in turn will lead to a reduction in the measured risk of subordinated tranches, enabling more risk taking and feeding the boom.

6. Procyclicality from through-the-cycle ratings and cliff effects in regulation

Unlike corporate bond ratings based largely on firm specific characteristics and relying on analyst judgement, ABS ratings are based on quantitative models and rely explicitly on a forecast of macroeconomic conditions to assess the loss distribution and the future cash flows of the portfolio of underlying assets.

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95 Rajan, R., *Has financial development made the world riskier?*, Proceedings – Economic Policy Symposium – Jackson Hole, Federal Reserve Bank of Kansas City, August 2005, pp. 313-369

96 Ibid.

97 Ibid.

98 BIS 2011a

... thus amplifying economic cycles

As a consequence, as economic conditions deteriorate, rating agencies must respond to the change in loss distribution by increasing the amount of credit enhancements to keep ratings stable. It follows that the stabilizing of ratings through the cycle is associated with pro-cyclical credit enhancement[99]: as the housing market improves, credit enhancement falls; conversely as the housing market slows down, credit enhancement increases which has the potential to amplify the housing cycle.

Keeping enhancement constant through the cycle would result in rating instability, with upgrades during a boom and downgrades during a bust, whereas rating agencies aim at providing stable ratings. Hence the procyclicality of credit enhancements in order to maintain stable ratings, but with the unfortunate consequence of amplifying housing cycles (in the case of mortgages): as the housing market slows down, rating agencies will require more credit enhancements namely a bigger subordinated tranche to maintain the AAA rating of the senior tranches, thereby increasing the cost of funding (as subordinated tranches pay a higher interest rate). This higher cost of funds will require higher interest rates on mortgage loans or a tightening in underwriting standards, in either case reducing the supply of credit procyclically and amplifying the decline of the housing market.

Former bank prudential regulation relying on external ratings also created procyclical cliff effects in capital requirements, as securitisations were fully deductible from capital provided they met certain credit quality of rating criteria, but required regulatory capital once they passed a threshold, potentially leading to firesales of securitised exposures.

7. Wholesale funding

When the securities created are used as collateral to obtain funding, this creates more procyclicality...

Wholesale funding describes short-term collateralised[100] borrowing by banks from other banks and financial institutions. Many of the activities and entities involved in the securitisation process are funded in the wholesale funding market by providers such as money market funds and fixed income funds. The years leading up to the crisis saw an extensive use of this form of funding.

For banks to increase their lending, they require both more regulatory capital or a decline in their existing risks that will free up capital, and more funding. Banks' core liabilities are deposits, however those are fairly stable over time and thus do not enable a rapid and large increase of lending. Wholesale funding on the other hand provides a large source of funding only limited by the quantity of high quality and liquid assets that can be used as collateral, the same assets that are created through the securitisation process.

Wholesale funding thus enables banks to extend their lending and grow their balance sheet beyond their core liabilities, enabling them to take advantage of the rise of their equity and the decline in their measured risks during booms to expand their balance sheet and their leverage[101].

The only constraint on how much an asset purchase can be financed by borrowing against it as collateral is the haircut. A haircut is the discount applied to the market value of an asset used as collateral, meant to act as a buffer should the market value of the collateral decline during the transaction period. The size of the haircut is proportional to the perceived risks of holding the asset.

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99 Federal Reserve Bank of New York, Ashcraft, A. B. and Schuermann, T., Staff Report no. 318 *Understanding the Securitization of Subprime Mortgage Credit*, March 2008a

100 Some forms of wholesale funding are not collateralised such as unsecured interbank deposits, commercial papers. We refer here to collateralised forms such as securities financing transactions.

101 If banks have more equity but are unable to borrow more, they cannot take advantage of their increased equity to lend more.

... as the margin of safety required by the lenders fluctuates with economic conditions

When markets go up and risk appetite is high, investors are willing to accept more assets as collateral, are willing to accept as well a lower margin of safety hence a lower haircut[102], and the market value of the collateral also increases while its volatility declines, enabling banks to obtain more and more funding against a given asset in good times. Symmetrically, when markets turn and investors start to be concerned, the opposite process takes place, investors start refusing assets of lower quality as collateral, they also start requesting higher haircuts, and the marked-to-market values of collateral assets declines, triggering a credit crunch and asset fire sales that fuel in turn the vicious cycle of declines in asset prices and contaminating other institutions.

Haircuts, fluctuating pools of eligible collateral and the marking to market of collateral assets are thus highly procyclical elements of wholesale funding.

As the years pre-crisis saw additional and often unwarranted capital relief for banks linked to underestimating correlations, shifting some risks off-balance sheet, hiding them in models or ignoring them as we will describe later, this meant in effect that haircuts rather than regulatory capital determined the level of leverage in the system.

As stated by the New York Fed a few years ago "*We can understand the fluctuations in leverage in terms of the implicit maximum leverage permitted by creditors in collateralized borrowing transactions (repos). (..) When haircuts rise, all balance sheets shrink in unison, resulting in a generalized decline in the willingness to lend*"[103].

The extensive use of wholesale funding combined with underestimating risk enabled financial institutions to build up much higher and excessive levels of leverage pre-crisis by lending more to each other.

8. A low interest rate environment

Central banks lowering interest rates can also increase procyclicality

Quoting again former IMF chief economist and governor of the Reserve Bank of India Raghuram Rajan, "*low interest rates induce an additional degree of procyclical risk taking into financial markets*". "*An environment of low interest rates following a period of high rates is particularly problematic, for not only does the incentive of some participants to "search for yield" go up, but also asset prices are given the initial impetus, which can lead to an upward spiral, creating the conditions for a sharp and messy realignment.*"

In other words a decline in interest rates pushes investors to search for more risky but more profitable investments, also provides cheaper funding to increase their leverage, and it also leads to a rise in asset prices, starting a decline in measured risks and a rise in equity values.

The related excessive risk taking translates into risks for the real economy as it leads to an "*excessive willingness to finance real investment, with the potential for overcapacity and a waste of real resources to society.*"

The procyclicality in leverage creation generates a number of risks. First, as we will discuss later, it leads to procyclicality in interconnectedness and maturity transformation.

More importantly, **procyclicality creates destabilizing economic effects that become apparent during downturns, when all institutions reduce their leverage simultaneously, leading to fire sales and a credit crunch.**

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102 For example an asset valued €1000 with a 10% haircut can be used to get a loan off €900. If the volatility of the asset increases, eg the risk that its value will decline increases, the lender might increase the haircut when the loan is renewed, say to 20%, which means that the financing that can be obtained against this collateral will decline from €900 to €800.

103 Federal Reserve Bank of New York, Adrian, T. and Song Shin, H., *The Shadow Banking System: Implications for Financial Regulation*, Staff Report no. 382, July 2009

As institutions expand and contract their leverage simultaneously following the economic or market cycle, procyclicality increases the probability of joint default of institutions, the very definition of systemic risk.

Procyclicality also increases the need for backstops able to lever and provide liquidity countercyclically, since all institutions are on the same side of the trade, which is particularly problematic since shadow banking entities involved in securitisation do not have access to direct explicit public backstops.

Procyclicality therefore means that the risk of the total system is greater than the sum of the risks of the individual banks and financial institutions. "*Due to procyclicality, banks are transformed from mitigation mechanisms to amplifiers of changes in economic activity potentially affecting financial stability*"[104].

It has been found that **European banks involved in investment banking activity exhibit a higher procyclicality than more traditional commercial banks not engaging in securitisation**[105]. This is consistent with the above and builds the case that traditional banking creates less systemic risk than banks engaged in investment banking, the model currently being promoted.

b. More complex and systemic bank risks

While securitising and selling loans reduces the risk in banks...

It is claimed that reviving securitisation will make banks safer, as by securitising and selling loans, banks transfer credit risk to other parties and reduce their own risk.

In itself a transfer of risks does indeed reduce banks' risks. However as they securitise and sell loans, **banks are likely to respond to this reduction in their risks** by increasing their lending or other activities.

Banks' responses may also go beyond a pure offsetting of the risk that they have shed: as securitisation and other credit risk transfer tools provide banks with effective risk management techniques, **they also enable banks to increase their level of risk and** "***operate with riskier balance sheets***"[106]. Typically securitisation and the use of CDS[107] enable banks to increase diversification and reduce risk concentration in their portfolios. These new instruments may also further encourage risk taking, as banks may expect to be more easily able to deleverage some parts of their balance sheet by doing additional issuances.

... in practice banks respond to this risk reduction by taking on more risk

Banks may also end up being riskier as they do not fully transfer the risk: banks typically do not sell all the tranches of the securitisations that they issue and keep the equity tranche or first-loss tranche. Banks retain the equity tranche because it is much harder to find buyers for it as it is the most volatile tranche, and also because keeping it signals investors that they are confident about quality of the loans underlying the securitisation, thereby facilitating the sale of the other tranches. As banks keep the equity tranche, they also become more exposed to market downturns due to the lower subordination of these tranches, and become thus more exposed to model error, such as underestimating correlations or incorrect assumptions.

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104 Bank of Greece, Athanasoglou, P.P. and Daniilidis, I., *Procyclicality in the banking industry: causes, consequences and response*, Working Paper 139, October 2011

105 Baglioni et al 2012

106 Froot et al. 1993 and Froot and Stein 1998 quoted in Nijskens, R. and Wagner, W., *Credit risk transfer activities and systemic risk: How banks became less risky individually but posed greater risks to the financial system at the same time*, Journal of Banking & Finance, Volume 35, Issue 6, June 2011, pp. 1391–1398

107 Credit Default Swap: financial contract equivalent to an insurance where the seller commits to compensating the buyer should a specific event occur, like the default of a company. The buyer pays the seller a premium for this insurance. CDS can be used to hedge undiversified exposures when they are bought, or to gain exposures to assets, when they are sold.

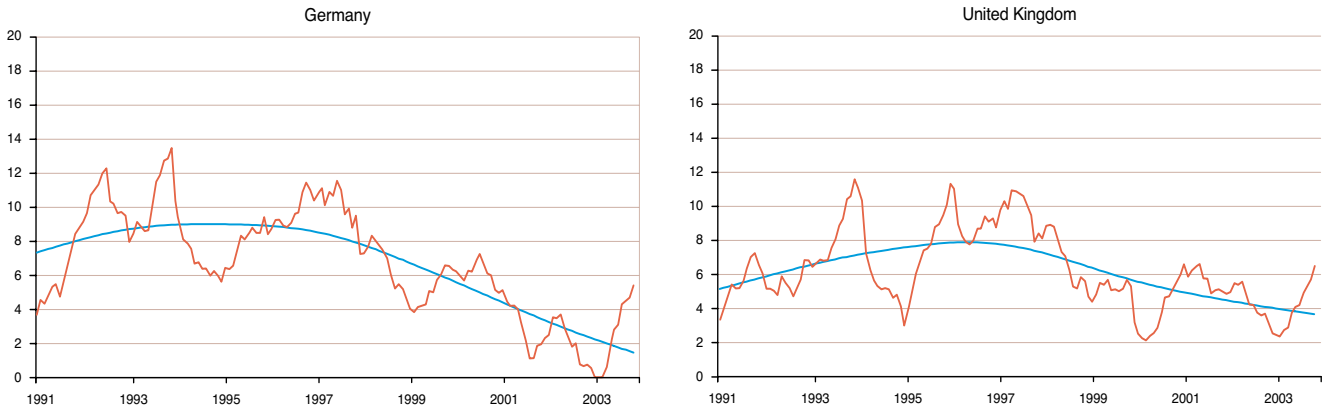
The guarantees (explicit and implicit) that banks may provide to securitisation vehicles also reduce the transfer of credit risk. Therefore while securitisation should reduce bank risk, it has been argued[108] that securitisation enables banks to operate with more risk.

Some also argue that securitisation increases the correlation between banks, increasing the risk that they may experience difficulties at the same time

It has also been argued[109] that **securitisation "*may also increase bank risk in a systemic sense, even if banks' individual risk does not increase***. *This is because securitization allows banks to shed idiosyncratic exposures*[110]*, such as the specific risk associated with their area of lending. The idiosyncratic share in a bank's risk may also be lowered because banks may hedge any undiversified exposures they may have by buying protection using CDS, while simultaneously buying other credit risk by selling protection in the CDS market.* ***Banks may thus end up being more correlated with each other. This may amplify the risk of systemic crisis in the financial system*** *(Elsinger et al. (2006); Acharya and Yorulmazer (2007); Wagner (2008a,c))* ***since it increases the likelihood that banks incur losses jointly***"[111].

This has important implications, since **looking at banks individually from a prudential point of view conceals the correlation in bank portfolios values and their contribution to systemic risk**[112]. It has been argued that as long as regulation focuses on individual risks, banks will be incentivised to shift risk towards more correlated systemic risks, in order to get capital relief and increase their leverage, and also since defaulting at the same time as others offers a higher change of benefiting from a public backstop. Regulation should therefore in our view pay more attention to banks' contribution to systemic risk, in addition to their individual risks. Several interesting proposals have been formulated to address this issue[113].

Figure 11: Banks' distance to default has not increased with securitisation



Source: Datastream; and IMF staff estimates

Source: Rajan 2005

108 Nijskens and Wagner 2011; also see Rajan 2005

109 Nijskens and Wagner 2011; also see Battaglia, F. and Gallo, A., Paper presented at XXI International Conference on Money, Banking and Finance *The impact of securitization on tail and systemic risk: evidence from the financial crisis*, December 2012

110 Idiosyncratic risk refers a risk that is specific to an asset, such as a company-specific risk or the risk that one mortgage borrower will not repay due to personal reasons. Such a risk can be mitigated or eliminated through diversification, i.e. lending to a large number of individuals. In contrast, systematic risk – also called market risk – is the risk inherent to the entire market, such as a market or economic downturn. It cannot be removed through diversification.

111 Nijskens and Wagner 2011

112 "*The exposure of banks to macroeconomic risk determines the risk potential concealed in the network of mutual credit exposures among banks.*" Elsinger, H., Lehar, A. and Summer, M., *Risk Assessment for Banking Systems, Management Science,* Vol 52, No. 9, pp. 1301-1314

113 Tarullo, D. K., Speech, Remarks on Macroprudential Regulation, 20 September 2013b

c. Manufacturing correlated tail risk

Through tranching, securitisation creates senior securities that are safe in most cases...

Tranching enables securitisation to repackage cash flows from underlying loans and create securities that are safe in most states of the world but become risky in others, contributing to tail risks[114]: the subordination process enables the creation of AAA rated senior tranches that are insulated from most losses as they are absorbed by the more junior tranches, but are still affected in case of extreme adverse events leading to very high losses in some cases.

The senior tranches created by tranching are thus not risk-free securities but "correlated tail risk"[115] securities. Buying them is comparable to buying catastrophe bonds or selling hurricane insurance, where you earn a little premium all the time, but are exposed infrequently to very high losses.

However, unlike hurricane insurance where the risk can be mitigated through diversification as it is uncorrelated – it is extremely unlikely that major hurricanes will happen in several places at the same time – the risk of senior tranches is much higher as it is correlated: senior tranches are exposed to extreme systematic risk[116]. While they would not experience losses in case of a minor market downturn (unlike the equity tranche), their losses are fully correlated with extreme market downturns. This means that under such scenarios all senior tranches would be affected at the same time, similar to an insurer faced with hurricanes happening the same month in every continent and country where he has sold insurance. This is obviously a much more serious risk, and one that cannot be eliminated through diversification.

... as losses will be first absorbed by other categories of securities

Correlated catastrophe risk is the hardest thing to evaluate for a re-insurer and requires a very careful and specific risk management, since the consequences of underestimating risk can be catastrophic.

These senior securities are not risk free, however. Buying them is comparable to selling hurricane insurance...

On top of filling senior tranches with extreme systematic risk, tranching also amplifies the impact of mistakes in the assessment of underlying asset default risk and correlation: as low correlation is what enables tranching to create senior tranches that are safer than the underlying collateral[117], senior tranches are extremely sensitive to correlation inputs, and a small underestimation can dramatically impact their rating and expected losses[118].

Yet **a combination of flawed compensation structures, undeserved attractive ratings and excessive demand for deposit-like safe assets from uninformed investors incentivised precisely poor risk management and a disregard for tail risks**[119] in the years pre-crisis.

Very attractive ratings and returns superior to corporate bonds with comparable ratings created a huge appetite for these structured securities, whereas the yield advantage came only from filling the securities with systematic risk and rating them incorrectly[120].

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114 IMF, Claessens, S. et al, Staff Discussion Note *Shadow Banking: Economics and Policy*, 4 December 2012b, SDN/12/12

115 Tail risk refers to the fact that the risk happens in extreme scenarios – the "tail" of the lognormal distribution. Tail risk is catastrophe risk.

116 "*The default risk of senior tranches is concentrated in systematically extreme adverse conditions.*" Coval, J.D., Jurek, J. and Stafford, E., *The Economics of Structured Finance*, Harvard Business School Working Paper 09-060, 2008; Systematic risk – also called market risk – is the risk inherent to the entire market, such as a market or economic downturn. It cannot be removed through diversification.

117 The lower the correlation between underlying assets in the pool, the lower the probability that senior tranches will experience losses, hence the higher the possibility for them to get a good rating.

118 Coval et al 2008

119 "*The ability of structured finance to repackage risks and to create safe assets from otherwise risky collateral led to a dramatic expansion in the issuance of structured securities, most of which were viewed by investors to be virtually risk-free and certified as such by rating agencies.*" Coval et al 2008

120 Ibid.

... but many investors pre-crisis treated them as risk-free

Misaligned compensation schemes also incentivised asset managers to purchase these securities as it is hard to distinguish between a good return coming from a talented asset manager or from taking catastrophe risk that materialises very rarely. The return of senior tranches was also sometimes treated as income, translating into bonuses, instead of being treated as insurance premium as it should have been[121].

As tranching attracted less informed investors – one of its very purposes since it is supposed to address asymmetry of information by providing less informed investors with safer tranches more insulated from defaults – it also attracted investors less equipped to properly manage this more complex risk, instead relying extensively on external ratings. The crisis showed indeed that *"investors ignored the aggregate, undiversified exposures to low-probability risks (such as a broad decline in U.S. house prices)."*[122] Yet it has been demonstrated precisely that investors ignoring tail risks makes the financial system vulnerable to crises and liquidity dry-ups[123].

The consequences were compounded when the size of the senior tranche was increased through an extensive use of fragile and inadequately capitalised credit enhancements, when these securities were used for funding, or when the banks kept the senior tranche, concentrating losses in financial intermediaries instead of spreading them, as we will discuss later.

Tranching also creates additional complexity and a greater risk of modelling error

More generally, by adding a significant degree of complexity in modelling correlation between the assets, tranching creates considerable model risk or uncertainty affecting in particular the middle tranches. While in non-tranched securitisation a change in correlation affects all securities uniformly, when tranching is introduced each tranche reacts differently to changes in correlation[124]. This additional complexity comes on top of the fact that the expected loss of the pool and the correlation within the pool both move at the same time and are very hard to estimate.

A recent BIS paper[125] called *"Securitisations: tranching concentrates uncertainty"* found that *"**Even when securitised assets are simple, transparent and of high quality, risk assessments will be uncertain.** (..) Substantial uncertainty would remain and would concentrate in particular securitisation tranches. Despite the simplicity and transparency of the underlying assets, these tranches would not be simple."*

It also creates conflicts of interests between investors in different tranches

Lastly, **tranching creates conflicts of interest between investors** in different tranches, the so-called "tranche warfare": in case some borrowers are unable to repay their mortgage, investors in senior tranches typically prefer to push for foreclosure over renegotiating the loan, as they would rather limit losses than take the risk of higher losses later that might affect them. On the contrary, equity investors who are immediately affected prefer renegotiating the mortgage with the hope that the borrower will eventually be able to repay all of it.

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121 Diamond and Rajan 2009

122 IMF 2012b

123 Gennaioli, N., Shleifer, A., and Vishny, R., *A Model of Shadow Banking*, Journal of Finance, 16 April 2012

124 As correlation between the assets in the pool increases, the type of loss incurred changes from small frequent losses to larger infrequent losses. The equity tranche absorbing the first losses sees its risk decrease as correlation increases, as it is not much affected by the size of possible losses but benefits from the lower probability of losses. Inversely the senior tranche sees its risk increase as correlation increases as the larger size of potential losses is more likely to affect it whereas small losses are likely to be absorbed by more junior tranches. Intermediate tranches face complex reactions as correlation changes. Also see Embrechts, P., ETH Zurich, ICA 2010 Key Note Address *Financial Market Crisis: Lessons Learned and Future Implications*

125 BIS, Antoniades, A. and Tarashev, N., *Securitisations: tranching concentrates uncertainty*, BIS Quaterly Review, December 2014f, pp. 37-53

It is important to remember that the tranching mechanism is not present in every type of securitisation. It is a feature of structured finance securitisation, a type of securitisation that was much more commonly observed going into the crisis than 'pass-through' Securitisations with no tranching[126]. Its development pre-crisis is linked to investors' endless appetite for highly rated liquid securities, banks' growing demand for the same securities for repo funding and to boost leverage[127] and an underestimation of correlations that enabled undeserved good ratings.

d. Modelling issues

There is a wide recognition that inadequate pricing of risk and inadequate ratings contributed significantly to the current crisis, and while many of the issues have been addressed, some crucial ones remain.

First micro-correlations were ignored. Micro-correlations are correlations between variables that are so small that they can easily go undetected. As an example *"we might not readily assume that fires in Australia and floods in California are correlated, but El Niño events induce exactly this coupling. Bankers may not have assumed that mortgage default rates around the country were correlated, but the correlation of default rates to general economic conditions creates this micro- correlation"*[128].

Pre-crisis risk assessments and ratings underestimated the correlations between loans in the pool...

While these tiny correlations are not very important between two variables, such as two mortgage loans, the larger the number of loans that are aggregated in a pool, the bigger the impact of micro-correlations between individual assets on the average correlation of loans in the pool, hence the higher the risk of joint default. **Ignoring micro-correlations therefore led to an underestimation of the risk and to a mispricing of securitization tranches**[129]. *"Very small global correlations, micro-correlations, are enough to undo the benefits from aggregating independent assets."*[130] When assets are correlated even at a micro level aggregation does not ease the risk of catastrophes.

... leading to undeserved good ratings and an underestimation of risks

What that meant in practice is that senior tranches that were rated AAA should have been rated BB, as the probability that they would experience losses was much higher than expected. That is not to say that there could not have been AAA tranches if correlations had been properly assessed, but rather that the AAA tranches would have been much smaller. In addition, securitisations have a wide range of structural features that do not exist for banks holding the underlying pool outright and that are impossible to capture in models[131].

Secondly the main formula behind the pricing of securitisations was misused and its limitations were ignored. Calculating the value of a pool of loans requires having enough historical data on actual defaults and correlations, a complicated task as defaults are rare in the real world. In 2000 a new formula started to be used that solved this problem: **the Gaussian copula**. The main idea behind it was that instead of looking for and computing all the default data, the model based its calculations on historical prices from the CDS market. CDS or credit default swaps are tailor made insurance contracts on the default of a specific company, and their price reflects how much the market thinks a default is likely.

126 BIS, Fender, I. and Mitchell, J., *Incentives and Tranche Retention in Securitisation: A Screening Model*, 2009

127 IMF 2012b

128 Kousky, C. and Cooke, R., M., *The Limits of Securitisation: Micro-correlations, Fat Tails andTail Dependence*, Delft University of Technology, 2011

129 Embrechts 2010

130 Kousky and Cooke 2011

131 BIS, Basel Committee on Banking Supervision, Consultative Document, *Revisions to the securitisation framework*, 2013a

The main formula used to assess risks was misused

Using this formula meant assuming that correlations were stable over time when once again *"the correlations between financial quantities are notoriously unstable."*[132] This formula enabled institutions to create a huge number of AAA securities through hiding the risks in the model, and was used by everybody from issuers to rating agencies and supervisors.

