



SHOULD CENTRAL BANKS DISCIPLINE GOVERNMENTS?

Collateral policies caught between fiscal prudence and market liquidity



Summary

The collateral frameworks of central banks have always been a core aspect of monetary policy, but they have rarely been subject to scholarly scrutiny. Kjell Nyborg's (2017) recent book is a notable exception. Focusing on post-crisis central banking in Europe, Nyborg argues that market inputs to the collateral policies of the European Central Bank (ECB) are so limited that they have inadvertently undermined market discipline, to the detriment of resource allocation and economic growth and, notably, to the detriment of fiscal prudence in EU member states. Nyborg holds that the way forward in central banking is to give collateral policies a disciplinary role, such that the costs of central bank funding increase when fiscal deficits and public debt approach and surpass agreed thresholds. Nyborg's work is misguided, however, both in terms of its analysis and the policies it advocates. Drawing upon the money view literature (Mehrling 2011, 2012, 2014), the authors argue that disciplinary central banking along the lines advocated by Nyborg would be destabilising, economically as well as politically. In fact, the proposed modality of central banking is the opposite of what is needed to foster financial stability in financial systems where money and capital markets are closely intertwined. The very notion of "market discipline" – core to much mainstream thinking on central banking – is predicated on a funding liquidity logic, ill-suited for market liquidity concerns. The upshot is that the more collateral policies embed the asset valuation practices of financial market participants in central bank crisis interventions, the more destabilising those interventions will be. If central banks are to succeed in preserving market liquidity, two criteria are key: central banks must backstop the market values of core collateral assets, and their collateral policies must be unequivocally non-discriminatory and countercyclical.

About the authors:

Jakob Vestergaard

Roskilde University

Daniela Gabor

University of the West of England - Bristol

In partnership with:

RUC
Roskilde University

**UWE
Bristol** | University
of the
West of
England

SHOULD CENTRAL BANKS DISCIPLINE GOVERNMENTS?

Collateral policies caught between fiscal prudence and market liquidity

Jakob Vestergaard,
Roskilde University

Daniela Gabor,
University of the West of England – Bristol

Table of Contents

1. INTRODUCTION.....	2
2. NYBORG'S NARRATIVE	4
3. ECB HAIRCUTS WERE NOT 'TOO GENEROUS'	7
3.1 Haircut changes on government bonds.....	7
3.2 Haircut changes to debt instruments of banks (liquidity category IV)	8
4. TOO LITTLE MARKET INPUT IN ECB COLLATERAL POLICY?	9
5. EXPLAINING THE INEFFECTIVENESS OF ECB LIQUIDITY INJECTIONS	11
6. ARE DISCIPLINARY HAIRCUTS THE WAY FORWARD?.....	13
7. BEYOND 'MARKET DISCIPLINE'.....	15
9. A BAGEHOT RULE FOR COLLATERALISED FINANCE?	16
10. CONCLUDING REMARKS	19
11. BIBLIOGRAPHY.....	21
12. ABOUT THE AUTHORS	25
13. ACKNOWLEDGEMENTS.....	25



1. INTRODUCTION

Central banking needs to be rethought and reimagined if it is to catch up with the realities of collateralised finance (Bini Smaghi 2010).¹ Scholars engaging in the challenge of rethinking central banking often reach back to Walter Bagehot (1873), trying to recast his original insights to address the fragilities of current-day finance.² The role of central banks in a liquidity crisis is then discussed with reference to Bagehot's rule that central banks should lend freely to illiquid but solvent banks, at a penalty rate, against good collateral.³

Although Bagehot's rule for lender of last resort (LLR) central banking is thus well-known, most studies focus on the first of the two conditions that Bagehot stressed.⁴ Central banking is widely seen as first and foremost a matter of using central bank lending rates to achieve monetary policy goals. But central banks do not merely lend at a cost, as defined by the interest they charge in their credit operations. Central banks lend against collateral. Lending by central banks is secured lending, in the sense that borrowers of central bank money pledge assets to access funding.

The terms, rules and conditions by which central banks accept various assets as collateral against their lending is highly pertinent to

issues of financial stability. Yet the collateral policies of central banks have been afforded little attention, whether by policymakers or scholars. The relative neglect of collateral policies by scholars of central banking has always been a peculiar omission, but with the increasing integration of money and capital markets from the 1980s onwards it is now even more so. Today, the collateral practices of financial institutions and central banks are absolutely critical to issues of financial stability.