The issue as usual is not the formula itself, but how it is used and more specifically whether people using it keep in mind its limitations. This formula is still used today but in a more cautious manner.

Rating agencies also relied on flawed assumptions

Unrealistic credit rating and flawed correlation assumptions compounded the problem. Rating agencies made three critical assumptions: first they assumed that *"the performance of each individual mortgage was random and uncorrelated. Not only was this assumption untrue, but it relied on a second incorrect hypothesis: Mortgages and borrower behavior would be the same as in the past. Because the ratings agencies did not examine the underlying mortgages, they failed to see a shift in borrower behavior and mortgage terms. The emergence of speculative home purchases with 100 percent financing, and the emergence of low- and no-documentation loans meant that the environment was very different from the past, when homebuyers made significant down payments and lived in the houses they purchased"*[133].

Credit rating agencies also assumed that the property market would always rise, and did not even account for the possibility of a market decline in their models[134].

Additionally, there are substantial differences between corporate and structured securities when it comes to exposure to systematic risk. *"Unlike traditional corporate bonds, whose fortunes are primarily driven by firm-specific considerations, the performance of securities created by tranching large asset pools is strongly affected by the performance of the economy as a whole"*[135]. Therefore, while corporate bond ratings are largely based on firm-specific risk characteristics, the rating of asset backed securities must take into account systematic risk[136].

The practice of rating securitised exposures on the same scale as corporate bonds may create a false illusion of comparability, and *"provided access to a large pool of potential buyers for what otherwise would have been perceived as very complex derivative securities"*[137]. Some have called for a termination of the "one-size-fits-all" approach to rating

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132 Paul Wilmott quoted in Wired Magazine, Salmon F., *Recipe for Disaster: The Formula That Killed Wall Street*, 23 February 2009

133 Federal Reserve Bank of Dallas, Luttrell D., Rosenblum, H., Thies, J., Staff Papers NO. 18 *Understanding the Risks Inherent in Shadow Banking: A Primer and Practical Lessons Learned*, November 2012

134 Coval, J.D., Jurek, J. and Stafford, E., *The Economics of Structured Finance*, Harvard Business School Working Paper 09-060, 2008:

"*March 2007, First Pacific Advisors discovered that Fitch used a model that assumed constantly appreciating home prices, ignoring the possibility that they could fall. Robert Rodriguez (2007), the chief executive officer of First Pacific Advisors, describes the discovery. We were on the March 22 call with Fitch regarding the sub-prime securitization market's difficulties. In their talk, they were highly confident regarding their models and their ratings. My associate asked several questions.*

FPC: "What are the key drivers of your rating model?"
Fitch: "FICO scores and home price appreciation of low single digit or mid-single digit, as home price appreciation has been for the past 50 years."
FPC: "What if home price appreciation was flat for an extended period of time?"
Fitch: "Our model would start to break down."
FPC: "What if home prices were to decline 1% to 2% for an extended period of time?"
Fitch: "The models would break down completely."
FPC: "With 2% depreciation, how far up the rating's scale would it harm?"
Fitch: "It might go as high as the AA or AAA tranches.""

135 Ibid.

136 Federal Reserve Bank of New York 2008a

137 Coval et al 2008

methodology for fixed income instruments[138] and for **changes in rating scale for asset backed securities**[139] in order to limit *"the creation of pseudo-riskless securities"*. This would warn investors of the difference between single name and ABS ratings and *"prevent any ABS tranches for being thought of as near-riskless"*[140].

Other issues compounded the problems, such as conflicts of interest within rating agencies, the collaboration between rating agencies and issuers, the ability for issuers to "shop around" for a good rating, and the large weight given by rating agencies to credit enhancement compared to underlying asset quality. We will discuss these more in detail later.

The consequences of the modelling and rating issues described above were many: this led to an underestimation of risks (as pooling and tranching magnified the impact of underestimating correlations), unwarranted regulatory capital relief for banks enabling higher leverage and contributed to the failure of private backstops. The undeserved good ratings led funders to require very small haircuts on repo transactions thus enabling even higher leverage[141] and also created a huge appetite from investors while projecting an illusion of safety.

e. Interconnectedness

Securitisation creates a high level of interconnectedness between financial entities, much more so than traditional banking where credit intermediation is conducted under one roof.

Securitisation also creates more linkages between financial institutions, called interconnectedness...

Interconnectedness comes from the **chain of entities** involved in the different steps of the securitisation process, as the failure of one entity to perform can affect the others. **The provision of credit enhancement mechanisms** such as representations and warranties on the quality of the loans and credit guarantees and liquidity lines to conduits and SIVs – especially if they are implicit[142] or inadequately capitalised – increases interconnectedness, as it increases the risk that credit is not fully transferred and the risk of contagion between entities. The common practice of hedging some of the risks via credit default swaps further increases the network of claims between entities, contributing to heightened interconnectedness.

Additionally **interconnectedness comes as well from the correlation between assets and between banks' balance sheets**: the fact that different banks hold similar assets or assets whose values move in unison means that they are likely to experience losses at the same time, creating negative externalities such as fire sales of assets and downward price spirals. The correlation in banks' asset portfolios has even been found to be more important than financial linkages as a source of systemic risk[143]. Behavioural tendencies such as herding also increase the correlation between institutions by inducing more correlation in behaviour than desirable[144].

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138 Krahnen, J.P. and Wilde, C., *Risk Transfer with CDOs and Systemic Risk in Banking*, 5 June 2006

139 Stein, J.C., *Securitization, shadow banking & financial fragility*, Daedalus, Vol. 139, No. 4, pp. 41-51, Fall 2010

140 Ibid.

141 Federal Reserve Bank of Dallas 2012

142 Support from the originating bank to the SIV going beyond contractual arrangements, due to reputational risk or franchise concerns.

143 Elsinger et al 2011

144 Rajan 2005

Interconnectedness is the flipside of diversification, which helps reduce idiosyncratic risk but exposes the system to spillovers in the event of large shocks[145].

...increasing the risk of contagion and domino effects when some institutions experience difficulties

Interestingly however the alleged benefits of securitisation in sharing risk are now strongly questioned. As Mr Singh puts it "*the old view, now discredited, emphasized the positive role played by securitization in dispersing credit risk, thereby enhancing the resilience of the financial system to defaults by borrowers*"[146].

Furthermore **interconnectedness increases procyclically together with leverage via the lengthening of intermediation chains**: banks increase their leverage during booms by lending more to each other, leading to longer intermediation chains and a more far-reaching intertwining of claims and liabilities[147]. *"Interconnectedness increases, as measured by CoVaR (Value-at-Risk of institutions conditional of distress of other financial institutions) [and] the structure becomes more precarious"*[148]. The highly interconnected nature of financial institutions explains why systemic risk increases during a boom scenario. *"Long intermediation chains carry costs in terms of greater amplitude of fluctuations in the boom bust cycle of leverage and balance sheet size. Shorter intermediation chains carry benefits for stability of the financial system"*[149].

As it increases the probability of joint failure of financial entities, interconnectedness is therefore a major factor of systemic risk. The fact that it increases in tandem with leverage – another major factor of systemic risk – is thus particularly problematic. **Interesting proposals have been put forward to restrain the length of intermediation chains** and encourage the formation of shorter intermediation chains, such as promoting covered bonds instead of securitisation[150]. We will discuss this later.

f. Overreliance on external risk assessments

The process of securitisation disincentivises investors' own risk assessment for a number of reasons: first the use of quantitative models leads to a destruction of information, as these models rely on standardized aggregate facts disregarding soft data about borrowers' creditworthiness and local contexts[151]. In turn this does not foster looking for information but instead contributes to increased herding.

Securitisation increases investors' reliance on external risk assessments...

... due to the number of loans and the complexity of structure

The large number of loans pooled together, the expertise and tools required to assess the risks, the existence of representations and warranties on the quality of the underlying loans and the presence of credit guarantees further deter investors from performing due diligence. Additional factors compounded this before the crisis, such as the excessive complexity of the structures, the lack of transparency, and regulation placing *"undue mechanistic reliance on external ratings"*[152].

Lastly, tranching further deters investors from assessing properly the risks, as the creation of "pseudo-riskless" securities attracts investors lacking adequate information or expertise but feeling protected by the junior tranches.

145 IMF 2012b see also Rajan 2005

146 BIS 2010

147 Ibid.

148 Ibid.

149 Ibid.

150 Ibid.

151 Aalbers, M.B., *The Financialization of Home and the Mortgage Market Crisis*, Competition & Change - The Journal of Global Business and Political Economy, Volume 12, Issue 2, June 2008, pp. 148-166

152 BIS 2013a

Instead securitisation incentivised investors' reliance on external risk assessments, including the due diligence and representations of originators[153], the due diligence and monitoring of holders of junior tranches and external ratings.

Investors can be tempted to rely on the originating bank for the due diligence...

Relying on external risks assessments is problematic because it **requires fully aligned incentives** between originators, junior tranche holders and senior tranches holders which is not always the case. It also **reduces the diversity of views and magnifies the impact of a few people getting it wrong**. As an example, investors in subprime ABS were vulnerable to the ability of rating agencies to predict turning points in the housing cycle and respond appropriately[154]. More generally it is much healthier when investors understand the risks that they are taking and are able to assess them. When investors care about risk they are generally good at it, the problem is when they start not caring, rely on a few entities to perform the due diligence and become more likely to herd.

... as well as relying on holders of junior tranches and on external ratings

The impact of relying on credit rating agencies proved particularly problematic during the crisis due to a number of factors that have since been mostly addressed[155]. In addition to the aforementioned modelling issues and procyclicality in credit enhancements to keep ratings stable, issues also included the collaboration between rating agencies and issuers in order to get the best rating, which magnified the impact of the models' flaws. They included as well the ability for issuers to "shop-around" between agencies for the best rating[156], conflicts of interests linked to the "issuer-pay model"[157] and the fact that rating agencies derived at some point almost half of their revenues from rating structured finance deals.

Yet despite all these failings credit ratings were the major driver behind investors' demand for these products, as ratings were embedded in their investment mandates. As a recent IMF report puts it "*many investors became excessively reliant on external credit ratings for two principal reasons. First, the mandate of many investors explicitly referenced credit ratings as the basis for investment eligibility. Second, many investors did not have sufficient internal resources to conduct in-depth independent credit analysis across the broad spectrum of fixed-income products, particularly with regards to securitization.*"[158] This created in turn damaging cliff effects, as many investment mandates forbade investors from owning non-investment grades assets[159], leading to asset sales in cases of rating downgrades.

Recent proposals aimed at standardising structures, increasing transparency and access to loan-level data, addressing conflicts of interest and at removing references to external

153 *"Other participants in the securitisation chain came to rely heavily on the representations and warranties made by originators, rather than on their own due diligence efforts. While representations and warranties allowed investors to return loans that failed contractual standards regarding collateral quality and compliance with legal requirements, they were not necessarily effective screening mechanisms."* BIS 2009

154 Federal Reserve Bank of New York 2008a

155 European Commission, MEMO *New rules on credit rating agencies (CRAs) enter into force – frequently asked questions*, 18 June 2013d

156 Federal Reserve Bank of New York 2008a

157 "*The ratings agencies' shift from an investor-pay to an issuer-pay business model degraded the value of the evaluations provided because the agencies faced little risk from inaccurate ratings.*" Federal Reserve Bank of Dallas 2012

158 IMF, Segoviano, M., Jones, B., Lindner, P. and Blankenheim, J., *Securitization: Lessons Learned and the Road Ahead*, WP/13/255, November 2013b

159 An asset is considered investment grade if its ratings is BBB- or higher. Non-investment grade ratings are below BBB-.

ratings in regulation go in the right direction[160]. They are however unlikely in our view to comprehensively address the issue as originators will always be better positioned to exert due diligence due to the soft data and personal relationships that they have, and as senior tranche holders will never have the early warning signals that junior tranche holders do. It is also not clear that more access to information will automatically translate into investors using it.

Standardising the structures and improving the disclosure of information does not mean that investors will use this additional information

As importantly, a revival of structured finance securitisation would attract a wider pool of investors including less expert and less informed ones – one of its very purposes – that do not have always the resources to perform their own risk assessments. **This in turn raises the interesting question of whether we consider that reliance on external risk assessments is a necessary element of our financial system, given the limited amount of expertise and resources available.** We believe that reviving structured finance securitisation would implicitly answer positively to this question despite increased transparency and product standardisation, conflicting with the European Commission's objective to reduce reliance on external ratings.

g. Fragile private backstops

Securitisation increases procyclicality and creates additional liquidity needs, whereas it reduces banks' ability to play their countercyclical role. The crisis showed the unreliability of private backstops, yet non-bank financial intermediaries do not have an explicit and direct access to public safety nets.

As securitisation increases procyclicality, it requires some institutions to be able to buy when everybody wants to sell

Due to the procyclicality of our financial system, **financial stability requires some entities to be able to lever up and provide liquidity in a countercyclical manner,** being willing to buy when everybody wants to sell in order to avoid downward price spirals. As **securitisation leads to higher procyclicality and increases liquidity needs, it increases the need for such countercyclical backstops.** Liquidity needs are increased in securitisation as new inexperienced and less sophisticated players are drawn in, as more complicated instruments are used and larger positions can be built up thereby increasing uncertainty[161], and as market participants rely more on the availability of market liquidity.

The crisis showed, however, the weakness of such private countercyclical backstops

Yet **the crisis showed that private sector safety nets provided inadequate protection in times of stress**, as market participants lost faith in the providers of the guarantees[162]. The failure of private sector guarantees to support the shadow banking system stemmed from excessive credit and liquidity transformation, enabling the creation of an excessive amount of allegedly safe assets and creating phantom liquidity[163] at the expense of financial stability.

This excessive transformation was caused by the underestimation of asset price correlations by every relevant party[164], inadequately capitalised guarantees[165], flawed credit

160 Although using instead banks' internal models may not be much of an improvement, given the room for tinkering.

161 Rajan 2005

162 Federal Reserve Bank of Dallas 2012

163 Liquidity provided to the market on the back of potentially systemically risky practices. See IOSCO, Media Release *IOSCO Research publishes paper on Corporate Bond Markets*, 15 April 2014

164 Federal Reserve Bank of New York, Poszar, Z., Adrian, T., Ashcraft, A. and Boesky, H., *Shadow Banking*, Staff Report no. 458, July 2010 (Revised February 2012)

165 On the collapse of monoline insurers see Acharya, V., Biggs, J. Richardson, M. and Ryan, W., *On the Financial Regulation of Insurance Companies*, NYU Stern School of Business, August 2009b and Wells Fargo, *Deterioration of Monoline Insurance Companies and the Repercussions for Municipal Bonds*, Wells Fargo Funds Management 2008 and Xinzi, Z., AIG, *Credit Default Swaps and the Financial Crises*, Risk Radar Report, Risk Management Society, Nanyang Technological University, May 2013

risk transfer[166], uncertainty created by implicit support and concerns about the solvency of backstop providers and their inability to be countercyclical.

Securitisation also reduces banks' ability to play this countercyclical role

Despite their intent to increase stability, credit enhancements have been found to be in fact long run destabilizers, as they enable more risk taking and in cases where they are improperly funded. *"Regardless of its economic validity, the way in which the shadow banking system created safe assets was risky and unstable"*[167]. This fragile transformation process created a risk of detransformation in times of stress, when investors realised that many securitised products were not as safe and liquid as expected, leading to a flight to quality and liquidity.

Banks functioned well in the past as providers of liquidity in times of stress since there was no concern about their solvency. **Banks' involvement in securitisation however reduces their ability to play their countercyclical role**, as it enables more risk taking, increases their exposure to systemic risk and increases their reliance on market liquidity, creating concerns about their solvency in times of stress, and incentivises them to feed the cycle instead[168].

The private sector as a whole cannot reduce its risk unless a public entity is willing to take on this risk

Yet *"in order for some participants to deleverage, or liquidate their positions, offsetting parties must be willing to assume those positions on an order of magnitude matching the demand for liquidity. (..)* ***The private sector as a whole cannot delever unless the Fed or some other public sector entity is willing to lever up its balance sheet*** *to put a floor under otherwise declining asset values and net worth"*[169]. As the leveraged agents are all on the same side of the trade[170], the private sector cannot provide the countercyclical backstops required by the procyclicality of the system.

"Liquidity for everyone is an illusion absent banks' special access to deposit insurance and to a lender of last resort in times of severe financial difficulties or unusual and exigent circumstances. Although an individual may consider his or her specific positions liquid, the same cannot be true for all market participants collectively"[171].

This is why public safety nets were introduced for banks

This is precisely why public safety nets were introduced for banks in 1933, as it was acknowledged that credit transformation is an inherently unstable and risky activity requiring public backstops, namely deposit guarantee schemes and access to central bank liquidity, to be made stable. *"Except for a few idiosyncratic instances since the introduction of deposit insurance in 1933, bank runs have been rendered a thing of the past"*[172].

166 When banks sold assets but provided guarantees at the same time, reducing their measured risk without truly transferring the risk. This is a form of regulatory arbitrage that we will describe later.

167 IMF 2012b

168 Rajan 2005: "*Perhaps the most important concern is whether banks will be able to provide liquidity to financial markets so that if the tail risk does materialize, financial positions can be unwound and losses allocated so that the consequences to the real economy are minimized. Past episodes indicate that banks have played this role successfully. However, there is no assurance they will continue to be able to play the role. In particular, banks have been able to provide liquidity in the past, in part because their sound balance sheets have allowed them to attract the available spare liquidity in the market. However, banks today also require liquid markets to hedge some of the risks associated with complicated products they have created, or guarantees they have offered. Their greater reliance on market liquidity can make their balance sheets more suspect in times of crisis, making them less able to provide the liquidity assurance that they have provided in the past. (..) Can banks step up to provide the needed liquidity via taking contrarian positions? No because they can't take large trading positions, can't carry a losing position for too long and have quarterly profits. More problematic, however, is that because they typically can sell much of the risk off their balance sheets, they have an incentive to originate the assets that are in high demand and, thus, feed the frenzy.*"

169 Federal Reserve Bank of Dallas 2012

170 Acharya, V., Cooley, T., Richardson, M. and Walter, I., *Manufacturing Tail Risk: A Perspective on the Financial Crisis of 2007–2009*, Foundations and Trends in Finance, Vol. 4, No. 4, 2009a, pp. 247-325

171 Federal Reserve Bank of Dallas 2012

172 Tarullo, D. K., Speech, *Shadow Banking and Systemic Risk Regulation*, 22 November 2013c

Extending these public safety nets to entities involved in securitisation would increase moral hazard

Shadow credit intermediation however does not have a direct and explicit access to these safety nets, even though it can access implicit or indirect ones[173] and was in effect publicly backstopped during the crisis[174] when indirect and private sector safety nets provided inadequate protection. "***The distinguishing characteristic [of securitisation transformation] is the absence of explicit public sector backstops,*** *leaving shadow intermediation activities susceptible to runs."*[175]

Just as it is acknowledged that traditional banking cannot be stable without access to direct public backstops, one might therefore wonder whether securitisation can ever be stable without it.

This in turn raises the question of whether public safety nets should be officially extended to non-bank financial intermediaries. "*It remains an open question whether or not the "parallel" banking system will ever be stable through credit cycles in the absence of official credit and liquidity puts. If the answer is no, then there are questions about whether or not such puts and the associated prudential controls should be extended to parallel banks, or, alternatively, whether or not parallel banking activity should be severely restricted.*"[176]

We agree with the view that explicit and direct access to public safety nets are public goods meant only for those under the supervisory and regulatory umbrella of the supervisory authorities[177]. We also support the view that since public support can create moral hazard, **we should be wary of any extension of the government safety net and should prefer a regulatory approach that requires market actors to internalize the social costs of their activities**[178].

Some interesting proposals have been put forward to address this issue, such as curbing procyclicality, promoting more conservative structuring, remunerating those who maintain spare risk-bearing capacity or introducing insurance premiums such as additional contingent capital tied to the contribution to systemic risk[179].

h. Excessive maturity transformation and overreliance on wholesale funding

Securitisation involves maturity transformation, when the institutions which purchase securitised assets fund their purchase through shorter term debt

Maturity transformation refers to the use of short-term debt to fund long-term loans. Traditional banks perform this transformation when they provide long term loans and fund them with retail deposits in addition to their own capital.

Maturity transformation in securitization occurs during the transformation process, when for example mortgages loans warehoused and waiting to be securitized are funded with the issuance of very short term notes.

More importantly **maturity transformation takes place through the funding choices of the investors**: the securities created through the securitization process are bought by a number of different market participants, including pension funds, insurers, hedge funds, structured investment vehicles, conduits and investment banks.

While some of these investors use their own capital, other investors fund a significant part of their purchase by borrowing short term and using the asset as collateral or by issuing short term notes. As an example, a structured investment vehicle investing in mortgage

173 Federal Reserve Bank of New York 2010

174 Ibid.

175 Federal Reserve Bank of Dallas 2012

176 Federal Reserve Bank of New York 2010

177 Ibid.

178 Tarullo 2013c

179 Acharya et al 2009a

backed securities will finance most of the purchase by issuing both long term notes and short term notes. The short term notes – called asset backed commercial paper – have an average maturity of 30 days and will be sold to money market funds. The money market funds in turn also perform maturity transformation as they invest in 30 days notes but offer their own investors daily redemption.

The reliance on short term collateralised funding to fund securitisation exposures increased greatly before the crisis

Wholesale funding refers to this use of short term market collateralised[180] funding provided by entities such as money market funds and securities lenders. It is to securitization what retail unsecured deposits are to traditional banking. In the pre-crisis period the growth of securitization was accompanied by a growing reliance on short-term funds raised in wholesale markets to finance securities and activities essential to securitization[181].

To give an order of magnitude of its importance, it has been found that *"before the crisis, **market participants commonly borrowed 90 percent of the value of AAA-rated MBS**"*[182], and that "*the use of overnight repos became so prevalent that, at its peak, the Wall Street **investment banks were rolling over a quarter of their balance sheets every night**"*[183].

More generally even though a number of banks shifted from wholesale funded to retail models post crisis[184], large European banks were found to *"have the highest level of reliance on wholesale funding, averaging 61% of total liabilities, twice more than in Asia"* (33%) or than large US banks (31%)[185].

The growing use of wholesale finance was driven both by demand and supply factors: on the demand side it was more profitable to use short term funds to finance longer-term assets since short term rates are often lower than longer ones. On the supply side such funding was plentiful due to the growing institutionalization of savings that created an insatiable demand for safe liquid assets and to the perception that these assets were safe.

The extensive use of short term collateralised funding was found to be a critical factor in the crisis...

The extensive use of short term wholesale funding in the years leading up to the crisis has been found to be a critical factor in triggering systemic risk episodes[186], ultimately leading to the extension of public safety nets to backstop key wholesale funding markets[187].

The growing reliance on short term funding to finance longer term assets increased liquidity risks, the risk that firms could not renew their short term funding: uncertainty about an entity's solvency or about its ability to roll over its funding from other sources would push short term lenders to not renew their lending – a classic case of run – or to increase

180 As discussed earlier some forms on wholesale funding such as commercial paper are uncollateralised, but we refer here to the collateralised forms such as securities financing transactions.

181 Federal Reserve Bank of New York, Dudley, W.C., Speech *Fixing Wholesale Funding to Build a More Stable Financial System*, Remarks at the New York Bankers Association's 2013 Annual Meeting & Economic Forum, The Waldorf Astoria, New York City, February 2013. Also see Federal Reserve Bank of New York 2010.

182 Federal Reserve Bank of Dallas 2012

183 BIS 2010

184 BIS, BIS 84th Annual Report, *VI. The financial system at a crossroads*, 29 June 2014d, pp 103-121

185 IMF, Le Leslé, V., *Bank Debt in Europe: "Are Funding Models Broken?"*, WP/12/299, December 2012c. The IMF refers to large European banks. Other figures encompassing a wider spectrum of banks show a lower figure of 15%, see ESRB, Keller, J. et al., Occasional Paper Series No. 6, *Securities financing transactions and the (re)use of collateral in Europe*, 2014b

186 IMF, Lopez-Espinosa, G., Moreno, A., Rubia, A. and Valderrama, L., *Short-term Wholesale Funding and Systemic Risk: A Global CoVaR Approach*, WP/12/46, February 2013a

187 Federal Reserve Bank of New York 2013

haircuts, **leading to fire sales of assets and intertwined downward spirals in assets and funding markets**[188].

... leading to fire sales of assets and downward price spirals

As an example, an entity that had bought $1 billion of auto loan ABS with $20 million capital and borrowed $980 million overnight (hence a 2% haircut) could find suddenly when it needed to renew the loans that it could now only borrow $500 million against its assets, and had to post a $500 million downpayment (hence a haircut of 50%) instead of $20 million[189]. If it did not have the cash to do so, it would be forced to liquidate its assets. The resulting decline in asset prices increased the incentives for investors to run and affected the value of similar assets held by other institutions with maturity mismatches, forcing them to sell and further fueling the downward price spiral.

"Not only did this aspect of our financial system create the potential for a firm to fail in an extraordinarily rapid manner when faced with a loss of market confidence, but it also served as a channel through which the effects of those failures were widely propagated throughout the broader financial system"[190].

It also exposed banks to a greater funding risk

Their reliance on wholesale funding exposed banks to a greater funding risk, mostly systemic in nature[191]. When both the markets for securitized assets and the markets for funding these assets collapsed, securitization vehicles could no longer refinance themselves, forcing banks to either provide liquidity lines to these vehicles or take the assets back on their balance sheets, since they could no longer sell the assets they had originated for securitization purposes[192].

It has been found that banks with excessive short-term funding ratios are typically more interconnected to other banks, more vulnerable to market conditions and liquidity risk and that short-term wholesale funding is the most significant balance sheet determinant of individual contributions to global systemic risk[193].

This reliance on short term funding is however a recent phenomenon

At a time when securitisation is being promoted as a way to *"reduce the potential for concerns to arise around banks' balance sheets, thus limiting the degree to which banks' funding sources are withdrawn during times of stress"*[194], it is thus essential to distinguish between different types of securitization. Insofar as securitisation structures rely on bank support and enable banks to increase their reliance on wholesale funding, they may actually have the opposite effect.

More broadly in the context of the long term financing initiative, it is also interesting to note that **historically the provision of mortgages did not always involve maturity transformation**: earlier mortgage systems before the financial deregulation of the 1990s and 2000s relied on dedicated state-owned housing banks or banks issuing long term bonds to investors but keeping the mortgages on their balance sheets – what we would now call covered bonds. In both cases private banks were not exposed to maturity mismatches and the system was less procyclical and more stable[195].

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188 Ibid.

189 This example is borrowed from Stein 2010.

190 Federal Reserve Bank of New York 2013

191 Battaglia and Gallo 2012

192 Nijskens and Wagner 2011

193 IMF 2013a

194 Bank of England and ECB 2014

195 Schwartz, H., *Mortgage Markets and Macro-Instability*, International Encyclopedia of Housing and Home, pp. 501-506, 2012

Several interesting proposals have been formulated to address the negative externalities of wholesale funding and deserve strong consideration, such as regulating haircuts in the ABS market[196], requiring that a greater proportion of marked-based finance be funded by longer-term debt[197], capping the re-use of collateral or redesigning banks' liquidity ratios.

PRE-CRISIS ADDITIONAL RISKS

Additional risks played a major role in the crisis but are now mostly addressed

All the risk factors described above were compounded by additional risks that developed in the years pre-crisis, and are now mostly addressed. They are described here in order to provide a more complete picture and as some of them might re-emerge in the future. Readers familiar with the crisis may want to skip this part.

i. Decline in lending standards

The pre-crisis years in the US saw a combination of misguided policy incentives to increase home ownership in an unsustainable manner, conflicts of interests in the credit intermediation chain, excess bank balance sheet capacity[198] and lack of appropriate regulation. Together these factors led to the rise of the originate-to-distribute model, the development of non-traditional securitisation and a dramatic decline in the quality of the assets being securitised.

Lending standards declined due to conflicts of interests, lack of regulation and misguided policy incentives

Conflicts of interests were present at all stages between the different entities involved in the securitisation intermediation chain[199]: lenders used predatory practices to attract unsophisticated borrowers, they also used their informational advantage to securitise bad loans and keep the good ones, mortgage servicers were incentivised to inflate their fees, asset managers did not perform enough due diligence on behalf of the investors and were incentivised by misconceived compensation schemes to purchase tail risk, and credit rating agencies being paid by issuers were incentivised to provide favourable ratings.

As loans were granted for the purpose of repackaging and selling them to investors, this led to reduced accountability and created moral hazard.

In turn this led to a decline in underwriting standards and transparency: lenders started to provide loans with high loan to value ratios to borrowers with low creditworthiness and sometimes without any documentation regarding their creditworthiness[200]. *"In the end, the only constraint on underwriting standards was the opinion of the rating agencies"*[201].

The decline in underwriting standards resulted in lower loan quality and a rise in defaults that credit rating agencies failed to integrate in their ratings.

Recent prudential regulation requiring banks to keep 5% of the securitised exposures is meant to address one of these conflicts of interests, by incentivising the originating bank to securitise good quality loans. It has however been found that **retention requirements do not necessarily provide the necessary discipline if the equity tranche can be too**

196 Stein 2010

197 Federal Reserve Bank of New York 2013

198 *"Under a boom scenario, the problem is that there is too much equity in the banking system. There is overcapacity in the sense that the level of aggregate capital is too high. Capital is higher than is consistent with only prudent loans being made. Overcapacity leads to the chasing of yields and the lowering of credit standards."* BIS 2010

199 The 7 frictions in the securitisation process, see Federal Reserve Bank of New York 2008a

200 The famous NINJA loans: loans to those with no income, no job and no assets.

201 Federal Reserve Bank of New York 2008a

quickly exhausted[202]. It would instead be preferable if banks either kept the mezzanine tranche or a thick vertical slice of the whole portfolio as was originally proposed by the European Commission[203].

j. Flawed credit risk transfer

Some types of securitisation did not truly transfer risk to outside investors

Some forms of securitisation in the years leading to the crisis were a way for banks to do regulatory arbitrage[204]: they would sell assets to a conduit (a special entity that they set up and own as a subsidiary) while providing credit and liquidity guarantees to the conduit, in case the underlying loans failed to perform as expected. While this failed to transfer the risk to outside investors, prudential regulation considered the risk to be transferred and therefore provided banks with capital relief, when in fact the risk was merely shifted off-balance sheet or ignored (in the case of implicit support) or hidden in the model (due to modelling issues).

As noted by Acharya "***especially from 2003 to 2007 the main purpose of securitization appeared not to have been to share risks with investors, but to make an end-run around capital adequacy*** *regulations applied to financial intermediaries"*[205]. *"We document that commercial banks set up conduits to securitize assets while insuring the newly securitized assets using credit guarantees. Losses from conduits mostly remained with banks rather than outside investors. These results suggest that banks used this form of securitization to concentrate, rather than disperse, financial risks in the banking sector while reducing their capital requirements"*[206]. Banks guarantees to conduits were 100% and unpriced and guarantees were structured in a way that reduced regulatory capital requirements[207].

In addition the support provided by banks to conduits went beyond contractual arrangements, due to reputational risk, or in other words for fear that failure to do so would impair their future access to capital markets. Since it was not contractual, this implicit support added uncertainty to the extent of the transfer and the potential liabilities facing originating banks.

More generally it is important to understand the difference between selling assets and issuing liabilities against them: in the first case, the risk is fully transferred, no additional interconnectedness is created. In the second, even though assets are sold to a SPV that is a separate legal entity, the issuer still has residual exposures to the assets, whether from liquidity support or credit guarantees provided or retained interest (equity tranche).

"By issuing liabilities against bad loans, you do not get rid of the bad loan. The hot potato is sitting on your balance sheet or on the books of the special purpose vehicles that you are sponsoring. Thus, far from passing the hot potato down the chain to the greater fool next in the chain, you end up keeping the hot potato"[208].

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202 "*When the probability of an unfavourable realisation of the systematic factor is high, and when the equity tranche would be exhausted if this unfavourable realisation were to occur, the originator holding the equity tranche may have less incentive to exert effort to screen borrowers than the originator holding a mezzanine tranche of equal "thickness" or a slice of the loan portfolio.*" BIS 2009

203 Ibid.

204 Acharya, V., Schnabl, P. and Suarez, G., *Securitization without risk transfer*, NBER Working Paper No. 15730, February 2010

205 Acharya et al 2009a

206 Acharya et al 2010

207 Acharya et al 2009a

208 BIS 2010

k. No risk spreading: retaining the AAA

From 2003 banks also started to keep the senior tranches instead of selling them, as their models considered that they were almost risk free

From 2003 to 2007 large financial institutions shifted their business model and started to retain part of the senior tranches that they issued and buy one another's AAA-rated tranches.

This was another form of regulatory arbitrage, since these tranches were considered safe and did not require much regulatory capital while they provided a return superior to other investments with a comparable rating. Asset managers' flawed compensation schemes incentivised them to purchase this tail risk, as they didn't differentiate adequately return coming from good investments or from taking catastrophe risk[209], and as the banks' internal models also underestimated the risk of these securities[210].

However this also meant that banks kept these AAA tranches without sufficient capital to back the related risks, the very purpose of regulatory arbitrage.

Large systemic banks *"ignored their own business model of securitization and chose not to transfer credit risk to other investors. Instead, they employed securitization to manufacture and retain tail risk that was systemic in nature and inadequately capitalized thanks to regulatory arbitrage"*[211].

As a result very little risk was ultimately transferred to investors

Banks held massive amounts of AAA. "*The financial statements of some banks revealed large holdings of these "toxic" securitized products. Citigroup disclosed that, at the end of September 2007, the total amount of their subprime-related direct exposures in securities and banking, which comprised net collateralized debt obligation (CDO) super-senior exposures and gross lending and structuring exposures amounted to US$54.6 billion. This amount decreased to US$19.6 billion one year later; at the end of March 2009, there was still US$10.2 billion in these investments*"[212].

It has been found that "***the portion of AAA tranches of securitized assets held by U.S. and European banks was by 2006 at least a third of total issuance***"[213]. It was also found that *"when the crisis hit, of the $1.25 trillion in asset-backed securitized vehicles,* ***only 4.3% of the loss was structured to remain with investors.*** *The remaining loss wiped out significant portions of bank capital and threatened banks' solvency"*[214].

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209 BIS 2011a : *"Up-front fee generation and volume-based compensation schemes did not tie the long-term performance of the originated"*; also see Rajan 2005.

210 *"Starting in 2006, however, the CDO group at UBS noticed that their risk-management systems treated the AAA securities as essentially riskless, even though they yielded a premium (the proverbial free lunch). So they decided to hold onto them rather than sell them. After holding less than $5 billion of these securities in February 2006, the CDO desk was warehousing a staggering $50 billion of them by September 2007. Incredibly, this happened even though the housing market had turned south in June 2006."* Acharya et al 2009a

211 Ibid.

212 Asian Development Bank Institute, Fujii M., *Securitized Products, Financial Regulation, and Systemic Risk*, ADBI Working Paper Series No. 203, March 2010

213 IMF 2012b

214 Acharya et al 2009a

Figure 12: Holdings of mortgage-related debt by financial institutions (2007)

Type of financial institutions	Loans	HELOC	Agency MBS	Non-Agency AAA	CDO subord.	Non-CDO subord.	Total	Percentage of out-standing volume
Banks and Thrifts	2,020	869	852	383	90		4,212	39%
GSEs and FHLB	444		741	308			1,493	14%
Brokers/ dealers			49	100	130	24	303	3%
Financial Guarantors		62			100		162	2%
Insurance Companies			856	125	65	24	1,070	10%
Overseas			689	413	45	24	1,172	11%
Other	461	185	1,175	307	46	49	2,268	21%
Total	2,925 27%	1,116 10%	4,362 41%	1,636 15%	476 4%	121 1%	10,680	

Source:
Acharya et al 2009a

Banks did not have enough capital to face the risks

Several prominent figures have argued the fact that banks accumulated the tail risk in securitisation was the main cause of the crisis[215], as this **risk was systemic, inadequately capitalized and concentrated losses among financial intermediaries**. "*Securitization was meant to disperse credit risk to those who were better able to bear it. In practice, securitization appears to have concentrated the risks in the financial intermediary sector itself"*[216]. The fact that these assets were financed with short-term market borrowing compounded the risks.

Current initiatives to revive securitization aim at truly sharing risk in the future. While this is undoubtedly a good development, other issues have to be addressed for risk sharing to have a truly positive impact: as long as the process to create safe assets is risky and unstable, increases global risk taking and the probability of joint bank default, sharing risk might spread uncertainty and give crises wider latitude.

In addition it is interesting to note that risk will be shared with pension funds, money market funds and insurers, the same entities who fund two thirds of EU largest banks' liabilities via securities financing. Thus while risk would be less concentrated, it might still contaminate banks.

I. Excessively complex structures

A number of structures developed pre-crisis that added additional complexity, also magnified the impact of mispricing and reduced investors' ability to assess risk themselves. Following the crisis, these structures are now largely a thing of the past and the trend is now towards standardization.

Resecuritisation is one example of practice that proved problematic. In a structure like a CDO of ABS[217] the lower quality securities issued in the original securitisation process are

215 Ibid.

216 BIS 2010, also see Federal Reserve Bank of New York, Adrian, T. and Song Shin, H., *Liquidity and Leverage*, Staff Report no. 328, May 2008 (Revised December 2010)

217 This esoteric acronym standing for collateralized debt obligation of asset backed securities

used as underlying assets to be securitized a second time. The aim is to further enhance non-investment grade rated tranches of ABS (eg mezzanine), and create more AAA rated securities, since these are the ones that investors are most willing to buy. In essence the purpose of resecuritisation is to create more pseudo-riskless securities from low quality risky underlying assets. A poor analogy would be to compare it to cooking and seasoning twice poor quality meat to make it taste good.

If the process is not sufficient to obtain the desired rating, a third round of credit enhancements and transformation can take place, creating so-called CDO squared, and if necessary a fourth time, creating CDO cubed. The lower the quality of the underlying assets, the longer the process.

Structures also grew more complex before the crisis, increasing the risk of model error...

However not only did these structures dramatically obscure the quality of the original underlying assets, they also increased pricing uncertainty and magnified the impact of modelling issues as these structures were far more sensitive to correlations and changes in the default rate of underlying assets. As a consequence their quality and ratings were far less reliable than those of simpler structures, leading to dramatic rating downgrades during the crisis.

Synthetic securitizations are another example of controversial structures. Synthetic CDOs do not involve the transfer of assets such as loans. Investors gain exposure to a portfolio of assets via the use of credit default swaps, essentially selling tailor made insurance contracts against the default of specific counterparties and earning a premium for it. Synthetic CDOs have been described as bets on the performance on a pool of assets such as mortgages.

... and reducing investors' ability to assess the risks themselves

The issue was first that as the investors were not always regulated unlike insurance companies, they proved not always to have enough reserves to honor their commitments, making their insurance worthless.

More importantly, because they are not limited by the number of existing mortgages and other loans, one could create an unlimited number of synthetic CDOs referencing a single pool of loans, amplifying dramatically the exposure and the losses linked to the loans defaults.

Whereas with real insurance only the owner or tenant of a house, let's call him Mr Smith, can legally purchase a fire insurance policy on his house, with synthetic CDOS, all of his neighbors could also purchase a fire insurance policy on Mr Smith's house. Synthetic securitization thus enabled speculators to increase the size of society's bets on the property market without financing a single house.

Lastly in some cases, synthetic securitisations were used by issuers of securitization as a way to bet on the default of the same securities they issued and sold to their customers, similar to buying insurance on someone else's house and committing arson[218].

m. Lack of transparency

Investors also lacked adequate information, further increasing their reliance on ratings

Unlike issuers and credit rating agencies, pre-crisis investors did not have access to detailed data on the underlying loans, their performance and the structure. The complexity of the structures or the total absence of documentation in some cases further complicated the task of investors willing to assess the risks for themselves.

This lack of transparency increased investors' reliance on originators and credit rating agencies' due diligence, reducing the diversity of views, increasing herding and magnifying the impact of a few entities underestimating the risks. It also increased the panic when

218 New York Times, Morgenson, G. and Story, L., *Banks Bundled Bad Debt, Bet Against It and Won*, 23 December 2009

losses on securitised assets started to increase as investors did not have the means to differentiate adequately between those backed by sound assets and the others. This issue is however now well in the process of being addressed and strong recommendations to improve disclosure have been put forward[219].

4. The features that create these risks

Most of these additional risks are now addressed and post-crisis securitisation is vastly different...

Excluding pre-crisis issues that are now mostly addressed (lack of transparency, complexity, conflicts of interest, misaligned compensation structures, the securitisation of non-standard assets, regulatory arbitrage and modelling issues) and exogenous factors such as misguided policy incentives, the risks described above are linked to a limited number of features. While it is important to emphasize that post crisis securitisation is vastly different from its pre-crisis form and much simpler, these features still exist in the post-crisis form:

... but some features creating risks still exist

The **process of securitisation itself** creates some of the risks identified: the transformation of loans into securities, market driven lending decisions and the related destruction of soft data on borrowers’ creditworthiness lead to higher procyclicality, a lower diversity of views and less thorough risk assessments. Compared to traditional banking the process also increases interconnectedness through longer intermediation chains.

Tranching, for example, still exists, despite creating complex risks very hard to modelise, increasing procyclicality and creating conflicts of interest

Secondly, **tranching** is responsible for a large number of the aforementioned risks: it creates model uncertainty and manufactures complex risks very hard to assess. It amplifies the impact of mistakes in the assessment of underlying asset default risk and correlation. It also creates additional procyclicality, enables more risk taking and reduces banks' ability to play a countercyclical role. It increases the length of credit intermediation chains, increases also the need to rely on external credit assessments and creates conflicts of interests. It attracts as well less informed investors more likely to neglect tail risks. In addition as the benefits of tranching derive from low correlations between the assets and we have seen that correlations were severely underestimated pre-crisis, the benefits of tranching are also not as high as used to be expected.

Lastly on the argument that tranching enables the creation of securities that fit investors' preferences, we appreciate that non-tranched securitisation might find less appetite from institutional investors due to the lower proportion of investment grade securities created. However this would raise the case to **refocus, where needed, investment mandates on the true drivers of risk and return**, admittedly a more ambitious undertaking but a much healthier one. The less transformed assets are, the more investors are able to assess risks themselves without relying on external assessments, the less likely they are to herd and the lower the risk that they suddenly doubt about the quality of their assets.

Similarly it is not clear that excluding tranching from type 1 securitisation[220] would create significant competitiveness concerns: non-tranched securitisation would still be able to create a large number of ‘credit quality step 3’ securities[221] benefiting from a favourable prudential treatment, and other type of securities would offer a return matching their higher risk and capital cost.

Consequently this raises the question of whether we should instead favour simpler types of securitisation without tranching.

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219 IOSCO 2014

220 High quality securitisation benefiting from a favourable prudential treatment, see page 65.

221 Subject to future adjustements ‘credit quality step 3’ should correspond to a BBB- rating

External credit enhancements are also responsible for a number of the risks described

External credit and liquidity enhancements are also responsible for a number of risks when provided by originating banks or inadequately capitalised: they increase interconnectedness and uncertainty, reduce risk spreading and enable more credit and liquidity transformation and hence the creation of more AAA securities but through a more fragile process. To the extent that they enable lower quality underlying loans to be transformed into AAA securities, they also do not incentivise sound lending standards. Yet a AAA rating obtained thanks to high quality underlying assets is different from a AAA rating obtained through an extensive use of credit enhancements.

So is the reliance on credit ratings and the use of wholesale funding

External credit ratings that do not capture systematic risks, require procyclical enhancements to be stable, incentivise market driven lending decisions, overweight enhancements and obtained in collaboration with issuers are another issue, insofar as they are embedded in investment mandates and regulation. The use of identical rating scales for structured finance and corporate ratings additionally creates an illusion of comparability and feeds the appetite of investors for these securities.

The use of **wholesale funding**, in particular securities financing transactions, leads to more procyclicality, increases the funding risk of banks and creates risks of fire sales.

It is important to realise that these features are not present in every type of securitisation

The above features are not present in all securitisations: securitisation is indeed a very broad term encompassing a very wide range of structures as we have seen in the definition. Without going into too many details, we can distinguish three main types that create very different levels of risks:

a. Covered bonds

While technically not securitisation since there is no asset sale, covered bonds share many similarities and can in some cases constitute an alternative, hence the reason why we mention them here.

Covered bonds are securities issued by a bank and backed by a segregated pool of loans. The bank selects and pools a number of loans amongst those it originated, puts them in a separate account from the others and uses them as a guarantee for bonds that it will issue. Investors who purchase the bonds are backed by the cover pool of loans and also have recourse to the bank if the cover pool is insufficient to meet the obligations.

As the loans stay on the balance sheet of the bank, they eliminate one step in the intermediation chain, generating less interconnectedness, and remove the incentive problem in the originate-to-distribute model, namely the temptation to securitise bad loans.

Covered bonds do not transfer credit risk and are only a source of funding for the originating bank. As a consequence they do not provide capital relief to the issuing bank and do not enable procyclical leverage creation and increased risk taking in the system.

Covered bonds, while technically not securitisation, share many similarities but create lower risks

Covered bonds also attract a different type of investors with a different funding profile than in securitisation: the bulk of the investors are non-banks, the largest category being non-levered asset management firms such as pension funds. As a result the risk is dispersed more effectively, intermediation chains are shorter and there is less maturity transformation since these investors do not issue commercial paper to fund their purchase.

"The intermediation chain associated with a covered bond is short, since the bank holds mortgage claims against ultimate borrowers, and issues covered bonds that could be sold directly to households or to long-only institutions such as mutual funds or pension funds. The bonds offer longer duration that match the duration of the assets. The longer duration of the liabilities have two advantages. First, the duration matching between assets and liabilities means that the issuing bank does not engage in maturity transformation in funding.

Rigorous application of marking to market makes less sense when loans are segregated to back such liabilities"[222].

Covered bonds are securities issued by a bank and guaranteed by a pool of assets, but the bank keeps the assets

Danish mortgage bonds are a particular category of covered bonds that enable mortgage borrowers to redeem their debt by purchasing the relevant issue of mortgage bonds in the market. This additional feature provides a countercyclical element, as borrowers that can afford it will try and buy back their mortgage at a cheap price during a market downturn when all investors want to sell.

The main downside of covered bonds is that they create asset encumbrance: as covered bonds investors have priority over depositors on the assets that are segregated, depositors and deposit guarantee schemes may find themselves more exposed in case of bank default. However this issue can be addressed by creating specialist banks that do not collect deposits, such as Danish mortgage banks.

As covered bonds involve shorter intermediation chains, less interconnectedness, less risk concentration in banks, lower procyclicality, less maturity transformation and fewer conflicts of interest, some argue that they should be promoted in priority instead of securitisation[223].

b. Traditional securitisation

Basic traditional securitisation involves only the pooling of loans and issuance of one type of security to investors

Traditional basic securitisation involves the transfer of assets to a third party that issues asset backed securities against the assets. It involves only pooling and not tranching and is often referred to as a 'pass-through' instrument: loans are pooled and sold to an SPV that then issues one type of security against this portfolio.

The loans underlying traditional securitisation are traditionally standard high quality loans, ranging from prime residential mortgages to consumer debt[224].
Traditional securitisation differs from covered bonds in that there is a transfer of credit risk, it is not merely a funding instrument.

Due to the absence of tranching, there is no creation of correlated tail risk or pseudo safe assets and intermediation chains remain relatively short. The risk is easier to assess and thus does not require relying on external ratings to the same extent. Lastly, it also attracts traditional real money investors such as insurance companies that do not fund their purchases through wholesale funding.

c. Structured finance securitisation

Structured finance securitisation is different in that it involves tranching, the use of credit and liquidity enhancements and a higher reliance on short term collateralised funding

Structured finance securitisation differs from traditional securitisation in many respects: the range of assets that are securitised is much wider, ranging from high quality loans to riskier and esoteric ones, and can include financial assets such as tranches of other securitisations.

As described earlier, it involves tranching, longer intermediation chains, an extensive use of credit and liquidity enhancements and a higher reliance on wholesale funding as it attracts a different type of investors. It enables more transformation, e.g. the creation of more AAA securities or the use of lower quality assets to obtain these ratings, more procyclical risk taking but through a more fragile process.

We believe that **only the first two types should be promoted** as they create much lower systemic risks and as they would be the most consistent with promoting long term

222 BIS 2010

223 Ibid.

224 Chernenko, S., Hanson, S. and Sunderam, A., *The Rise and Fall of Securitization*, Harvard Business School, Working Paper, December 2013

financing, due to the absence of maturity transformation and to the types of investors that they attract.

We believe that only covered bonds and basic securitisation should be promoted as they create less systemic risk and are more suited to long term financing

Additionally the **return of pre-crisis risky practices in some areas may be another strong reason not to promote structured finance securitisation.** The current context sees the development of several trends including a rise of non-bank lenders in the US such as business development companies and hedge funds, a **decline of lending and underwriting standards**[225] **as well as the securitisation of new esoteric types of assets**, generating concerns about the return of pre-crisis practices. Examples of new assets recently securitised include homeless shelters[226], solar panel leases, and subprime car loans[227]. *"Sales of "esoteric ABS", which bundle together a multitude of unusual assets – from music portfolios to aircraft leases – surged from $26bn in 2012 to $31bn last year"*[228]. An industry insider warned that "*with all the cash on the sidelines, I think we'll see a lot more creative transactions getting done over the next few years*"[229]. Moody's also issued a warning a few months ago about non-bank mortgage servicers that are about to become the "next generation" of subprime lenders[230].

We already see the return of some pre-crisis risky practices and the emergence of new ones

Other growing risky practices include **a revival of so-called "covenant light"** loans both in Europe and in the US that has aroused the interest of European and US regulators[231]: These covenant light loans offer weakened investor protections[232] and remove the early warning signs that lenders would traditionally expect when extending credit. These include the obligation to maintain certain performance and financial ratios, which if breached trigger a default, allowing banks to request a debt restructuring[233]. Yet investors are abandoning normal creditor protections and snapping up riskier "cov-lite" loans at a faster rate and in greater proportions than at the peak of the credit bubble[234].

Debatable practices include as well banks **shifting risk into blind pools**: pools of loans are transferred to a hedge fund, the hedge fund does not know which companies it is exposed to, nor are the borrowers aware of this transfer. Such transactions provide banks with capital relief at a cheap cost. Yet regulators worry that banks may transfer risk to entities that cannot absorb the losses in case of another crisis. They also suspect that, in some cases, the risk is never truly transferred because the bank pays such high fees that it covers the cost of any potential loss[235].

A recent financial times article quoted Chris Watling, chief market strategist at Longview Economics saying "***We are beginning to see the build-up of speculative excess. It's more advanced in the US, and starting to come through in Europe***"[236].

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225 Financial Times, Alloway, T., *Yield-hungry investors snap up US homeless bond*, 13 January 2014; Financial Times, Alloway, T., Bullock, N., *Shadow banks step out to fund mid-market corporate America*, 5 February 2014

226 Financial Times, *Yield-hungry investors snap up US homeless bond*, 13 January 2014

227 Financial Times, Alloway, T., *Lenders race to join subprime car loan boom*, 6 March 2014

228 Financial Times, Alloway, T., *Yield hunters soak up venture capital debt*, 3 February 2014

229 Ibid.

230 Financial Times, Alloway, T., *Moody's warns on specialised mortgage servicers*, 26 February 2014

231 Financial Times, Chassany, A.-S., Arnold, M., *European regulators warn as risky loans rise above bubble peak*, 23 March 2014

232 Financial Times, Foley, F., Alloway, T., *Alert on leveraged loan terms*, 31 March 2014

233 Financial Times, *European regulators warn as risky loans rise above bubble peak*, 23 March 2014

234 Financial Times, *European regulators warn as risky loans rise above bubble peak*, 23 March 2014

235 Financial Times, *Arnold, M., Banks unload risk into blind pools*, 17 June 2014

236 Financial Times, Alloway, T., Mackenzie, M., Massoudi, A., *Credit bubble fears put central bankers on edge*, 2 April 2014

As the financial industry will always find creative ways to adapt to the environment, **there is a strong case not to soften the prudential treatment of securitisation, except may be for basic traditional securitisation.**

5. Good securitisation: what is it?

As the European Commission wants to revive good securitisation, it is important to discuss its definition

There is much talk these days about the need to revive securitisation, albeit not the one that created problems during the crisis but a newly defined good securitisation. Yet while there seems to be a consensus on this point, most stakeholders are unable to describe what is or should qualify as good securitisation. Much is happening however in this area with for example a forthcoming reduction of the prudential risk weights of some securitised exposures for insurance companies, but because it takes place at level 2 – through technical standards and implementing measures rather than legislative acts – only a limited number of stakeholders are aware of it.

We will first quickly review post-crisis regulation on securitisation before commenting on the current definition of good securitisation.

a. What has been done so far

A number of regulatory initiatives[237] have been taken post-crisis, some already applicable and some still under negotiation, which aim to address the fragilities of securitisation exposed during the crisis.

A number of regulatory initiatives have been taken post crisis to address the risks of securitisation...

Among other things, these initiatives aim at:

- Reducing the overreliance on credit rating agencies through enhanced and standardised disclosure requirements towards investors, due diligence obligations for investors and conditions for the use of CRAs.
- Addressing conflicts of interest between originators and investors by requesting the former to retain a percentage of the risk of securitisations.
- Reviewing capital charges for securitisation exposures and in particular for complex structures such as resecuritisations.
- Ensuring the quality of lending practices by standardising lending practices.
- Ensuring that the risks of banks' off balance sheet exposures are captured in regulation by reviewing consolidation rules.
- Requiring insurers to hold capital against investments in securitisation.
- Addressing excessive maturity transformation via the introduction of liquidity ratios for banks.

Other initiatives are currently under way to change the prudential treatment of securitisation. The Basel Committee on Banking Supervision launched a consultation at the end of 2013 on the securitisation framework[238].

One of the major proposed changes is to change the hierarchy of approaches in assessing the risk of securitised exposures: the risk weights to be applied should now be calculated first by banks based on their internal models.

As only large banks have internal models, smaller banks should use the second approach, namely external ratings. If the jurisdiction does not allow the use of external ratings or if the securitised exposure is not rated, banks should then use the third approach, called the standardised approach, where risk weights are derived from external ratings. If

237 Bank of England and ECB 2014, box 2; AFME, *Map of direct and indirect securitisation European regulations since the crisis*, April 2014

238 BIS 2013a

none of the approaches can be used, the securitisation exposure will have a 1250% risk weight, meaning that it has to be fully backed by capital.

The purpose of this new hierarchy is to reduce the mechanistic reliance on external ratings, by allowing banks to use their internal models to determine how much capital they should have when they invest in securitised exposures.

... and while they are good, their main weakness is that they focus on the risk of individual institutions

The committee also proposed to lower the risk weight floor for all approaches from 20% originally proposed to 15% in response certain stakeholders' comments that 20% would reduce risk sensitivity.

More recently the European Banking Authority also launched a consultation on simple, standard and transparent securitisations and their potential regulatory recognition[239].

While these initiatives have contributed significantly to address the issues, **their main weakness is that they are for a large part micro prudential, meaning that they focus on risks at individual institutions' level, whereas much remains to be done at a macro level to address financial institutions' contribution to systemic risk.**

Much remains to be done to address systemic risks and prevent another crisis

Additional concerns arise from the fact that prudential regulation leaves banks the choice between having more liquid assets or more stable funding instead of incentivising the latter; lastly the promotion of internal models to assess the risk of securitised exposures might enable artificially low risk measurements[240], unwarranted capital relief and excessive leverage.

Additionally a number of large banks, law firms and asset managers have set up an industry quality label of securitisation[241] aimed at reviving the asset backed securities market and making it more sustainable. A number of criteria have been defined that need to be fulfilled for any securitisation to obtain the label. **To the extent that it will not pre-empt[242] or replace much needed regulation, this is a good initiative.**

Lastly **the ECB also revised its collateral eligibility framework for asset-backed securities** in order to expand eligible collateral: the ECB will lower the required credit rating from two AAA ratings at issuance to two A ratings for six classes of ABS subject to loan level reporting requirements. Haircuts – or discounts in value – will also be lowered from 16% to 10% for higher grade ABS and from 26% to 22% for lower grade ABS[243]. Given the importance of the ECB's operations and the need to have a consistent definition of high quality securitisation between the ECB and the other European institutions, the ECB's ABS

239 EBA, Press release *EBA consults on simple, standard and transparent securitisations and their potential regulatory recognition*, 14 October 2014

240 Standard & Poor's, Dubreuil, E. H., *S&P Approach To Bank's Capital Adequacy'*, reproduced with permission of Standard & Poor's Financial Services LLC, 2009

241 PCS, *Prime Collateralised Securities Rule Book*, Version 7, 9 June 2014

242 Reportedly, the label is already credited for the recent softening of the prudential treatment of so called high quality securitisation for insurers: "the EIOPA report explicitly mentioned the PCS concept of distinguishing high quality securitisations as the premise for altering the blanket 7% risk charge for AAA rated securitisations in its first report. EIOPA now proposes a charge of 4.3% on high-quality deals, and 12.5% on riskier ones." Global Risk Regulator, *Regulators offer hope for European securitisation*, 15 January 2014

243 Reuters, Carrel, P. and Suoninen, S., *ECB tweaks collateral rules to increase ABS eligibility*, 18 July 2013

eligibility framework plays a major role and the ECB's principles are being put forward to define what is good securitisation[244].

b. EIOPA and EC type 1 securitisation

The European Commission has recently provided a definition of good securitisation for insurers...

In September 2012 the European Commission asked the European Insurance and Occupational Pensions Authority (EIOPA) to review the prudential treatment of securitisation for insurance companies[245]. The objective was first to investigate whether the prudential treatment of securitised exposures distinguished adequately between securitisations that performed well during the crisis and those that did not. It was also to assess whether the current regulatory capital requirements were a deterrent for insurers to invest in securitised exposures.

... that might be used as a basis for other financial institutions

EIOPA concluded that while the prudential treatment was linked only to rating, maturity and sensitivity to interest rates changes, wide variations in terms of risk had been observed within rating classes, hence justifying a more granular approach.

EIOPA thus introduced a number of additional criteria, a number of which were adapted from the eligibility criteria that the ECB uses for its refinancing operations. It creates a distinction between good "type 1" securitisations, which will see their prudential treatment softened, and other securitisations. Based on EIOPA's recommendations, the European Commission defined good "type 1" securitisation within the Solvency II Delegated Act that was adopted on 10 October 2014.

Good securitisation is called "type 1" securitisation

For a securitisation to be classified type 1, it needs to fulfil a number of criteria[246] that relate among others to:

- The **seniority of the tranche**: it must be the most senior.
- The **structure of the securitisation**: it must involve a true sale of assets (hence no synthetic transactions), the sale cannot be invalidated in case of insolvency of the seller, and there shall be provisions to ensure continuity of services in case of default of a servicer.
- **Asset eligibility**: assets are limited to residential loans, commercial loans, auto loans, leasing, and loans and credit facilities to individuals for consumption purposes (hence no exotic asset). The assets shall also not include derivative instruments except to hedge currency and interest rate risk. There shall be only one type of asset in the pool to ensure homogeneous cash flows and reduce complexity. The assets shall not contain loans which are in default at the time of issuance or loans granted to borrowers with a bad credit history or that have declared bankruptcy in the past. At the time of issuance at least one payment on the loan must already have been made.

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244 Mersch 2014: "*I would propose that central bank ABS eligibility criteria could form a useful starting point for identifying 'qualified' ABSs. This is because these criteria are determined using a common risk-tolerance threshold, are widely-accepted by market participants, and are set without conflicts of interest. Of course, we should not entirely rely on central bank eligibility criteria. In this regard I believe the approach recently developed by EIOPA, and partly inspired by the Eurosystem eligibility framework, has many merits, not least being relatively simple while managing to exclude many particularly-risky ABSs. Having defined criteria for so-called "high-quality securitisation", the next step is deciding what treatment to grant.*"; also see Bank of England and ECB 2014, Box 3 "*Principles of a 'qualifying securitisation'*"

245 European Commission, Letter by Jonathan Faull, Director-General, Internal Market and Services DG, to Gabriel Bernardino, Chair of the European Insurance and Occupational Pensions Authority (Ref. Ares(2012)1119169), 26 September 2012

246 European Commission, *Delegated Regulation supplementing the Directive 2009/138/EC on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (draft)*, 2014a, articles 177 and 178; EIOPA, Technical Report, *Standard Formula Design and Calibration for Certain Long Term Investments*, 2013

In order to be classified as type 1, a securitisation needs to fulfil a number of criteria...

Lastly, the securitisation shall have been assigned a credit assessment from two rating agencies of at least credit quality step 3 (which pending on future mapping between ratings and quality steps might correspond to a rating of BBB-).

- **Listing and transparency features:** the securitisation shall be listed on a regulated market. Comprehensive data at loan level and relevant information on the transaction must be made available to existing and potential investors and regulators at issuance and on a regular basis.
- **Underwriting process:** residential mortgages marketed and underwritten on the premise that the information provided by the borrower would not be verified are excluded. Lastly, the borrower's creditworthiness must be assessed by the lender on the basis of sufficient information and before the conclusion of the credit agreement.

... such as a simple structure, detailed disclosure of information, no loans in default etc.

EIOPA then used a four-step approach to calibrate the prudential risk charge to be applied to type 1 securitisations, depending on their rating. The idea behind the methodology is to look at the historical credit spread[247] of comparable securitisations, to consider that the credit spread reflects the risk of the securitisation and use it to stress test the securitisations and derive from it the maximum possible loss in 99.5% of scenarios.

First, two sets of publicly traded indices are used as proxies for the categories *"based on the assumption that the spread behaviour of the index components is a suitable representation for the spread behaviour of the securitisations that insurers invest in"*[248]: a set of credit indices set up by Bank of America and a set of indices set up by Markit. The historical spread data from the period 31/12/2006 to 30/092013 (BAML) and from 01/01/2007 to 25/09/2013 (Markit) are respectively used, daily data whenever available or monthly data alternatively.

Then the twelve months spread changes for consecutive overlapping time periods are calculated for each class and the empirical Value-at-Risk is derived for the associated asset classes. An assumption is made that European insurers invest on average 5% in US securitisations versus 95% in European ones.

The prudential charge that insurers need to apply to type 1 securitisation has been greatly reduced, to reflect their comparatively lower risk

The empirical annual 99.5% Value-at-Risk shows for each category the maximum expected loss in 99.5% of possible scenarios. For example the type 1 BBB rated category has a 99.5% VaR of 38.74%, which means that 0.05% of the time the investment will fall in value by more than 38.74% during the course of one year.

Prudential spread risk charges are then defined based on the Value-at-Risk figures, meant to ensure that an insurer who purchases a tranche of securitisation has enough capital to absorb potential losses.

As a result, type 1 AAA rated securitisations will see their spread risk charge decline from 7% in the earlier framework to 2.1% in the new one. Similarly, credit quality step 3 type 1 securitisations will see their risk charge decline from 20% to 3%. Tranches rated in between see comparable declines.

Credit quality step	0	1	2	3	4	5	6
Original calibration	7%	16%	19%	20%	82%	100%	100%
EIOPA type 1	4.3%	8.45%	14.8%	17-20%	82%	100%	100%
EC type 1	**2.1%**	**3%**	**3%**	**3%**			
EIOPA / EC type 2	12.5%	13.4%	16.6%	19.7%	82%	100%	100%

Source: EIOPA, European Commission

247 The credit spread is the difference between the yield of a security and the so-called risk free rate, i.e. the yield of a sovereign debt security of comparable maturity.

248 EIOPA 2013

While the use of a wider set of criteria to assess securitisations is without a doubt a positive development, both the methodology and the criteria used raise a number of concerns in our view. EIOPA acknowledges some of the weaknesses, recognising that no methodology is perfect.

We regret however that the criteria used to define type 1 securitisation do not disincentivise tranching,...

First on the methodology, the use of proxies and the back-testing of criteria against past or existing securitisations to see if only good ones would have been classified as type 1 creates weaknesses. Additionally using credit spreads to assess risks rests on the implicit and debatable assumption that the market always prices risk appropriately.

As importantly, the use of very short historical databases to predict very rare events (as we are talking about senior tranches eg catastrophe risk) is inadequate and can be misleading.

... that they embed credit ratings...

Lastly, using the Value-at-Risk metric to model tail risk is also a very debatable choice. Some argue that EIOPA should instead use Tail Value-at-Risk, a metric specifically designed to quantify the potential loss in extreme scenarios, eg in our case in the 0.05% of scenarios. They also argue that EIOPA should in addition use other metrics aimed at measuring the contribution of an exposure to systemic risk.

Regarding the criteria used, we fully support all of them, but believe that additional criteria would be beneficial.

... and do not discourage the use of external credit enhancements or maturity transformation

First, the framework **does not disincentivise tranching** despite the many risks created by this feature as described earlier.

Secondly, it **embeds external credit ratings** and creates cliff effects by including a hard rating threshold. Yet we have discussed the many unaddressed issues linked with the use of external ratings, not to mention the lack of consistency with the European Commission objectives.

It also does not distinguish whether a good credit rating is obtained through very high quality underlying assets or through financial engineering via an extensive use of external credit enhancements and does not disincentivise the provision of banks' credit and liquidity puts to shadow banking entities[249].

We believe that only securitisations that include these additional criteria should see their prudential treatment softened

Lastly, **it does not disincentivise maturity transformation** and while admittedly insurers' long liabilities do not require them to engage in maturity transformation, the attraction of securities financing might incentivise them to engage into reverse maturity transformation[250].

We believe that only securitisations that include these additional criteria should see their prudential treatment softened. Unlike some market participants we also hope that the prudential treatment of securitisation will not converge any further towards that of covered bonds, in order to reflect the comparatively higher systemic risks of securitisations. More generally as discussed earlier, we believe that prudential regulation should not only look at the risk for individual institutions but also look at institutions' contribution to systemic risk.

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249 *"If institutional cash pools continue to rely on banks as their credit and liquidity put providers of last resort, the secular rise of uninsured institutional cash pools relative to the size of insured deposits is going to make the U.S. financial system increasingly run-prone. (..) Put another way, the secular rise of cash pools reduces the effectiveness of deposit insurance in promoting system-stability, if depository institutions are wired to serve as insurers of last resort. (..) The flipside of this question is whether too big to fail banks should be allowed to provide credit and liquidity puts to institutional cash pools through the privately issued insured deposit alternatives they sell them."* IMF, Pozsar, Z., Institutional Cash Pools and the Triffin Dilemma of the U.S. Banking System, WP/11/190, August 2011a

250 IMF, Pozsar, Z., *The Nonbank-Bank Nexus and the Shadow Banking System*, WP/11/289, December 2011c

Conclusion and recommendations

The long term financing initiative includes many promising proposals, such as promoting seed capital and crowdfunding

The long term financing initiative is a very good and much needed initiative as capital needs to be channelled to finance the real economy. Many of its proposals are very promising, such as promoting seed and venture capital or facilitating SMEs access to capital markets. Some channels however raise some concerns since their revival might occur before the systemic risks that they create are comprehensively addressed.

More generally it is also not clear that we need to change the European model and promote capital market financing in order to finance the real economy and revive growth.

It is not clear, however, that we need to change the European model and promote capital market financing

We believe that:

1. banks do not have to automatically lend less to non-financial corporations and households as a consequence of develeraging or regulation;
2. the European economy is not more reliant on banks than the United States;
3. SMEs’ lack of access to finance is mostly an issue of geographical fragmentation, not an overall shortage of credit supply. It is not clear whether securitisation can be a sustainable financing channel for SMEs;
4. the crisis did not show that all banks were too risky and that we consequently need more capital markets. It showed instead that some universal and investment banks were too risky and that we need more traditional banks. It is essential to distinguish between business models and promote those that have proven both more robust and more useful for the financing of the real economy;
5. a revival of securitisation would increase banks’ profitability. It would not, however, make banks less risky and the financial system safer if it is anything but basic securitisation;
6. it would on the other hand strengthen the central role of collateral in our financial system and promote securities financing, whereas the risks and negative externalities of securities financing transactions have yet to be comprehensively addressed;
7. while recent initiatives to define good securitisation go in the right direction, they should go further to comprehensively address systemic concerns;
8. post crisis micro-prudential regulation needs to be complemented by macro prudential tools and measures.

We must also ensure that the definition of good securitisation is robust enough not to create new risks

Based on all of the above, we believe that the following recommendations are key to promote a sustainable financing of the real economy that does not create systemic risk nor generate negative externalities.

1. Promote traditional banking

Traditional banks should be promoted as they create fewer systemic risks and are more focused on lending to the real economy

Traditional banks create fewer systemic risks and negative externalities, because they are associated with short intermediation chains, lower procyclicality, lower interconnectedness, no reliance on external ratings and proved more resilient during the crisis. They also have more robust funding structures, are explicitly backstopped by public safety nets and their focus is on lending to the real economy. For all these reasons we believe that well capitalised traditional banks should be promoted instead of the investment banking model.

Linked to this, institutional investors’ further involvement should only be promoted to the extent that it enables a reduction in maturity transformation, provides a countercyclical element and does not require significant asset transformation. This would be consistent with the European Commission’s objective to promote patient capital investing in real assets.

Lastly, in a context where traditional banks face growing competition from new players such as crowdfunding and smartphone companies, a refocus on relationship lending would reaffirm their competitive advantage.

Good securitisation should only include the most basic structures

2. Within securitisation, promote basic structures with short intermediation chains that link borrowers and savers more directly, do not include tranching or external credit enhancements. **Only these structures should see their prudential treatment revised** to reflect the fact that they create lower systemic risks. As a rule, the shorter the intermediation chain and the less that the assets are transformed, the better. Other types of secured funding with short intermediation chains like Danish covered bonds are also preferable to structured finance securitisation.

Securitised exposures should be rated on a different scale from corporate bonds

3. Require credit rating agencies to rate structured finance instruments on a different scale. In addition replacing external ratings by banks' internal models would require addressing the discrepancies between banks' assessments.

The negative externalities of securities financing need to be addressed

4. Address the negative externalities of securities financing and incentivise more stable funding by introducing a minimum haircut for all securities financing transactions, capping the re-use of collateral and redesigning banks' liquidity ratios. This would curb the procyclicality of leverage creation.

Prudential regulation should be more focused on institutions' contribution to systemic risk

5. Increase institutions' contribution to systemic risk in prudential regulation through tying-in capital requirements with an institution's contribution to systemic risk. Together with limiting the creation of pseudo safe assets, curbing procyclicality and curbing the use of securities financing, this should help to make private backstops more robust, internalise negative externalities and reduce moral hazard.

Full transparency should be mandatory for public private partnerships

6. Improve the transparency and democratic accountability of public private partnerships by requiring public access to the full contracts and regular public reporting on their value for money.

"The goal is not to have the most advanced financial system, but a financial system that is reasonably advanced but robust. That's no different from what we seek in other areas of human activity. We don't use the most advanced aircraft to move millions of people around the world. We use reasonably advanced aircrafts whose designs have proved to be reliable"[251].

251 Acharya, V. and Richardson, M., *Repairing a Failed System: An Introduction*, NYU Stern Restoring Financial Stability: How to Repair a Failed System, Wiley, first edition March 2009

Annexe: On the central role of collateral and securities financing

A revival of securitisation will create assets that can be used as collateral...

As one of the main purposes of reviving securitisation is *"**to deepen the supply of high quality collateral**, which could be particularly useful given the post-crisis trend towards greater collateralisation of financial transactions"*[252], a revival of securitisation would strengthen the central role of collateral and contribute to a further development of securities financing.

Promoting securities financing and the central role of collateral raises some concerns in our view and deserves particular attention, as we will explain in this part.

As securities financing transactions are related to a revival of securitisation but not directly part of the long term financing initiative, we chose to expand on it in this annex.

... and is thus likely to further promote securities financing transactions

Securities financing is the lending of securities (stock, bond, asset backed security) by one party to another against cash. There are different types of securities financing transactions, including securities loans, repurchase agreements and sell-buybacks, but the economics of the transaction are similar: this is a form of short term lending using securities as collateral. Its overall significance within the global financial system really increased during the last decade[253].

1. The endless appetite for safe and liquid collateral

We will start with an historical reminder to provide some context about the growing role of collateral in our modern financial system.

We traditionally view the financial system as follows: short term household savings are placed as deposits in banks, and banks use these deposits to fund the long term loans that they provide. Long term household savings are invested either directly in capital markets or with asset managers such as pension funds and insurance companies that invest these funds in long term instruments such as equities or bonds. Therefore the intermediation of households' long term savings outside of banks should mainly involve long term securities. This image is simplified and inaccurate[254].

Asset managers do not just invest long term but also have a large appetite for short-term money market instruments. This appetite for short term securities comes from their liquidity management: funds must keep a buffer of very liquid instruments to manage the constant inflows and outflows of funds. It comes also from some of their investment strategies using derivatives. Most importantly, the demand for short term instruments comes from the

252 Bank of England and ECB 2014

253 BIS, Technical Committee of the International Organization of Securities Commissions (IOSCO) and Committee on Payment and Settlement Systems (CPSS), *Securities lending transactions: Market developments and implications*, July 1999

254 IMF, Pozsar, Z. ,*The Nonbank-Bank Nexus and the Shadow Banking System*, WP/11/289, December 2011c

fact that once purchased, these instruments can be lent to other financial institutions as collateral against cash, which provides funds both with an additional return and additional cash to invest.

This process is called reverse maturity transformation: long-term households' savings are used to invest into short term securities. This is the opposite of what banks are doing, that transform short-term deposits into long term loans. This process led to the build-up of massive cash pools, which grew from $100 billion in 1990 to more than $2.5 trillion in 2007 and $2 trillion at end-2010[255], equal to almost half of traditional deposits[256].

Large institutional cash pools have emerged since the 1990s

Institutional cash pools refer to large centrally managed short-term cash balances of corporations and institutional investors such as asset managers, securities lenders and pension funds. Their significant development can be traced back to the 1970s where the separation of traditional banking and capital market activities in the US began to break down. This led to two major changes: *"first, it diminished the importance of deposits as a source of funding for credit intermediation, in favour of capital market instruments sold to institutional investors. (..) Second, this trend altered the structure of the industry, both transforming the activities of broker-dealers and fostering the emergence of large financial conglomerates"*[257]. The first money market fund was created around that time as a way to get around regulation Q, which prohibited banks from paying interest on demand deposits and capped interests on saving deposits.

The rise of institutional cash pools since the 1990s has been driven by three secular developments: the rise of globalisation and related concentration of wealth, the rise of asset management, liquidity management and securities financing, and finally the rise of derivatives based investment styles[258].

These cash pools traditionally prefer to invest in sovereign debt or short term collateralised debt...

Because these cash pools focus on safety of principal, liquidity and yield and due to their size, they are not well fitted to invest in bank deposits, as deposits are uninsured above a certain threshold, and as the consolidation of the banking sector does not enable them to diversify sufficiently their counterparty risk. Instead of going into bank deposits, these cash pools prefer to invest in short term publicly guaranteed debt (sovereign debt) or as the next best alternative into short term collateralised private debt (repurchase agreements and asset backed commercial paper). Real assets are also not appealing to them as they are considered too risky for their mandate, are disincentivised by regulation, and as they cannot be reused as collateral, and hence are less profitable. This explains in part the **paradox between a superabundance of large pools of financial capital and a lack of investment in the real economy**.

...creating a large demand for safe liquid assets

As a recent IMF paper put it "t*he money demand aspect of the asset management complex is an often overlooked feature of modern finance. It involves massive volumes of reverse maturity transformation, whereby significant portions of long-term savings are transformed into short-term savings*"[259] and **explains the growing demand for safe short term liquid savings instruments**.

In a context where we push for more involvement of institutional investors, **it is also interesting to note that institutional investors are already heavily involved**

255 IMF 2011c; IMF 2012b

256 IMF 2012b

257 Tarullo, D. K., Speech, *Evaluating Progress in Regulatory Reforms to Promote Financial Stability*, 3 May 2013a

258 IMF, Pozsar, Z. , *Institutional Cash Pools and the Triffin Dilemma of the U.S. Banking System*, WP/11/190, August 2011a

259 IMF 2011c

A number of institutional investors have not played the stabilising role expected of them

and that their long term liabilities do not necessarily translate into long term investments. As interesting is the fact that institutional investors appear not to have played the stabilising counter-cyclical role expected of them, by buying assets when their price declines for example. As discussed in a recent paper[260] *"in fact, the evidence suggests quite the opposite happened"* with institutional investors ducking for cover and in the process amplifying the market cycles. As Andrew Haldane has put it: *"Patient capital ought to be part of the solution to the long-term financing puzzle. In practice, it may have been part of the problem."*

To be clear, not all institutional investors have the same attitude to risk and investment, and a number of them truly play a counter-cyclical stabilising role. Norway's sovereign wealth fund is typically one of these, taking advantage of its long term horizon to invest in a counter-cyclical manner. It is also important to clarify that long term investing is not only about buy and hold strategies but also involves rebalancing, therefore there can be an element of short term strategy involved in long term investing. Yet whatever the type of strategy employed, trying to capture the illiquidity premium or not[261], what is important is to take advantage of the long term nature of the liabilities to be countercyclical, instead of adopting the herding behaviour of other types of investors.

Banks have responded to the rise of cash pools and decline of deposits by getting more financing from asset managers

Banks have responded to the reduced importance of deposits as a source of funding for them by adapting to the new environment and moving into alternative business lines that rely less on traditional interest-based revenues (loans) and more on fee-based revenues (investment banking activities) that exploded during the 1990s. They also responded by getting financing from asset managers and other financial institutions via wholesale funding, that is short term borrowing from other financial institutions often collateralised by liquid securities[262]. Because it is both short term and fully collateralised by high quality assets, it is a cheap form of funding that appealed greatly to banks and enabled them to increase their leverage at low cost.

As banks moved towards more market-based activities, they had access to a large quantity of short term liquid assets, whether from their trading books, from the collateralised funding they provided to hedge funds or from their custodian activities, that could be used as collateral. This collateral enabled them to get funding from assets managers. As much as asset managers were not keen to finance banks by putting their assets into banking deposits, their appetite for short-term liquid investments meant that they were happy to lend to banks against these short term liquid securities.

Whereas "*the present way of thinking about financial intermediation does not fully incorporate the rise of asset managers as a major source of funding for banks*"[263], **wholesale funding has grown exponentially and now represents 61% of European banks liabilities, twice as much as large banks in the US, Asia or emerging economies**[264]. The growth of wholesale funding has had a number of consequences:

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260 Haldane, A. G., *The age of asset management?*, 2014

261 Which has it happens seems to be a difficult endeavor: Forbes, Ferrl, R., *The Curse of the Yale Model*, 16 April 2012; Bloomberg View, Klein, M. C., *Time to Ditch the Yale Endowment Model*, 3 October 2013

262 While wholesale funding includes both collateralised and uncollateralised funding, we refer here to collateralised forms, e.g. securities financing.

263 IMF 2011c

264 IMF 2012c. The IMF refers only to large European banks. Other figures encompassing a wider spectrum of banks show a lower figure of 15%: ESRB 2014b

As a result bank funding has become more unstable

as it is a very short term and very elastic form of funding, **it led to a shift in the structure of banks' funding, making it much more unstable**, and also consequently increasing the need for maturity transformation within banks, a key factor of systemic risk.

Access to securities financing being only limited by the availability of short-term liquid assets that can be used as collateral, **the greater reliance of banks on wholesale funding increased also the demand for short term liquid assets**.

More generally, it is interesting to note that with asset managers acting both as the main source of demand for collateral and as ultimate providers of collateral, **the growth of non-bank intermediation led to a much more collateral-intensive financial system and an insatiable demand for safe and liquid debt instruments**.

As the demand for safe assets grew and exceeded the supply of government debt, securitisation rose to fill this gap

The demand for so-called safe assets, both short term and long term, increased dramatically over the past decades due to a number of factors, including the rise of risk averse asset managers, the preference of countries like China to invest their current account surplus in safe assets like US government debt and financial regulation: the 2002 financial collateral directive unified the legal framework for cross border use of collateral in Europe and designed a legal framework that treated all Eurozone sovereign debt as equal for the purpose of European integration. This led to the tripling in size of the European repo market between 2002 and 2008, thus becoming the largest source of funding for European banks[265]. Interestingly, the dismantling of wholesale borders has been identified as the trigger for *"banks 'collective migration' to market-based business models focused on high-risk, high-leverage activities"*[266].

Government guaranteed debt is or was considered the safest and most liquid asset, as it was assumed that there was no risk of an EU government defaulting on its debt, and that investors would always trust it and be willing to accept it as collateral at all times. It is considered that *"80% of collateral circulating through repo networks was issued by European governments. Reliance on short-term repos made sovereign debt crucial for bank leverage"*[267].

As the demand for safe assets grew exponentially for the reasons mentioned above, it largely exceeded the supply of government debt available. Securitisation rose to fill this gap[268]: securitisation being the process that repackages loans into liquid, tradable and "safe" securities, it creates securities that can be used as collateral.

To be clear, the rise of securitisation had a number of causes beyond the lack of safe assets as discussed earlier. The context of a shortage of safe assets merely provided a ready demand for the securities created by securitisation.

However, as is well known in a number of cases the assets created by securitisation did not prove to be as safe as expected and according to a number of recent studies "*the financial crisis was driven by an insatiable demand from the rest of the world for safe, high-quality [that is, AAA] debt instruments, which the U.S. financial system produced through the securitization of lower-quality ones*"[269].

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265 Gabor 2014a

266 Ibid.

267 Ibid.

268 IMF 2011a

269 see Acharya and Schnabl (2009), Caballero (2010), and Bernanke (2011) – quoted in IMF 2011a

After the crisis, the demand for collateral increased while the stocks of available collateral declined...

The post crisis environment saw both a decline in stocks of available collateral and a further rise in the demand for collateral. The decline in collateral availability is a combination of several factors: first higher risk aversion from investors led to higher haircuts. A haircut is the discount applied by the lender to the market value of the security; the lender treats the security as being worth less than it actually is, in order to have a cushion in case the market value of the security declines. As investors became more concerned by counterparty risk and securities that were earlier considered safe became more volatile, haircuts increased, which reduced the securities' value as collateral.

Secondly and more importantly, the velocity of high quality collateral declined: in many cases securities used as collateral can be reused several times, creating collateral chains. Bank A borrows against a security from bank B, which borrows against the same security from fund C etc.. The number of times that a single security is reused is called the velocity of collateral. It was 3x at end 2007, and declined to 2.4x at end 2010 and 2.2x at end 2012[270].

In addition, some collateral previously treated as safe was no longer considered so and no longer accepted by investors, leading to segmentation in collateral assets.

... creating concerns about collateral scarcity

The parallel rise in demand for collateral came from a combination of market forces, regulation and from the growing involvement of central banks. First "*there is evidence of increasing bank reliance on collateralised market funding, particularly in Europe. A key driver of this development is perceptions of higher counterparty credit risk amongst investors that makes collateralised funding more attractive, who demand more collateral or charge higher risk premia on unsecured debt*"[271]. Big investors have also become bigger users of securities financing, in order to increase their returns in the current context of low interest rates[272].

Additionally, central banks post crisis quantitative easing programmes, where central banks purchase financial assets from banks and other private institutions in order to inject liquidity in the financial system, have also absorbed a large amount of high quality liquid assets that were used as collateral by financial markets.

This explains in part the push to revive securitisation as it creates assets that can be used as collateral

Lastly, a few post crises regulations[273] have increased the demand for high quality assets. As an example, the new liquidity ratios for banks aimed at reducing banks' excessive reliance on short term funding have required them to either get more stable funding or have more liquid assets, so that a sudden decline in availability of short term funding does not threaten their viability. The liquidity ratios do not per se require more liquid assets, as a choice is given to banks, but the requirement has often been interpreted as a need for banks to hold more liquid assets.

These trends have triggered concerns about real or perceived collateral scarcity and asset encumbrance[274]. Because collateral has become the lubricant of financial transactions and acquired such a central role in our financial system with the growth of shadow banking, a decline in collateral availability would reduce the liquidity and the leverage in the financial system, raising concerns that it could jeopardize economic recovery. **This context explains in part the current push from the ECB to promote a revival of securitisation for collateral creation and monetary policy transmission purposes, but other key reasons play a role.**

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270 Singh, M., *The Economics of Shadow Banking, Reserve Bank of Australia*, Conference Volume, 2013

271 BIS, Committee on the Global Financial System Paper No. 49, *Asset encumbrance, financial reform and the demand for collateral assets*, 2013b

272 Financial Times, Alloway, T., *Big investors replace banks in $ 4.2tn repo market*, 29 May 2014

273 such as EMIR and bank prudential regulation CRDIV/CRR

274 BIS 2013b

As governments issued massive amounts of securities, concerns about a global shortage of collateral appear unjustified

As the BIS put it "*current estimates suggest that the combined impact of liquidity regulation and OTC derivatives reforms could generate additional collateral demand to the tune of $4 trillion. At the same time, the supply of collateral assets is known to have risen significantly since end-2007. Outstanding amounts of AAA- and AA- rated government securities alone – based on the market capitalisation of widely used benchmark indices – increased by $10.8 trillion between 2007 and 2012. Other measures suggest even greater increases in supply.* ***Hence, concerns about an absolute shortage of HQA [high quality assets] appear unjustified.*** *Yet as the situation varies markedly across jurisdictions, temporary HQA shortages may arise in some countries, for example when the level of government bonds outstanding is low or when government bonds are perceived risky by market participants.*"

The fragmentation of collateral is thus admittedly an issue that needs to be addressed.

The massive issuance of government debt might however alleviate fears of a global shortage of collateral and in turn raise again the question of why the need to revive securitisation?

This brings us back to the reasons mentioned earlier for reviving securitisation.

Our understanding is that the ECB and the European Commission prefer securitisation over government debt for several reasons: first, as many government bonds are now considered either too risky or not remunerative enough by investors, reviving securitisation would offer investors a new asset class of "safe" assets offering more attractive returns.

Second, the purchase of government debt from banks by the ECB in order to inject liquidity does not provide banks with capital relief: because sovereign debt is currently considered by regulation as risk free, regulation does not require banks to hold capital against it, hence when banks sell it to the ECB it does not free up capital, unlike when they sell securitised assets.

As financial capital will continue to grow, the appetite for safe liquid collateral assets will grow as well

Additionally as mentioned in the first part, securitisation would increase investment and universal banks' profitability, which could compensate the loss of funding subsidy, should there be a true separation of banks and address potential competitiveness concerns. It could also alleviate the concerns that banks still have unrealised losses in their balance sheets as they have not finished cleaning their balance sheets of non-performing assets.

Last but not least and as discussed earlier, the revival of securitisation aims at reenergising the European financial integration, with SME asset backed securities replacing government debt. However it remains to be seen whether SME ABS will live up to its promise as the new EU safe asset.

As financial capital will continue to expand in the next decade, the appetite for safe liquid assets and the central role of collateral are likely to grow considerably as well.

In this context, we can only support the European Commission's assessment that this financial capital needs to be channelled to where it's needed, i.e. to finance the real economy.

However, it is already acknowledged that strengthening the central role of collateral is likely to create a number of systemic risks that we will describe in the next parts.

2. Benefits

Securities financing provides a number of benefits to the financial industry

Securities financing first provides a number of benefits to the financial industry: *"**securities lending forms a growing part of the revenue of institutional investors, custodian banks and the prime brokerage arms of investment banks**"*[275] as lending securities that they own or have been given care of provides an additional income. It also provides a cheaper source of funding for firms that are highly leveraged and for whom unsecured funding is expensive, reflecting the risky nature of their business. In this sense, securities financing also enables firms to take on additional leverage at a cheap cost.

It enables as well funds like hedge funds to engage in short selling, that is selling securities that they don't own – but that they can borrow prior to settlement – in the hope that their price will decline. This contributes to market liquidity and reduces the cost of trading.

It also benefits investors and issuers

Secondly, securities financing also benefits investors and issuers to some degree. *"To the extent that it supports credit, it is also important for the real economy (although quantifying the economic importance is complex). For example, a pension fund adept in securities lending may augment returns to its pensioners in the real economy"*[276]. Insofar as they are passed on to investors (as is mandatory in UCITS but not in AIFM), revenues from securities lending will increase investors' returns. However, in a number of cases, institutional investors keep a large portion or all of the revenue for themselves despite the fact that securities lending creates an additional risk for investors, should the borrower fail to return the security. The question has also been raised of whether securities financing goes against the fiduciary duty of institutional investors, which requires them to optimise the value of their clients holdings: as securities lending makes it easier for short sellers to bet against the securities owned by their clients, it may create downward pressure on the securities' price and potentially lower investment returns. Because voting rights are relinquished when stocks are lent, securities lending also limits funds' capacity to campaign actively for shareholder value.

Regarding issuers, as securities financing contributes to the deepening of capital markets, its benefits *"are likely to include improved market liquidity, more efficient settlement, tighter dealer prices and perhaps a reduction in the cost of capital"*[277].

Collateral is considered an indispensible lubricant to financial transactions

Additionally, "*the efficiency advantages of a collateral-based financial system include its adaptability and reduced need for costly relationship-based lending*"[278]. In other words, collateralised short term lending being fully guaranteed by the collateral, there is less of a need to assess the risk of the counterpart not repaying the loan, which is a costly activity. Of course the flipside of it is that when markets get stressed, lenders are less confident about the ability of their counterpart to repay the loan and thus require more collateral, introducing procyclicality as we will see later. Therefore, **while it is true that traditional lending involving assessing the risk of the counterpart may be more costly, it might be a cost worth paying.**

More generally, as liquid and safe collateral is the main form of money for asset managers, and financial institutions, it is now considered an indispensable lubricant to financial transactions and *"the lifeblood of the modern economy"*[279]. It is often argued that

275 Faulkner, M., *An Introduction to Securities Lending*, Spitalfields Advisors, Fourth Edition 2007

276 Singh 2013

277 Faulkner 2007

278 Credit Suisse, Wilmot, J. et al., *Market focus: when collateral is king*, 2012

279 Ibid.

our globalised economy has large liquidity needs, which can only be met by a collateral-based financial system. While the ubiquitous role of collateral is undeniable, it is important to remember that it is a consequence of the rise of shadow banking and a fairly recent phenomenon by historical standards, not an intangible fact. Similarly while the prevalence of collateral creates implications for monetary policy, should collateral's role become less central, this would reduce its importance for central banks.

It is however important to remember that it is a consequence of the growth of shadow banking and a recent phenomemon

To sum up, **securities financing offers indisputable benefits, mostly to the financial industry and more widely to investors and issuers, although the latter are more difficult to quantify**. Yet, as it is unclear that the growth of securities financing led to a meaningful contribution to the real economy, it is also unclear that a reduction of this activity would have an adverse impact on the financing of the real economy.

3. "A major source of unaddressed risk"

Securities financing transactions have been identified both as a key contributing factor to the financial crisis and as a *"major source of unaddressed risk"* in our financial system[280].

It is important to distinguish between the risks posed to individual institutions and systemic risks: *"From a microprudential perspective, SFTs are low risk, because the borrowing is short-dated, overcollateralized, marked-to-market daily, and subject to remargining requirements"*[281]. At the financial system level however they create major risks that span banks and non-banks. Some of these risks have already been described in the wholesale funding part and we will expand on them here.

Securities financing enables banks to increase their leverage quickly and at a cheap cost...

First, as discussed **securities financing transactions increase the procyclicality of the system's leverage**[282]. It is often assumed that bank funding comes mostly from deposits and is therefore relatively stable or "sticky"[283], as the quantity of deposits doesn't vary much. However, the funding that banks and hedge funds receive via SFT varies significantly in a procyclical manner through several channels: when markets go up and risk appetite is high, investors are willing to accept more assets as collateral, haircuts[284] and margin requirements decline providing more funding against given assets, marked-to-market values of the collateral assets increase, and the velocity of collateral increases. All of this enables banks to obtain more and more funding against a given set of assets in good times. Symmetrically however, when markets turn and investors start to become wary, the opposite process takes place, with investors suddenly refusing assets of lower quality as collateral, requesting higher haircuts and margins, marked-to-market values of collateral assets declining and collateral chains shrinking. As the funding is used to provide loans and make investments, the additional funding provided in good times increases the system leverage, and its withdrawal reduces it.

This additional leverage is therefore in direct relation to funding levels, fluctuating asset values and volatility, and is thus highly procyclical.

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280 Governor Daniel Tarullo, quoted in Singh 2013

281 Tarullo 2013a

282 Financial Stability Board, *Strengthening Oversight and Regulation of Shadow Banking - Policy Framework for Addressing Shadow Banking Risks in Securities Lending and Repos*, 29 August 2013

283 IMF 2011c

284 A haircut is a discount applied to the market value of an asset used as collateral, meant to act as a buffer should the market value of the collateral decline during the transaction period. For example an asset of €1000 with a 10% haircut can be used to get a loan of €900. If the volatility of the asset increases, eg the risk that its value will decline increases, the lender might increase the haircut when the loan is renewed, say to 20%, which means that the financing that can be obtained against this collateral will decline from €900 to €800. Margin requirements are similar for derivatives transactions.

... creating excess elasticity in our financial system

Therefore, while the increased reliance on collateralised funding mitigates counterparty risk for the lender compared to unsecured funding, it dramatically adds to the procyclicality of the financial system, as the availability of funding and related system leverage expand and contract with the market sentiment. It also can turn liquidity problems into insolvency problems almost overnight[285].

Financial markets being notoriously fickle and prone to mood swings from irrational exuberance to sudden bouts of fear and risk aversion, this source of funding adds elasticity in the financial system and increases its vulnerability to financial shocks. In fact ***"the excess elasticity of the monetary and financial system"*** **has been found to be the main contributing factor to the financial crisis**[286].

It is also interesting to note that **SFT is money creation with haircuts playing the role of reserve ratios defined procyclically by financial institutions**. As Mr Singh puts it *"collateral is like high-powered money, where the haircut is equivalent to the reserve ratio, and the number of re-pledges (the 'length' of the collateral chain) is equivalent to the money multiplier"*[287]. "High powered" because pledged collateral has been shown to have more velocity than money. Whereas traditional money creation (bills and coins) and banks' money creation are both monitored and subject to constraints by central banks, such as reserve requirements, money creation via SFT is not; central banks can only influence partly the amount of collateral in the system through purchasing and selling it and through changing their collateral framework (i.e. what type of collateral they accept). It is therefore a form of money creation self-regulated by the financial industry. This raises the question of whether haircuts, margin requirements and length of collateral chains should remain very elastic, with nobody in the industry willing spontaneously to *"take away the punch bowl just as the party gets going"*[288], or should be made stable like banks' reserve ratios. In fact, it has been argued that the growth of non-core liabilities – when banks increase their reliance on securities financing during credit booms to increase their leverage – is a sign of excessive asset growth in a lending boom[289].

Securities financing increases interconnectedness

Secondly, securities **financing transactions increase the interconnectedness of the financial system**, another major systemic risk. As ex-vice chairman of Credit Suisse Urs Rohner said "*the reality on the international level shows that the really central topic is not 'too big to fail', but rather 'too interconnected to fail'"*[290]. Despite a decline from its 2009 peak, overall interconnectedness remains very high as the counterparty for 24% of Euro area banking assets is another Euro area bank[291].

Securities financing increases interconnectedness as the collateral chains created by SFT increase the web of contracts and risks of contagion between entities in the financial system, and consequently increase the vulnerability to shocks.

Recent trends to address the perceived scarcity of collateral such as increased collateral re-use and collateral transformation are likely to further increase interconnectedness[292].

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285 Tarullo 2013a

286 BIS, Borio, C. and Disyatat, P., BIS Working Papers No. 346, *Global imbalances and the financial crisis: Link or no link?*, 2011b

287 Singh 2013

288 As per the famous expression of former Federal Reserve chairman William McChesney Martin

289 Song Shin, H., *Policy Memo Macroprudential Policies Beyond Basel III*, Princeton University, 22 November 2010

290 Businessweek, Onaran, Y., *JPGoldman Stanley Intact as Basel Change Keeps Bank Ties*, 21 April 2014

291 European Commission, Staff Working Document *European Financial Stability and Integration Report 2013* (SWD(2014) 170), 28 April 2014d

292 BIS 2013b

It also increases the risk of fire sales affecting other market participants...

Thirdly, as discussed, SFT increase the risk of fire sales in collateral securities and related negative externalities. A fire sale is the forced sale of an asset, as the seller cannot pay its creditors without selling assets. It only creates negative externalities and justifies a regulatory intervention if the fire sale hurts somebody other than the party selling the asset.

In the case of securities financing, let's take the example of hedge fund A that bought a security and financed the purchase mostly by lending this security overnight as collateral. If the price of the security declines, the hedge fund may not be able to meet the margin calls and be forced to sell the security. Hedge fund B who lent to hedge fund A is almost certain not to be affected as he has the security as collateral and daily margin calls to adjust the amount of its guarantee. However as the sale of the security further depresses its price, it reduces the ability of other funds C and D holding the same security to borrow against it, and might force them to involuntarily sell their positions as well, further fuelling the downward price spiral. Here typically a contract between funds A and B has negative spillover effects on other market participants not involved in the transaction[293].

... which is a negative externality

Fire sales of collateral securities can be caused by many factors, including an initial decline in the value of the collateral or an increase in its volatility that leads in an increase in haircuts. They can also be caused by concerns about the credit worthiness of a broker-dealer using SFT for its own funding or its clients, or by money market funds with a constant Net Asset Value fearing a run from their depositors. The recent crisis provided ample illustrations of fire sales when confidence in the value of assets used as collateral collapsed leading to wholesale market runs, and in fact the crisis started as a run on the liabilities of issuers of asset-backed commercial papers[294].

Fire sales of assets and runs are a key element of the procyclicality of this source of funding. These risks can also be compounded by several elements:

- The very high leverage in repo transactions, where a large number of borrowers finance the same securities with a very high leverage, often in the range of twenty-to-one fifty-to-one or higher[295], increases significantly the risk that one borrower's distress and related downward pressure on price will cause a tightening of collateral on other borrowers.
- Cliff effects[296], when sudden large changes in collateral valuations or netting agreements that are not legally enforceable create a sudden counterparty risk for the borrower that is not covered by the collateral.
- A "maturity rat race" where creditors shorten the maturity of lending to exit quickly instead of paying attention to the recovery value of the assets.
- Rehypothecation of unencumbered assets, when clients are uncertain about the extent to which their assets have been rehypothecated or about their ability to recover them in case of bankruptcy and start to be concerned about the creditworthiness of their prime-broker.

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293 Example borrowed from an excellent speech by New York Fed Governor Stein: *Securitization, shadow banking & financial fragility* (see Stein 2010)

294 Federal Reserve Bank of New York 2012a

295 A leverage of 50 to 1 means that an entity that purchased a security worth €100 did so with €2 of its own money and €98 of borrowing against this security, i.e. a 2% haircut. If the security declines just a little bit in value, the haircut will be increased when the borrower wants to renew the loan, which means that the borrower will not be able to borrow €98 again and will need to come up with other sources of funding to fill the gap. If he can't find additional funding, he may be forced to sell the security. See Stein, J.C., Speech, *The Fire-Sales Problem and Securities Financing Transactions*, 7 November 2013

296 Financial Stability Board 2013

- Inadequate collateral valuation practices, when the value of assets used as collateral is not updated or inaccurate, leading to surprise losses worsening market confidence.
- Phantom liquidity[297]/ excessive liquidity transformation: the more the assets used as collateral are based on illiquid claims that have been "transformed" or on low quality assets, the higher the risk that lenders will suddenly stop accepting them as eligible collateral when confidence declines.

SFT made the financial industry more vulnerable to runs in the years pre-crisis

The increased reliance on wholesale funding in the years preceding the crisis transformed the financial industry into one highly vulnerable to runs[298]. As a high reliance on securities financing weakens the funding structure of a financial institution making it more vulnerable to runs on wholesale funding, this vulnerability is especially problematic in the case of large systemic financial institutions, and is therefore part of the too-big-to-fail issue. The relationship between large firms and shadow banking meant that **strains on wholesale funding markets could both reflect and magnify the too-big-to-fail problem**. Fed governor Tarullo recently acknowledged that *"the area in which the most work is needed is in addressing the risks arising from the use of short-term wholesale funding by systemically important firms"* and argued that *"there is a strong case to be made for taking steps [for systemically important institutions] beyond any generally applicable measures that are eventually applied to SFTs or short-term wholesale funding more generally."*

While on the topic of too-big-to-fail, **concentration is also a serious issue linked to SFT, with only 14 banks active in global collateral management**, as identified by the IMF[299].

Incidentally, because large systemic banks are so reliant on wholesale funding, measures aimed at internalising the negatives externalities of SFT such as a Pigouvian tax[300] would restrain its use and should therefore mechanically reduce the size of these institutions. In this respect one could argue that **curbing the use of securities financing would be an effective and complementary tool to address too-big-to-fail**, both by strengthening the funding structure of these institutions and by reducing their size and systemic importance.

It also increases moral hazard and makes deposit guarantee schemes more fragile

Lastly, negative externalities linked to securities financing transactions include moral hazard, a weakening of deposit insurance schemes and a reduced effectiveness of bail-in measures. First it has been argued convincingly that *"key non-bank players, due to their interconnectedness with the dealer banks may (again) benefit from taxpayer support during the next financial crisis (..) Runs by prime brokerage clients (typically hedge funds) demanding the return of their collateral were a major source of instability for dealer banks in 2008 (including all stand-alone US investment banks, such as Bear Stearns, Lehman Brothers and Merrill Lynch), ultimately leading to large central bank and government support measures"*[301].

On the second point, a recent BIS discussion paper assessed that the growing reliance on collateralised funding by raising the share of bank assets that are encumbered, "can

297 *"This 'phantom liquidity' refers to liquidity provided to the market on the back of potentially systemically risky practices. For example, before the crisis dealers could bundle illiquid bonds into structured debt products such as Collateral Debt Obligations, a move that helped amplify the financial crisis"*. See IOSCO 2014

298 Tarullo 2013a

299 Financial Times, Gangahar, A., *Default protection: Collateral management grows in strength*, 19 September 2014

300 A tax applied to an activity generating negative externalities, ie affecting negatively other entities not involved in the activity

301 Singh 2013

adversely affect the residual claims of unsecured creditors during bank resolution, increase risks to deposit insurance schemes and reduce the effectiveness of policies aimed at bail-in."[302]

4. The regulatory response so far

A number of initiatives are underway to address these issues

A number of initiatives have been taken or are currently underway to address the issues linked to securities financing transactions. Post crisis regulations include a proposal for a regulation on money market funds aimed at reducing the risk of runs and a proposal to improve the transparency of securities financing transactions[303], a welcome and indispensable first step. While both proposals are good, they do not address comprehensively the issues described above.

Bank prudential regulation CRDIV/CRR also does not address these issues. Capital requirements are so far independent from the financing structure of an institution, the future leverage cap is aimed at being a backstop rather than a binding measure, and even if it were, it would not constrain SFT in an equivalent manner for all firms[304].

The liquidity ratios in CRDIV fail as well to address the negative externalities of fire sales. In their current form, they mostly aim at reducing maturity mismatches between assets and liabilities at an institution level. Maturity mismatch in core institutions is indeed a key financial stability risk in wholesale funding markets but it is not the only one.

The Financial Stability Board is doing promising work

As described by Fed governors Stein and Tarullo *"Even if an intermediary's book of securities financing transactions is perfectly matched, a reduction in its access to funding can force the firm to engage in asset fire sales or to abruptly withdraw credit from customers. The intermediary's customers are likely to be highly leveraged and maturity transforming financial firms as well, and, therefore, may then have to engage in fire sales themselves. The direct and indirect contagion risks are high. (..) The LCR and, at least at this stage of its development, the NSFR, both rest on the implicit presumption that a firm with a perfectly matched book is in a fundamentally stable position. As a microprudential matter, this is probably a reasonable assumption. But under some conditions, the disorderly unwind of a single, large SFT book, even one that was quite well maturity matched, could set off the kind of unfavourable dynamic described earlier. Second, creating liquidity levels substantially higher than those contemplated in the LCR and eventual NSFR may not be the most efficient way for some firms to become better insulated from the run risk that can lead to the adverse feedback loop and contagion possibilities discussed earlier"*[305].

BIS' statement that *"the crisis did indeed teach banks in the advanced economies that they need to hold more liquid assets even in normal times"*[306] is thus debatable in our view and we would argue instead that the crisis rather taught that banks need more stable funding, something that is not currently incentivised directly by regulation.

The recent exemption from bail-in of secured liabilities (including e.g. repo) and liabilities to institutions with an original maturity of less than seven days in the bank recovery and resolution directive[307] is also likely to favour securities financing transactions.

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302 BIS 2013b

303 European Commission, *Proposal for a Regulation on reporting and transparency of securities financing transactions* (COM(2014) 40 final), 29 January 2014b

304 Stein 2013

305 Tarullo 2013a, also see for examples Stein 2013

306 BIS, Turner, P., BIS Working Papers No. 448, *The exit from non-conventional monetary policy: what challenges?*, 2014c

307 Article 44.2.e, European Parliament and Council of the European Union, *Directive 2014/59/EU establishing a framework for the recovery and resolution of credit institutions and investment firms*, 15 May 2014b

The Financial Stability Board's regulatory framework for haircuts on non-centrally cleared securities financing transactions[308] is both important and promising: minimum haircut floors will be introduced for securities financing transactions that are not centrally cleared, that finance non-banks and use collateral assets other than government securities. These floors aim at limiting the build up of leverage outside of the banking system and at reducing the procyclicality from such leverage. We also strongly support further investigation on the possibility mentioned to use these numerical floors as a macro prudential tool in the future, by changing floors in a countercyclical manner.

But additional measures are needed

The recent update of the framework to extend the scope to 'non-bank to non-bank' transactions and to increase of minimum haircut floors is very welcome as well and we hope to see it implemented in the near future.

The expanded scope should cover roughly 25% of transactions, 50% being excluded as they provide funding to banks and 25% being excluded as they use government debt as collateral.

As bank risk weighted capital does not act as a leverage cap, and as a future leverage cap is meant to act as a backstop rather than be binding, we believe that there would be merits in expanding the scope to transactions financing banks. In addition, as described earlier the liquidity coverage ratio has been found ineffective to mitigate fire-sale externalities in some cases[309].

While collateralised funding is very useful in times of stress and distrust...

As the crisis showed that some government securities could see their price change in a procyclical manner, we also would see merits in including them in the scope. Excluding them might dent the effectiveness of this countercyclical tool[310]. As we appreciate however the political challenge of including them in the scope, capping their re-use might be politically easier.

Additionally, it is important to bear in mind that some degree of procyclicality - and thus negative externalities - will remain in securities financing transactions through the re-use of collateral and the varying length of collateral chains, through the Marked-to-Market valuation of collateral assets and through the risk of collateral fragmentation (when some assets are no longer accepted as collateral). Therefore, **additional work remains to be done to curb the re-use of collateral**. We must also be careful to ensure that collateral assets be as safe as possible to limit the risk of collateral fragmentation. In this respect, we would favour excluding tranching from high quality securitisation.

... it would be unhealthy to make it the new norm

More fundamentally we believe that **reaffirming collateralised funding as the new norm is unhealthy** and would like to see measures incentivising both unsecured lending and more stable funding over securities financing transactions.

Lastly, the European Commission study of a possible cap on rehypothecation is also a promising development to the extent that there will be a follow up. The US already has a cap of 140% of the asset value and rehypothecation is entirely banned in Canada.

Based on the above, we conclude that the **current regulatory toolkit as a whole does not yet address comprehensively the risks of SFT**. Recent policy initiatives while going in the right direction also fall short so far. **This is something we might want to keep**

308 Financial Stability Board, *Strengthening Oversight and Regulation of Shadow Banking - Regulatory framework for haircuts on non-centrally cleared securities financing transactions*, 14 October 2014

309 Stein 2013

310 See Gabor, D., *Carney's ambitions for shadow banking reform: empty promises?*, 2014b

in mind before promoting collateral creation and a related renewed growth of securities financing.

5. Five questions worth asking ourselves

Given the potential systemic risks attached to a revival of securitisation and securities financing, we might want to ask ourselves several questions before going in this direction.

Do we need to create liquid assets to encourage patient capital to invest in real assets?

1. How is promoting liquidity transformation consistent with the claim to encourage patient capital financing real assets?

Patient long term capital does not require per se liquidity transformation to invest in illiquid real assets. Liquidity transformation, the process that transforms illiquid assets into liquid tradable financial assets (as securitisation does) is useful to facilitate short term trading, but not indispensable for long term investing.

Some long term investors might have a preference for liquid assets, due to current regulatory, accounting, resources and investment mandates constraints, limited risk appetite and hopes for additional returns.

We understand that long term investing is not only about buy and hold and may involve other shorter term strategies, however we should ensure that whatever the strategy long term investors play a countercyclical role. Additionally, the lower liquidity and tradability of non-securitised assets may promote healthier and more sustainable behaviours such as a renewed focus on direct risk assessment from investors and a related decrease in herding behaviour. It should also reduce interconnectedness and the procyclicality of the financial system, thanks to a lower reliance on external risk assessments, a reduced use of collateralised funding, a lower involvement of "hot money" investors, and a lower risk of phantom liquidity.

Do we want to promote a more collateral-intensive financial system?

2. Should we reaffirm collateral's central role in our financial system?

As excess elasticity in our financial system has been found to be one of the main contributing factors to the financial crisis and as the crisis has also shown that no collateral remains safe and liquid at all times[311], the question also needs to be asked whether we want to strengthen the central role of collateral in our system before having mitigated the related negative externalities.

By promoting a growing role of investment banking and non-bank lending we will increase the appetite for collateral, as many of these entities are collateral-intensive. At the same time, a revival of securitisation will create more collateral assets and feed this appetite, increasing interconnectedness, concentration and procyclicality[312].

It also raises the key question of what will be the funding model of institutions originating long term credit to the real economy. Do we favour more profitable institutions with weaker funding structures? It might be worth remembering that not all bank models rely extensively on wholesale funding, and that traditional banks relying more on deposits do not create the issues described above.

It might also be good to bear in mind that the ubiquitous role of collateral is fairly recent by historical standards, and not that long ago our financial system functioned well without it. While we are unlikely to reverse this trend, the role of regulation is to address negative externalities and to provide the right incentives. As the awareness of the risks has grown

311 Except for US treasuries

312 BIS 2013b

tremendously amongst international regulatory bodies over the past five years, we need to internalise the negative externalities of securities financing before feeding its development.

3. SFT being leverage creation, it raises the question of how much leverage do we really need?

How much leverage do we really need?

The demand for collateral assets for the purpose of securities financing is a demand for leverage. One might question the consistency of trying to reduce the leverage of banks through higher capital requirements on one hand while promoting procyclical leverage creation in the financial system. Given the financing needs of the real economy compared to the vast amount of financial capital, the short answer is not very much if this capital is channelled where it's needed.

A longer answer would involve discussing what profitability should the financial industry reasonably expect: leverage is a way to increase the profitability of the financial industry, compounded by the fact that debt is currently unfairly favoured over equity by tax regimes and that profitability is often equated to return on equity.

4. Should we have money creation with reserve ratios defined procyclically by the financial industry?

As securities financing is money creation, should it be regulated?

As seen earlier, collateral is like money on steroids where haircuts are the equivalent of the reserve ratio, and the number of times it is re-used is equivalent to the money multiplier, but with the difference that both factors fluctuate with the economic cycle and market sentiment. One could argue that not addressing this would be equivalent to letting banks choose freely their leverage, which some did through optimistic "risk weight optimisation" with the results that we know.

5. Can the repo market carry the burden of financial integration and will ABS prove to be EU's safe asset that sovereign debt failed to be?

Policymakers now recognise that modern runs in market-based financial systems start, and/or are propagated, through the repo market[313]. For the purpose of financial integration as well as for stability purposes, assets that are used as collateral for repo and other securities financing transactions need crucially to be considered by market participants to be safe and liquid at all times, particularly in times of stress.

Are we sure that asset backed securities will not experience investors' loss of confidence, just as sovereign debt did in times of stress?

It remains to be seen whether asset backed securities of SME loans will maintain that trust better than debt guaranteed by Member States, not so long ago considered as risk free. While securitisation is evolving towards more transparency, more standardisation and fewer conflicts of interest, we are not convinced that all issues have been addressed yet. Additionally even if they were, the underlying itself – namely loans to SMEs – is very heterogeneous, subject to economic cycles and Member States policies and likely to be impacted by the state of their public finances. In addition, market sentiment and investors' perceptions being very fickle and sometimes overreacting even in the absence of proven concerns, it might therefore not be entirely unreasonable to challenge the assumption that SME ABS will live up to this promise and that investors will never differentiate between securitised loans from troubled countries and securitised loans from healthy ones.

313 Gabor 2014a

6. Several proposals put forward

Several proposals have been formulated to address these issues[314]. They deserve in our view strong consideration and further analysis.

Introducing minimum haircut floors on all securities transactions would reduce procyclicality

1. Universal minimum margining requirement

The idea is to impose a minimum haircut on any party that uses short term collateralised funding to finance its securities holdings, regardless of whether the party is prudentially regulated or not. This would be a very effective tool to reduce procyclicality and limit the risks of runs and contagion.

Because the requirement is at the security level rather than at the entity level, it cannot be avoided as easily as a requirement limited to regulated entities. In this respect the FSB proposals, while very good, might not be comprehensive enough as discussed earlier.

Such a tool is very promising and its benefits go beyond addressing the negative externalities of SFT, as they might disincentivise reverse maturity transformation and promote instead long term investing.

Some have proposed to link capital requirements and use of securities financing

2. Tie-in capital requirements and use of SFT

Alternative proposals have been made to link capital requirements and the use of SFT[315] by requiring higher levels of capital for large firms unless their liquidity position is substantially stronger than minimum requirements. Such an approach would let systemically important firms choose between holding more capital and having a liability structure that reduces the potential for system risks. It would also complement Basel's capital surcharge that currently does not include the use of wholesale funding in the factors used to calculate the systemic footprint of a firm.

Another suggestion made is to establish a tax on non-core liabilities[316]. Such a tax would be a countercyclical prudential measure as it would bite hardest during booms when non-core liabilities grow. It would also not affect the channelling of core funding from savers to borrowers.

The issue with both approaches is that as standalone measures, they might incentivise a migration of SFT outside of bank and broker dealer intermediation and thus fail to comprehensively address the issue. However as a complement to the minimum haircut requirement either approach has merits and is worth pursuing as it would directly incentivise more stable funding structures for systemically important institutions.

Capping the re-use of collateral would address many of the risks

3. Cap rehypothecation / re-use of collateral

Re-use of collateral being the core element of collateral chains and velocity of collateral, it creates interconnectedness, procyclicality and weakens investors’ claims on their assets. Lehman’s failure provided a very good example of the riskiness of allowing rehypothecation and the commingling of client assets[317]. There is thus a good case to limit re-use. The US

314 Stein 2010, Tarullo 2013

315 Tarullo op cit.; also see president of the Federal Reserve Bank of Boston Eric S. Rosengren's call for financial institutions making large use of repo borrowing to maintain higher levels of capital: New York Times DealBook, Eavis, P., *Boston Fed Chief Warns of Dangers to Repo Market*, 13 August 2014

316 Song Shin 2010

317 Deryugina, M., *Rehypothecation and Securities Commingling in the United States and the United Kingdom*, Review of Banking and Financial Law, Boston University, Vol. 29, pp 253-288, 2009

already has a cap at 140% on rehypothecation[318] and some in the industry agree that a similar cap in Europe would not create significant issues[319].

Linking premium on deposit guarantee schemes with asset encumbrance would discipline banks

4. Link risk premium on deposit guarantee schemes with asset encumbrance

Collateralised funding in general increases asset encumbrance: in case of default of the borrower, the lender has the right to sell the asset given as guarantee to recover his cash, and is given preference over unsecured creditors. Thus the more a bank relies on collateralised funding, the fewer assets will be available to unsecured creditors such as depositors from which to try and recover their losses in a bankruptcy, and the more likely deposit guarantee schemes will have to kick in to compensate depositors. Banks using more extensively secured funding therefore increase the risk that deposit guarantee schemes will be used and might not be large enough.

As the BIS argued, *"risk-sensitive deposit guarantee premia could serve to discipline banks. This would internalise the effect of asset encumbrance on residual risks for such schemes, as well as for the government as the ultimate safety net"*[320].

Such measures would curb the role of collateral in our financial system

5. Additional measures

Additional policy measures that need to be considered in our view include removing the exemption for SFT in the Bank Recovery and Resolution directive, shortening the implementation period of the Transparency of Securities Financing Transactions regulation and redesigning the liquidity ratios in CRDIV. Also should there be a shortage of safe/liquid collateral assets, *"collateral transformation is likely to fill the void, but this will increase the nexus between banks and non-banks"*[321] and should thus be limited as well in our view.

Critics claim that measures aimed at curbing securities financing transactions would increase transaction costs for derivatives, hurt prime brokers and hedge funds, cut a major source of bank funding and reduce banks' ability to get more liquid assets to meet their liquidity requirements.

They also claim that it would reverse the trend towards the collateralisation of financial transactions - one of the pillars of the new global regulatory framework being constructed under the Basel regime, that it would reduce liquidity and lending to the real economy and increase the vulnerability of banks to runs.

It is not clear that curbing SFT would reduce liquidity and lending to the real economy

It would indeed likely hurt prime brokers, increase funding costs for hedge funds and increase transaction costs for derivatives, but as this additional cost to some parts of the financial industry is the price to internalise externalities, it is merely a fair repricing.

It would also cut a major source of funding for the banks that are heavily reliant on wholesale funding, that is mostly systemically important institutions, but that would be a desired effect to push them to get more stable funding, not an unintended consequence. Regarding the liquidity ratios, as discussed they do not require per se banks to hold more liquid assets as they offer them the alternative to get more stable funding.

318 The FSB distinguishes "re-use" as any use of securities delivered in one transaction in order to collateralise another transaction; and "re-hypothecation" more narrowly as re-use of client assets. Also see IMF, Manmohan Singh, M., *Velocity of Pledged Collateral,* WP/11/256, November 2011d. As transactions like repo involve a transfer of ownership of the security, one might argue that curbing it would go against the free movement of capital in the EU, however article 65 (1b) of TFEU is one of the exemptions to this principle in the field of prudential supervision of financial institutions.

319 "A *cap which is well under 140% at say 125% would have an impact were the collateral at a low investment grade and it would become harder for the prime broker to provide financing to certain strategies. However, were regulators to follow the US line and impose a cap of 140%, I doubt there would be many issues," said Mark Harrison, European head of prime finance at Citi.*" Cooconnect, *Rehypothecation caps in EU would hurt PBs and hedge funds, warns industry experts*, 24 September 2012

320 BIS 2013b

321 Singh 2013

It would increase the cost of leverage, but since there is no shortage of capital, we may not need that much leverage

To some extent, this would also reverse the trend towards the collateralisation of financial transactions and reemphasize unsecured funding. Again, this is an intended consequence. The argument that it would increase banks’ vulnerabilities to runs since they would not be able to sell their assets quickly in case of massive withdrawals is surprising, since it has been demonstrated that SFT increase the risk of runs.

Lastly, the argument that it would reduce liquidity and lending to the real economy is debatable: first, since it has been demonstrated that the growth of non-core liabilities is a sign of excessive asset growth, we would argue that it might merely reduce excessive lending to the real economy as happens during bubbles, not core lending funded by core liabilities.

More broadly we recognise that internalising the negative externalities of SFT would increase the cost of leverage. This brings us to our previous point that since there is no shortage of financial capital compared to the needs of the real economy, we may not need that much leverage, but instead we need to channel this capital to where it is needed. Among the many possible channels, we find it important to prioritise those without negative externalities. To the extent that there may be less appetite for these than for other more risky channels, this will probably require providing a different set of incentives, admittedly a more ambitious undertaking than feeding existing appetites, but we are convinced that the medium term benefits justify it.

References

Aalbers, M. B., *The Financialization of Home and the Mortgage Market Crisis*, Competition & Change – The Journal of Global Business and Political Economy, Volume 12, Issue 2, June 2008, pp. 148-166, http://www.maneyonline.com/doi/abs/10.1179/102452908X289802

Acharya, V., Schnabl, P. and Suarez, G., *Securitization without risk transfer*, NBER Working Paper No. 15730, February 2010, http://www.nber.org/papers/w15730.pdf

Acharya, V. and Richardson, M., *Repairing a Failed System: An Introduction*, NYU Stern Restoring Financial Stability: How to Repair a Failed System, Wiley, March 2009, http://whitepapers.stern.nyu.edu/summaries/intro.html

Acharya, V., Cooley, T., Richardson, M. and Walter, I., *Manufacturing Tail Risk: A Perspective on the Financial Crisis of 2007-2009*, Foundations and Trends in Finance, Vol. 4, No. 4, 2009a, pp. 247–325, http://pages.stern.nyu.edu/~sternfin/vacharya/public_html/tail_risk.pdf

Acharya, V., Biggs, J. Richardson, M. and Ryan, W., *On the Financial Regulation of Insurance Companies*, NYU Stern School of Business, August 2009b, http://web-docs.stern.nyu.edu/salomon/docs/whitepaper.pdf

AFME, *Map of direct and indirect securitisation European regulations since the crisis*, April 2014, http://www.afme.eu/WorkArea/DownloadAsset.aspx?id=10680

Allen & Overy, *Corporate funding monitor: the changing face of finance*, 2014, http://www.allenovery.com/SiteCollectionDocuments/corporatefundingmonitor.pdf

Asian Development Bank Institute, Fujii, M., *Securitized Products, Financial Regulation, and Systemic Risk*, ADBI Working Paper Series No. 203, March 2010, http://asianbondsonline.adb.org/publications/adb/2010/financial_regulation_systemic_risk.pdf

Assa, J., *Financialization and its Consequences: the OECD Experience, Finance Research*, Vol. 1, No. 1, pp. 35-39, January 2012, http://www.researchpub.org/journal/fr/number/vol1-no1/vol1-no1-4.pdf

Baglioni et al., *Leverage pro-cyclicality and securitization in US banking*, 2012, http://www.aidea2013.it/docs/74_aidea2013_banking-and-finance.pdf

Bain & Company and Institute of International Finance, *Restoring Finance and Growth to Europe's SMEs*, 2014, http://www.bain.com/Images/REPORT_Restoring_financing_and_growth_to_Europe%27s_SMEs.pdf

Bain & Company, *A World awash in Money*, 2012, http://www.bain.com/Images/BAIN_REPORT_A_world_awash_in_money.pdf

Bank of England and ECB, Discussion paper *The case for a better functioning securitisation market in the European Union*, May 2014, http://www.bankofengland.co.uk/publications/Documents/news/2014/paper300514.pdf

Bank of Greece, Athanasoglou, P.P. and Daniilidis, I., *Procyclicality in the banking industry: causes, consequences and response*, Working Paper 139, October 2011, http://www.bankofgreece.gr/BogEkdoseis/Paper2011139.pdf

Battaglia, F. and Gallo, A., *The impact of securitization on tail and systemic risk: evidence from the financial crisis*, Paper presented at XXI International Conference on Money, Banking and Finance, December 2012, http://mbfconference.luiss.it/files/2012/12/2-Battaglia_Gallo_LUISS_DIC_2012_DEF.pdf

BIS, Technical Committee of the International Organization of Securities Commissions (IOSCO) and Committee on Payment and Settlement Systems (CPSS), *Securities lending transactions: Market developments and implications*, July 1999, http://www.bis.org/publ/cpss32.pdf

– Fender, I. and Mitchell, J., *Incentives and Tranche Retention in Securitisation: A Screening Model*, 2009, http://www.bis.org/bcbs/events/cbrworkshop09/fendermitchell.pdf

– Song Shin, H., *Financial intermediation and the post-crisis financial system*, BIS Working Paper No. 304, March 2010, http://www.bis.org/publ/work304.pdf

– Basel Committee for Banking Supervision, *Report on asset securitisation incentives*, 2011a, http://www.bis.org/publ/joint26.pdf

– Borio, C. and Disyatat, P., *Global imbalances and the financial crisis: Link or no link?*, BIS Working Paper No. 346, 2011b, http://www.bis.org/publ/work346.pdf

– Cecchetti, S. G., Kharroubi, E., *Reassessing the impact of finance on growth*, BIS Working Paper No. 381, 2012, http://www.bis.org/publ/work381.pdf

– Basel Committee on Banking Supervision, Consultative Document *Revisions to the securitisation framework*, 2013a, http://www.bis.org/publ/bcbs269.pdf

– Committee on the Global Financial System Paper No. 49 *Asset encumbrance, financial reform and the demand for collateral assets*, 2013b, http://www.bis.org/publ/cgfs49.pdf

– Takáts, E. and Upper, C., *Credit and growth after financial crises*, BIS Working Paper No. 416, 2013c, http://www.bis.org/publ/work416.htm

– BIS Papers No. 75, *Long-term finance: can emerging capital markets help?*, 2013d, http://www.bis.org/publ/bppdf/bispap75.pdf

– Basel Committee on Banking Supervision, Consultative Document *Basel III: The Net Stable Funding Ratio*, 2014a, http://www.bis.org/publ/bcbs271.pdf

– Cohen, B. H. and Scatigna, M., *Banks and capital requirements: channels of adjustment,* BIS Working Paper No. 443, 2014b, http://www.bis.org/publ/work443.pdf

– Turner, P., *The exit from non-conventional monetary policy: what challenges?*, BIS Working Paper No. 448, 2014c, http://www.bis.org/publ/work448.htm

– BIS 84th Annual Report, *VI. The financial system at a crossroads*, 29 June 2014d, pp. 103-121, http://www.bis.org/publ/arpdf/ar2014e6.pdf

– Roengpitya, R., Tarashev, N. and Tsatsaronis, K., *Bank business models*, BIS Quaterly Review, December 2014e, pp. 55-65, http://www.bis.org/publ/qtrpdf/r_qt1412g.pdf

– Antoniades, A. and Tarashev, N., *Securitisations: tranching concentrates uncertainty*, BIS Quaterly Review, December 2014f, pp. 37-53, http://www.bis.org/publ/qtrpdf/r_qt1412f.pdf

Bloomberg View, Klein, M. C., *Time to Ditch the Yale Endowment Model*, 3 October 2013, http://www.bloombergview.com/articles/2013-10-03/time-to-ditch-the-yale-endowment-model-

Bloomberg, Kennedy, S. and Martinuzzi, E., *Davos Finds Inequality Its Business as Backlash Seen*, 24 January 2014, http://www.bloomberg.com/news/2014-01-23/davos-makes-inequality-its-business-as-political-backlash-seen.html

Bruegel, Darvas, Z., Paper for European Parliament *Banking system soundness is the key to more SME*, 2013, http://www.europarl.europa.eu/document/activities/cont/201307/20130712ATT69731/20130712ATT69731EN.pdf

Businessweek, Onaran, Y., *JPGoldman Stanley Intact as Basel Change Keeps Bank Ties*, 21 April 2014, http://www.businessweek.com/news/2014-04-21/jpgoldman-stanley-intact-as-basel-change-leaves-banks-entwined

Capra, F., *It's a wonderful life*, Liberty Films, USA 1947

Chernenko, S., Hanson, S., and Sunderam, A., *The Rise and Fall of Securitization*, Harvard Business School, Working Paper, December 2013

Chisholm, A., *An introduction to capital markets: products, strategies and participants*, Wiley Finance, 2009

CNBC News, Holliday, K., *Mervyn King: This is European banks' 'last chance'*, 4 August 2012, http://www.cnbc.com/id/101890616?__source=ft&par=ft

Cooconnect, *Rehypothecation caps in EU would hurt PBs and hedge funds, warns industry experts*, 24 September 2012, http://cooconnect.com/news/rehypothecation-caps-eu-would-hurt-pbs-and-hedge-funds-warns-industry-experts

Coval, J. D., Jurek, J. and Stafford, E., *The Economics of Structured Finance*, Harvard Business School Working Paper 09-060, 2008, http://www.hbs.edu/faculty/Publication%20Files/09-060.pdf

Credit Suisse, *Global wealth report*, 2014, https://publications.credit-suisse.com/tasks/render/file/?fileID=60931FDE-A2D2-F568-B041B58C5EA591A4

– Wilmot, J. et al., *Market focus: when collateral is king,* 2012, http://www.cigionline.org/sites/default/files/shared/king%20collateral%20-%204B.pdf

Daily Telegraph, Gilligan, A., *It's a scandal how our money is going down the Tub*e, 18 December 2009, http://www.telegraph.co.uk/news/politics/david-cameron/6837902/Its-a-scandal-how-our-money-is-going-down-the-Tube.html

– Wilson H., *Handelsbanken is championing an old way of doing new UK business*, 24 August 2013, http://www.telegraph.co.uk/finance/newsbysector/banksandfinance/10264024/Handelsbanken-is-championing-an-old-way-of-doing-new-UK-business.html

de Larosière, J., *Time has come to revive a sound and safe securitization market in Europe*, April 2014, http://www.eurofi.net/wp-content/uploads/2014/03/2014_Securitization-market-in-Europe_Athens.pdf

Deloitte, *Capital gain, asset loss, European bank deleveraging. The Deloitte Bank Survey 2012*, 2012, http://www.deloitte.com/assets/Dcom-UnitedKingdom/Local%20Assets/Documents/Industries/Financial%20Services/uk-ind-fs-bank-survey.pdf

– *The fork in the road ahead – An in-depth analysis of the current infrastructure funds market*, 2014, http://images.mofcom.gov.cn/gb/accessory/201208/1346334269449.pdf

Deryugina, M., *Rehypothecation and Securities Commingling in the United States and the United Kingdom*, Review of Banking and Financial Law, Boston University, Vol. 29, pp. 253-288, 2009, http://www.bu.edu/rbfl/files/2013/09/Deryugina.pdf

Diamond, D. W. and Rajan, R., *The Credit Crisis: Conjectures About Causes and Remedies*, National Bureau of Economic Research, Working Paper No. 14739, 2009, http://www.nber.org/papers/w14739.pdf

EBA, Press release *EBA consults on simple, standard and transparent securitisations and their potential regulatory recognition*, 14 October 2014, https://www.eba.europa.eu/-/eba-consults-on-simple-standard-and-transparent-securitisations-and-their-potential-regulatory-recognition

EBF, Proskurovska, V., *European banking sector facts and figures 2012*, 2012, http://www.ebf-fbe.eu/uploads/FF2012.pdf

– Proskurovska, V., *European banking sector facts and figures 2013*, 2013, http://www.ebf-fbe.eu/wp-content/uploads/2014/02/FF2012.pdf

ECB, *Survey on the access to finance of small and medium-sized enterprises in the Euro area*, 2013, http://www.ecb.europa.eu/pub/pdf/other/accesstofinancesmallmediumsizedenterprises201311en.pdf

EIB, Engel, E. M. R. A., Fischer, D. and Galetovic, A., *The economics of infrastructure finance: Public-private partnerships versus public provision*, 2010, http://www.econstor.eu/bitstream/10419/45373/1/657028975.pdf

EIOPA, *Technical Report, Standard Formula Design and Calibration for Certain Long Term Investments*, 2013, https://eiopa.europa.eu/fileadmin/tx_dam/files/consultations/consultationpapers/EIOPA-13-163/EIOPA_Technical_Report_on_Standard_Formula_Design_and_Calibration_for_certain_Long-Term_Investments__2_.pdf

Elsinger, H., Lehar, A. and Summer, M., *Risk Assessment for Banking Systems, Management Science*, Vol. 52, No. 9, pp. 1301-1314, http://www.iiw.uni-bonn.de/seminare/2011/regulierung/unterlagen/Thema%202.1%20Elsinger,%20Lehar,%20Summer%20(2006).pdf

Embrechts, P., ETH Zurich, ICA 2010 Key Note Address, 2010, http://vimeo.com/10896771

Epoch Investment Partners Inc., *Too Big To Ignore*, 2013, http://www.eipny.com/index.php/epoch_insights/papers/too_big_to_ignore

ESBG, *Economic demonstration of the economic impact of liquidity ratios in particular for SME lending*, January 2014, http://www.wsbi-esbg.org/SiteCollectionDocuments/ESBG_BRO_SMELENDING.pdf

– *ESBG Response to the Green Paper on the Long-Term Financing of the European Economy*, 2013, http://ec.europa.eu/internal_market/consultations/2013/long-term-financing/docs/contributions/registered-organisations/european-savings-banks-group_en.pdf

ESMA, EIOPA and EBA, *Joint Committee Report on Risks and Vulnerabilities in the EU Financial System,* 2014, http://www.eba.europa.eu/documents/10180/534414/JC+2014+18+%28Report+on+risks+and+vulnerabilities+in+the+EU+financial+system+spring+2014%29.docx.pdf

ESRB, Reports of the Advisory Scientific Committee No. 4 *Is Europe Overbanked?*, 2014a, http://www.esrb.europa.eu/pub/pdf/asc/Reports_ASC_4_1406.pdf?4fa1ede5965b4df5613605d6bab04a6b

– Keller, J. et al., *Securities financing transactions and the (re)use of collateral in Europe*, Occasional Paper Series No. 6, 2014b, http://www.esrb.europa.eu/pub/pdf/occasional/20140923_occasional_paper_6.pdf?4efdc7862c0d07aa7d789b9f00ee7e8e

European Commission, Letter by Jonathan Faull, Director-General, Internal Market and Services DG, to Gabriel Bernardino, Chair of the European Insurance and Occupational Pensions Authority (Ref. Ares(2012)1119169), 26 September 2012, http://ec.europa.eu/internal_market/insurance/docs/solvency/20120926-letter-faull_en.pdf

– *Final report of the High-level Expert Group on reforming the structure of the EU banking sector (Liikanen Report)*, 2 October 2012, http://ec.europa.eu/internal_market/bank/docs/high-level_expert_group/report_en.pdf

– *Speech by László Andor Ensuring the sustainability of EU pension systems*, 25 February 2013a, http://europa.eu/rapid/press-release_SPEECH-13-155_en.htm

– *Green Paper Long-term financing of the European economy (COM(2013) 150 final)*, 25 March 2013b, http://ec.europa.eu/finance/general-policy/financing-growth/long-term/index_en.htm

– *Analytical Report 2013 SMEs' Access to Finance survey*, 14 November 2013c, http://ec.europa.eu/enterprise/policies/finance/files/2013-safe-analytical-report_en.pdf

– *MEMO New rules on credit rating agencies (CRAs) enter into force – frequently asked questions*, 18 June 2013d, http://europa.eu/rapid/press-release_MEMO-13-571_en.htm

– *Delegated Regulation supplementing the Directive 2009/138/EC on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (draft)*, 2014a, http://ec.europa.eu/internal_market/insurance/docs/solvency/solvency2/delegated/141010-delegated-act-solvency-2_en.pdf

– Proposal for a Regulation on reporting and transparency of securities financing transactions (COM(2014) 40 final), 29 January 2014b, http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014PC0040

– *Communication on Long-Term Financing of the European Economy (COM(2014) 168 final)*, 27 March 2014c, http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014DC0168

– *Staff Working Document European Financial Stability and Integration Report 2013 (SWD(2014) 170)*, 28 April 2014d, https://www.ecb.europa.eu/events/conferences/shared/pdf/EC_financial_integration_report.pdf?d8d7b6095ff770bebc48aa6ad25a9542

– *Staff Working Document Economic Review of the Financial Regulation Agenda (SWD(2014) 158 final)*, 15 May 2014e, http://ec.europa.eu/internal_market/finances/docs/general/20140515-erfra-working-document_en.pdf

European Parliament and Council of the European Union, *Directive 2014/59/EU establishing a framework for the recovery and resolution of credit institutions and investment firms*, 15 May 2014b, http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32014L0059

European Parliament, *Own Initiative Report on Long-term financing of the European economy (2013/2175(INI))*, 26 February 2014a, http://www.europarl.europa.eu/sides/getDoc.do?type=TA&language=EN&reference=P7-TA-2014-0161

Eurostat, News release *Euro indicators 14/2014 Household saving rate nearly stable at 13.0% in the euro area and 10.7% in the EU28*, 28 January 2014, http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/2-28012014-AP/EN/2-28012014-AP-EN.PDF

Faulkner, M., *An Introduction to Securities Lending, Spitalfields Advisors*, Fourth Edition 2007, http://www.eseclending.com/pdfs/Data_Explorer_Intro_to_Sec_Lending.pdf

Federal Reserve Bank of Dallas, Luttrell, D., Rosenblum, H., Thies, J., *Understanding the Risks Inherent in Shadow Banking: A Primer and Practical Lessons Learned*, Staff Papers No. 18, November 2012, http://www.dallasfed.org/assets/documents/research/staff/staff1203.pdf

Federal Reserve Bank of New York, Adrian, T. and Song Shin, H., *Liquidity and Leverage*, Staff Report No. 328, May 2008 (Revised December 2010), http://www.newyorkfed.org/research/staff_reports/sr328.pdf

– Ashcraft, A. B., Schuermann, T., *Understanding the Securitization of Subprime Mortgage Credit*, Staff Report No. 318, March 2008, http://www.newyorkfed.org/research/staff_reports/sr318.pdf

– Adrian, T. and Song Shin H., *The Shadow Banking System: Implications for Financial Regulation*, Staff Report No. 382, July 2009, http://www.newyorkfed.org/research/staff_reports/sr382.pdf

– Poszar, Z., Adrian, T., Ashcraft, A. and Boesky, H., *Shadow Banking*, Staff Report No. 458, July 2010 (Revised February 2012), http://www.newyorkfed.org/research/staff_reports/sr458.pdf

– Cetorelli, N., Mandel, B. H. and Mollineaux, L., *The Evolution of Banks and Financial Intermediation: Framing the Analysis*, Economic Policy Review, Vol. 18, No. 2, July 2012a, pp. 1-12, http://www.newyorkfed.org/research/epr/12v18n2/1207cet1.pdf

– Mandel, B.H., Morgan, D. and Wei, C., *The Role of Bank Credit Enhancements in Securitization*, Economic Policy Review, Vol. 18 No. 2, July 2012b, pp. 35-46, http://www.newyorkfed.org/research/epr/12v18n2/1207mand.pdf

– Dudley, W.C., *Fixing Wholesale Funding to Build a More Stable Financial System*, Remarks at the New York Bankers Association's 2013 Annual Meeting & Economic Forum, The Waldorf Astoria, New York City, February 2013, http://www.newyorkfed.org/newsevents/speeches/2013/dud130201.html

Financial News, Russell-Walling, E., *Infrastructure goes down the capital markets road*, Issue 882, 13 January 2014, http://www.efinancialnews.com/story/2014-01-13/infrastructure-goes-down-the-capital-markets-road?ea9c8a2de0ee111045601ab04d673622

Financial Stability Board, *Strengthening Oversight and Regulation of Shadow Banking – Policy Framework for Addressing Shadow Banking Risks in Securities Lending and Repos*, 29 August 2013, http://www.financialstabilityboard.org/wp-content/uploads/r_130829b.pdf?page_moved=1

– *Strengthening Oversight and Regulation of Shadow Banking – Regulatory framework for haircuts on non-centrally cleared securities financing transactions*, 14 October 2014, http://www.financialstabilityboard.org/wp-content/uploads/r_141013a.pdf

Financial Times, Alloway, T., *Yield-hungry investors snap up US homeless bond*, 13 January 2014, http://www.ft.com/intl/cms/s/0/a7ed435c-7ae8-11e3-80ff-00144feabdc0.html

– Alloway, T., *Yield hunters soak up venture capital debt*, 3 February 2014, http://www.ft.com/intl/cms/s/0/e590707c-8aa5-11e3-9465-00144feab7de.html

– Alloway, T. and Bullock, N., *Shadow banks step out to fund mid-market corporate America*, 5 February 2014, http://www.ft.com/intl/cms/s/0/53fe5f0a-8e71-11e3-98c6-00144feab7de.html

– Alloway, T., *Moody’s warns on specialised mortgage servicers*, 26 February 2014, http://www.ft.com/intl/cms/s/0/9b30401c-9e6d-11e3-95fe-00144feab7de.html

– Alloway, T., *Lenders race to join subprime car loan boom*, 6 March 2014, http://www.ft.com/intl/cms/s/0/e396809e-a4aa-11e3-9313-00144feab7de.html

– Alloway, T., Mackenzie, M. and Massoudi, A., *Credit bubble fears put central bankers on edge*, 2 April 2014, http://www.ft.com/intl/cms/s/0/eb9e619c-b9f6-11e3-a3ef-00144feabdc0.html

– Alloway, T., *Big investors replace banks in $ 4.2tn repo market*, 29 May 2014, http://www.ft.com/intl/cms/s/0/ca529c5e-e5db-11e3-aeef-00144feabdc0.html

– Arnold, M., *Banks unload risk into blind pools*, 17 June 2014, http://www.ft.com/intl/cms/s/0/c5c33f20-e051-11e3-b341-00144feabdc0.html

– Chassany, A.-S. and Arnold, M., *European regulators warn as risky loans rise above bubble peak*, 23 March 2014, http://www.ft.com/intl/cms/s/0/9ad9d25a-af51-11e3-9cd1-00144feab7de.html

– Foley, F. and Alloway, T., *Alert on leveraged loan terms*, 31 March 2014, http://www.ft.com/intl/cms/s/0/6f481e76-b51e-11e3-af92-00144feabdc0.html

– Gangahar, A., *Default protection: Collateral management grows in strength*, 19 September 2014, http://www.ft.com/intl/cms/s/0/d9873d64-d7ca-11e0-a06b-00144feabdc0.html

– Jenkins, P. and Chassany, A.-S., *Return of the covenant light loan*, Podcast Banking Weekly, 24 March 2014, http://podcast.ft.com/index.php?sid=44&pid=2132

– Jones, C., Barker A. and Thompson C., *EU to ease rules on ‘toxic sludge’ to boost credit*, 26 March 2014, http://www.ft.com/intl/cms/s/0/675ce5aa-b4fd-11e3-9166-00144feabdc0.html

– Liinanki, C., *Danish pension fund changes to infrastructure*, 23 February 2014, http://www.ft.com/intl/cms/s/0/8e98b26a-9988-11e3-91cd-00144feab7de.html

– Summers, L., *Washington must not settle for secular stagnation*, 5 January 2014, http://www.ft.com/cms/s/2/ba0f1386-7169-11e3-8f92-00144feabdc0.html

– Thompson, C. and Hope, K., *Greek bank borrowing costs fall*, 24 April 2014, http://www.ft.com/cms/s/0/7a5c8894-cbc4-11e3-9f27-00144feabdc0.html

– Thompson, C. and Ross, A., *EU banks binge on capital to avoid stress test failure*, 6 May 2014, http://www.ft.com/intl/cms/s/0/bfd0ca74-d1fb-11e3-8ff4-00144feabdc0.html

Financial Times Adviser, Hughes, E. A., *Half of managers have had no inflows for three years*, 2 October 2013, https://www.ftadviser.com/2013/10/02/investments/discretionary-management/half-of-managers-have-had-no-inflows-for-three-years-w7vrYqzoNztsMbE86KyOsM/article.html

Financial Times money supply blog, Jones, C., *TLTRO: how well has the ECB targeted its loans?*, 3 July 2014, http://blogs.ft.com/money-supply/2014/07/03/tltro-how-well-has-the-ecb-targeted-its-loans/

Fischer, R., *The Promise and Peril of Public-Private Partnerships: Lessons from the Chilean Experience*, LSE International Growth Centre, Working Paper 11/0483, June 2011, http://www.theigc.org/wp-content/uploads/2014/09/Fischer-2011-Working-Paper.pdf

Fondation Robert Schuman, *Investment in and the financing of the European Economy*, European Issue No. 307, March 2014, http://www.robert-schuman.eu/en/european-issues/0307-investment-in-and-the-financing-of-the-european-economy

Forbes, Ferrl, R., *The Curse of the Yale Model*, 16 April 2012, http://www.forbes.com/sites/rickferri/2012/04/16/the-curse-of-the-yale-model/

Furman, J. and Stiglitz, J., *Economic Consequences of Income Inequality*, Proceedings - Economic Policy Symposium - Jackson Hole, pp. 221-263, 1998, http://www.kansascityfed.org/publicat/sympos/1998/S98stiglitz.pdf

Gabor, D., *Banking union: a response to Europe’s fragile financial integration dreams?*, UWE Bristol, Economic Policy Brief No. 3, April 2014a, http://gallery.mailchimp.com/2454a7ce7948205bbd7c24311/files/4a0d8c65-64cf-409d-98c5-f61fe4e73b0d.pdf

– *Carney's ambitions for shadow banking reform: empty promises?*, 2014b, http://helicoptermoney.blogspot.co.uk/2014/06/carneys-ambitions-for-shadow-banking.html?m=1

Gennaioli, N., Shleifer, A., and Vishny, R., *A Model of Shadow Banking*, Journal of Finance, 16 April 2012, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2053152

Global Risk Regulator, *Regulators offer hope for European securitisation*, 15 January 2014, http://www.globalriskregulator.com/Subjects/Shadow-Banking/Newsletter-January-2014-Regulators-offer-hope-for-European-securitisation?ct=true

Greve, C. and Ejersbo, N., *When Public-Private Partnerships Fail*, Paper for Nordisk Kommunalforskningskonference, 2002, http://busieco.samnet.sdu.dk/politics/nkk/papers/papers/carstengreve.pdf

Griffith-Jones, S., *The case for prudent financial liberalisation and its policy implications*, Paper prepared for Berlin 'Finance and Development’ Conference, 11 December 2013, http://policydialogue.org/files/publications/Financial_sector_-_Berlin_Conference_Dec_2013.pdf

Haldane, A. G., *The age of asset management?*, Speech at the London Business School, 4 April 2014 2014, http://www.bis.org/review/r140507d.pdf?frames=0

Hänsel, D. and Krahnen, J. P., *Does credit securitization reduce bank risk? Evidence from the European CDO market*, Jerome Levy Economics Institute of Bard College, Public policy brief No. 932006, 2006, http://www.econstor.eu/bitstream/10419/54294/1/557644399.pdf

IMF, Monteiro, R. S., *PPP and Fiscal Risks Experiences from Portugal*, Presentation at the International Seminar on Strengthening Public Investment and Managing Fiscal Risks from Public-Private Partnerships, Budapest, Hungary, 7 March 2007, http://www.imf.org/external/np/seminars/eng/2007/ppp/pdf/rsm_p.pdf

– *Global Financial Stability Report Containing Systemic Risks and Restoring Financial Soundness*, April 2008a, http://www.imf.org/External/Pubs/FT/GFSR/2008/01/

– Jobst, A., *What is Securitization?*, Finance and Development, Vol. 45, No. 3, September 2008b, https://www.imf.org/external/pubs/ft/fandd/2008/09/pdf/basics.pdf

– Pozsar, Z. , *Institutional Cash Pools and the Triffin Dilemma of the U.S. Banking System*, WP/11/190, August 2011a, http://www.imf.org/external/pubs/ft/wp/2011/wp11190.pdf

– Allard, J. and Blavy, R., *Market Phoenixes and Banking Ducks - Are Recoveries Faster in Market-Based Financial Systems?*, WP/11/213, September 2011b, http://www.imf.org/external/pubs/ft/wp/2011/wp11213.pdf

– Pozsar, Z. ,*The Nonbank-Bank Nexus and the Shadow Banking System*, WP/11/289, December 2011c, https://www.imf.org/external/pubs/ft/wp/2011/wp11289.pdf

– Manmohan Singh, M., *Velocity of Pledged Collateral*, WP/11/256, November 2011d, http://nowandfutures.com/large/VelocityOfPledgedCollateral-wp11256%28imf%29.pdf

– Arcand, J.-L., Berkes, E. and Panizza, U., *Too Much Finance?*, WP/12/161, June 2012a, http://www.imf.org/external/pubs/ft/wp/2012/wp12161.pdf

– Claessens, S. et al, Staff Discussion Note *Shadow Banking: Economics and Policy*, 4 December 2012b, SDN/12/12, http://www.imf.org/external/pubs/ft/sdn/2012/sdn1212.pdf

– Le Leslé, V., *Bank Debt in Europe: “Are Funding Models Broken?”*, WP/12/299, December 2012c, http://www.imf.org/external/pubs/ft/wp/2012/wp12299.pdf

– Lopez-Espinosa, G., Moreno, A., Rubia, A. and Valderrama, L., *Short-term Wholesale Funding and Systemic Risk: A Global CoVaR Approach*, WP/12/46, February 2013a, https://www.imf.org/external/pubs/ft/wp/2012/wp1246.pdf

– Segoviano, M., Jones, B., Lindner, P. and Blankenheim, J., *Securitization: Lessons Learned and the Road Ahead*, WP/13/255, November 2013b, http://www.imf.org/external/pubs/ft/wp/2013/wp13255.pdf

– Policy Paper *Fiscal Policy and Income Inequality*, 23 January 2014, http://www.imf.org/external/np/pp/eng/2014/012314.pdf

IOSCO, *Global Developments in Securitisation Regulation*, FR09/12, 16 November 2012, http://www.iosco.org/library/pubdocs/pdf/IOSCOPD394.pdf

– Media Release *IOSCO Research publishes paper on Corporate Bond Markets*, 15 April 2014, http://www.iosco.org/news/pdf/IOSCONEWS326.pdf

Kregel, J., *Public policy brief Minsky's cushions of safety: Systemic risk and the crisis in the US subprime mortgage market*, Jerome Levy Economics Institute of Bard College, No. 93, 2008, http://www.econstor.eu/bitstream/10419/54294/1/557644399.pdf

KfW Bankengruppe, Rahe, A., *SME securitisation in Europe – The German perspective*, 15-16 May 2008, http://siteresources.worldbank.org/EXTECAREGTOPPRVSECDEV/Resources/570954-1211578683837/Rahe_KfW_SME_securitisation_market_in_Germany.pdf

Kousky, C. and Cooke, R., M., *The Limits of Securitisation: Micro-correlations, Fat Tails andTail Dependence*, Delft University of Technology, 2011, http://www.rff.org/Documents/Events/Workshops%20and%20Conferences/Climate%20Change%20and%20Extreme%20Events/ProjectOutput/The_Limits_of_Securitisation.pdf

Krahnen, J.P and Wilde, C., *Risk Transfer with CDOs and Systemic Risk in Banking*, 5 June 2006, http://www.bis.org/bcbs/events/rtf06krahnen_etc.pdf

Levine, R., *Bank-Based or Market-Based Financial Systems: Which is Better?*, William Davidson Working Paper No. 442, February 2002, http://deepblue.lib.umich.edu/bitstream/handle/2027.42/39826/wp442.pdf?sequence=3

Linklaters, *Set to revive: Investing in Europe’s infrastructure*, Full Report, 10 March 2014, http://www.linklaters.com/Insights/Investing-Europe-infrastructure/Pages/Index.aspx

Mersch Y., *Banks, SMEs and securitisation*, Speech at the Deutsche Börse – Clearstream "Exchange of ideas" event, London, 7 April 2014, http://www.bis.org/review/r140407a.htm

New York Times DealBook, Eavis, P., *Boston Fed Chief Warns of Dangers to Repo Market*, 13 August 2014, http://dealbook.nytimes.com/2014/08/13/boston-fed-chief-rosengren-calls-for-overhaul-of-repo-market/?_php=true&_type=blogs&_php=true&_type=blogs&_php=true&_type=blogs&_r=3

New York Times, Morgenson, G. and Story, L., *Banks Bundled Bad Debt, Bet Against It and Won*, 23 December 2009, http://www.nytimes.com/2009/12/24/business/24trading.html?pagewanted=all&_r=02009/12/24/business/24trading.html?pagewanted=all&_r=0

– The Opinion Pages, Stiglitz J., *Inequality is holding back the recovery*, 19 January 2013, http://opinionator.blogs.nytimes.com/2013/01/19/inequality-is-holding-back-the-recovery/?_php=true&_type=blogs&_r=0

– The Opinion Pages, Stiglitz, J., *Inequality Is a Choice*, 13 October 2013, http://opinionator.blogs.nytimes.com/2013/10/13/inequality-is-a-choice/?_php=true&_type=blogs&_r=1

Nijskens, R. and Wagner, W, *Credit risk transfer activities and systemic risk: How banks became less risky individually but posed greater risks to the financial system at the same time*, Journal of Banking & Finance, Vol. 35, Issue 6, June 2011, pp. 1391–1398, http://www.sciencedirect.com/science/article/pii/S0378426610003821

Noyer, C., *The conditions to revive a safe and efficient securitization market in Europe*, The Eurofi High Level Seminar 2014, Newsletter 31 March-1 April 2014, http://www.eurofi.net/wp-content/uploads/2014/03/2014_NEWSLETTER_Athens.pdf

OECD, Blundell-Wignall, A. and Roulet, C., *Business models of banks, leverage and the distance-to-default*, OECD Journal Financial market Trends No. 103, January 2013, http://www.oecd.org/finance/BanksBusinessModels.pdf

– Cingano, F. and Förster, M., *Trends in Income Inequality and its Impact on Economic Growth*, Presentation at the conference "How can we govern Europe", Florence, Italy, 21-13 November 2014, http://www.eunews.it/docs/Cingano.pdf

– Cingano, F., *Trends in Income Inequality and its Impact on Economic Growth*, OECD Social, Employment and Migration Working Papers, No. 163, 2014, http://dx.doi.org/10.1787/5jxrjncwxv6j-en

PCS, *Prime Collateralised Securities Rule Book*, Version 7, 9 June 2014, http://www.pcsmarket.org/wp-content/uploads/2012/10/V7-Rule-Book3.pdf

Piketty, T., *Capital in the Twenty-First Century*, Belknap Press, April 2014

Polaris Institute, *Public interests at risk for SNC-Lavalin's profits*, 27 June 2013, http://www.polarisinstitute.org/public_interests_at_risks_for_snclavalin%E2%80%99s_profits_la_soif_de_profits_de_snclavalin_va_l%E2%80%99encontre_de_l%E2%80%99int%C3%A9r%C3%AAt_public

Preqin press release, *Private Equity Industry Ends 2013 with Record $1.074 trillion of Dry Powder*, 19 December 2013, https://www.preqin.com/docs/press/Dry_Powder_Dec_13.pdf

Rajan, R., *Has financial development made the world riskier?*, Proceedings – Economic Policy Symposium – Jackson Hole, Federal Reserve Bank of Kansas City, August 2005, pp. 313-369, http://www.nber.org/papers/w11728

RBS Credit Research, *The Silver Bullet | Basel: steering (again) in the wrong direction*, 13 January 2014

Reuters, Carrel, P. and Suoninen, S., *ECB tweaks collateral rules to increase ABS eligibility*, 18 July 2013, http://www.reuters.com/article/2013/07/18/ecb-collateral-idUSF9N0DY00D20130718

Schwartz, H., *Mortgage Markets ans Macro-Instability*, International Encyclopedia of Housing and Home, pp. 501-506, 2012, http://people.virginia.edu/~hms2f/163.pdf

Singh, M., *The Economics of Shadow Banking*, Reserve Bank of Australia, Conference Volume, 2013, http://www.rba.gov.au/publications/confs/2013/singh.html#t11

Song Shin, H., Policy Memo *Macroprudential Policies Beyond Basel III*, Princeton University, 22 November 2010, http://www.princeton.edu/~hsshin/www/MacroprudentialMemo.pdf

Standard & Poor’s, Dubreuil, E. H., *S&P Approach To Bank’s Capital Adequacy’*, reproduced with permission of Standard & Poor’s Financial Services LLC, 2009

Stein, J.C., *Securitization, shadow banking & financial fragility*, Daedalus, Vol. 139, No. 4, pp. 41-51, Fall 2010, http://scholar.harvard.edu/files/stein/files/daedalus-sept-2010-final.pdf

– *The Fire-Sales Problem and Securities Financing Transactions*, Speech at the Federal Reserve Bank of Chicago and International Monetary Fund Conference, Chicago, Illinois 7 November 2013, http://www.federalreserve.gov/newsevents/speech/stein20131107a.htm

Stiglitz, J., *Capital Market Liberalization, Economic Growth and Instability*, World Development Vol. 28, No. 6, pp. 1075-1086, 2000, https://www0.gsb.columbia.edu/faculty/jstiglitz/download/2000_Capital_Market_Liberalization_Economic_Growth.pdf

– *The Price of Inequality: How Today's Divided Society Endangers Our Future*, Penguin, April 2013

Sueur, J-P. and Portelli, H., *Les contrats de partenariats : des bombes à retardement ?*, Rapport fait au nom de la commission des lois, No. 733 (2013-2014), 16 July 2014, http://www.senat.fr/notice-rapport/2013/r13-733-notice.html

Tarullo, D. K., *Evaluating Progress in Regulatory Reforms to Promote Financial Stability*, Speech at the Peterson Institute for International Economics, Washington, 3 May 2013a, http://www.federalreserve.gov/newsevents/speech/tarullo20130503a.htm

– *Remarks on Macroprudential Regulation*, Speech at the Yale Law School Conference on Challenges in Global Financial Services, New Haven, Conn., 20 September 2013b, http://www.federalreserve.gov/newsevents/speech/tarullo20130920a.pdf

– *Shadow Banking and Systemic Risk Regulation*, Speech at the Americans for Financial Reform and Economic Policy Institute Conference, Washington, D.C, 22 November 2013c, http://www.federalreserve.gov/newsevents/speech/tarullo20131122a.htm

UK Treasury, *Private Finance Initiative*, Seventeenth Report, 18 July 2011, http://www.publications.parliament.uk/pa/cm201012/cmselect/cmtreasy/1146/114602.htm

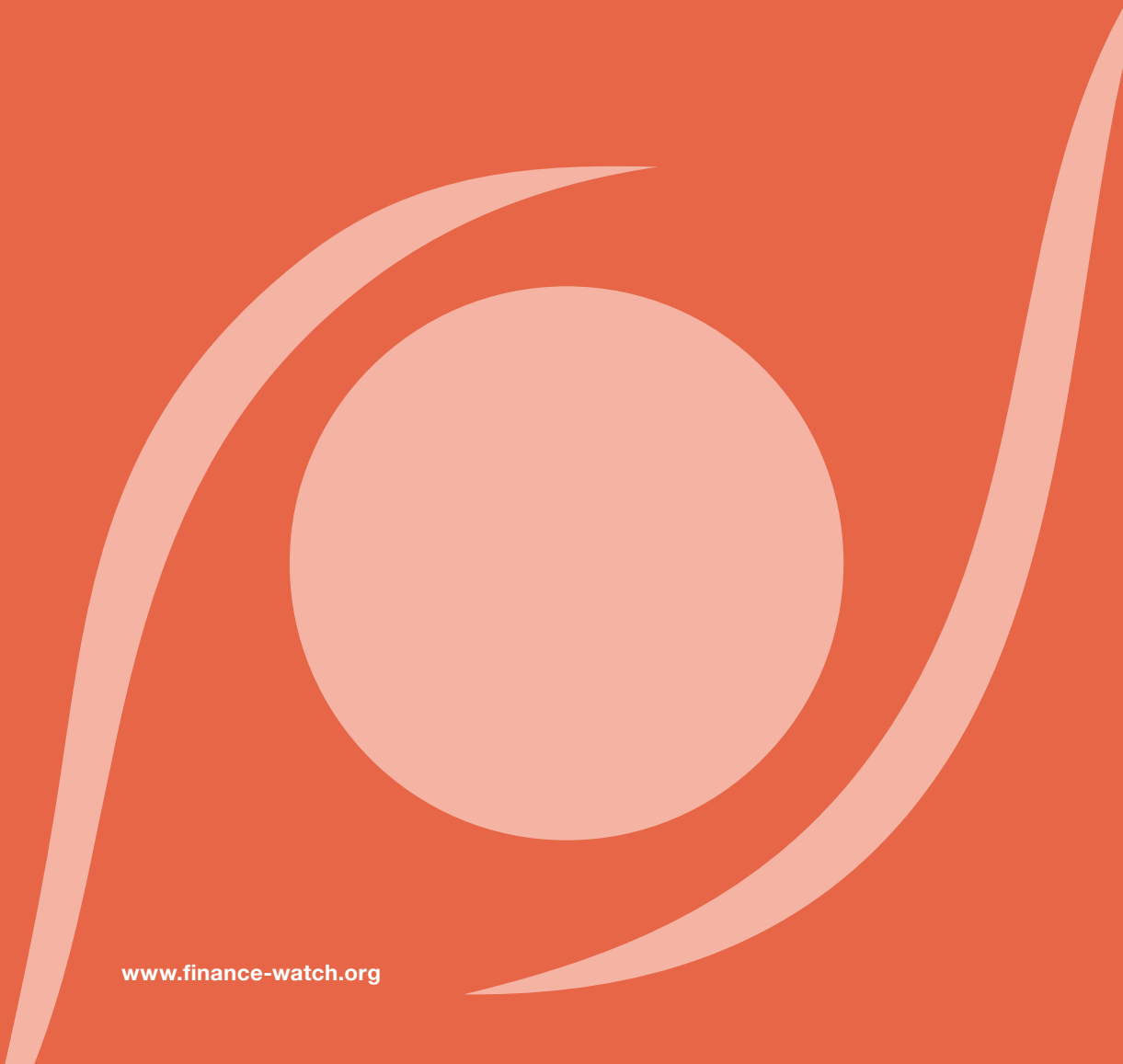
Wells Fargo, *Deterioration of Monoline Insurance Companies and the Repercussions for Municipal Bonds*, Wells Fargo Funds Management, 2008, http://www.wellsfargoadvantagefunds.com/pdf/whitepapers/monoline_insurance_muni_bonds.pdf

Wired Magazine, Salmon, F., *Recipe for Disaster: The Formula That Killed Wall Street*, 23 February 2009, http://archive.wired.com/techbiz/it/magazine/17-03/wp_quant?currentPage=all

World Economic Forum, Wyman, O., *Infrastructure Investment Policy Blueprint*, February 2014, http://www3.weforum.org/docs/WEF_II_InfrastructureInvestmentPolicyBlueprint_Report_2014.pdf

Xinzi, Z., *AIG, Credit Default Swaps and the Financial Crises*, Risk Radar Report, Risk Management Society, Nanyang Technological University, May 2013, http://clubs.ntu.edu.sg/rms/researchreports/AIG.pdf

Yellen, J., *Perspectives on Inequality and Opportunity from the Survey of Consumer Finances*, Speech at the Conference on Economic Opportunity and Inequality, Federal Reserve Bank of Boston, Boston, Massachusetts, 17 October 2014, http://federalreserve.gov/newsevents/speech/yellen20141017a.htm



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Finance Watch is an independently funded public interest association dedicated to making finance work for the good of society. Its mission is to strengthen the voice of society in the reform of financial regulation by conducting advocacy and presenting public interest arguments to lawmakers and the public. Finance Watch's members include consumer groups, housing associations, trade unions, NGOs, financial experts, academics and other civil society groups that collectively represent a large number of European citizens. Finance Watch's founding principles state that finance is essential for society in bringing capital to productive use in a transparent and sustainable manner, but that the legitimate pursuit of private interests by the financial industry should not be conducted to the detriment of society. For further information, see www.finance-watch.org

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