Nyborg's (2017) book, *Collateral frameworks: The open secret of central banking*, is the first comprehensive effort to articulate the role of collateral policy in contemporary central banking, focusing particularly on the crisis response of the European Central Bank (ECB).

The title of Nyborg's book encapsulates the dual nature of the conundrum that collateral frameworks constitute. On the one hand, collateral frameworks are 'out there', in the open, for us to observe and analyse. On the other hand, they are somewhat opaque. They are "much like G.K. Chesterton's famous 'invisible' postman", says Nyborg; they go largely unnoticed although they are utilised every single day of the year (Nyborg 2017: xiii). Addressing this opacity head-on, Nyborg sets out to shed light on the "structure, functionality, role, reach and implications of

¹ Key contributions to the literature addressing how the rise of collateralised finance changes the fundamental challenges confronting central banking include Gabor (2016); Mehrling (2011, 2012, 2014), Mehrling et al (2012) and Gabor and Vestergaard (2016). For broader studies engaging in a rethinking of central banking, see Eichengreen et al (2011), Goodhart and Illing (2002) and O'Driscoll (2017).

² The literature addressing post-crisis central banking challenges in light of Bagehot's original insights include Bindseil and Laeven (2017), BIS (2014), de Grauwe (2011a, 2011b), Dooley (2014), Oganessian (2013), Snoddy (2012), Tucker (2009, 2014), and Winkler (2014).

³ Bagehot's rule refers to a central thesis of Walter Bagehot's (1873) *Lombard Street: A Description of*

the Money Market. In Bagehot's own words: "The end is to stay the panic. And for this purpose, there are two rules. First that these loans should be made at a very high rate of interest. Secondly, that at this rate, these advances should be made on all good banking securities" (cited from Mehrling, 2011: 18). In modern times, Bagehot's rule has become the "mantra of all central bankers" (Mehrling 2011: 1).

⁴ Some argue that most of the insights of *Lombard Street* had been first published by Henry Thornton some 70 years earlier (Thornton 1802). In this view, the role of Bagehot is seen as that of a populariser more than an originator of ideas (Laidler 2003; Fetter 1978). For a comparison of the work of Bagehot and Thornton, see Laidler (2003).



collateral frameworks”, as phenomena that are increasingly central to the way that our monetary and financial system operates (Nyborg 2017: xiv). His ambition is to render “the open secret of central banking” intelligible to a wider readership.

Empirically, Nyborg focuses on the collateral framework of the European Central Bank (ECB). Europe is a particularly intriguing case, he argues, “because of the banking and sovereign debt problems in the euro area” (ibid). While his empirical analysis pertains exclusively to Europe, Nyborg claims wider relevance for his findings. The main message of Nyborg’s book is that the terms on which central banks exchange money for collateral are too detached from market valuations of collateral and indeed “too generous”.⁵ Nyborg acknowledges that collateral policy along these lines may serve the purpose of easing the constraints caused by having a “single currency for disparate economies”, such that liquidity can be channelled to “where it is most needed” (Nyborg 2017: 30-35). However, for Nyborg this liquidity expedience comes at too high a price; it results in a systematic undermining of market discipline, to the detriment of fiscal prudence, resource allocation and economic growth.

Nyborg’s book, in essence, consists of two assertions about the ECB’s crisis response, followed by a policy proposal for the future collateral policies of central banks. The first assertion is that the ECB’s collateral policies were too accommodative, effectively disincentivising banks and governments in distressed countries from restraining their borrowing in a prudent manner. The second assertion is that the ECB’s crisis response was largely ineffective and that its protracted liquidity expansion strategy had disconcerting consequences for the ECB’s balance sheet, with

potentially perplexing implications for the credibility of the euro.

The ECB’s collateral policies played a key role in bringing about these unfortunate outcomes, Nyborg argues, but they also hold the key to rectification. If haircuts were designed to increase as fiscal deficits and public debt drift away from agreed thresholds, central banks could accomplish a highly desired disciplining effect on governments.

While we agree that the ECB’s crisis response was largely ineffective (until the summer of 2012), we propose a different interpretation of the underlying reasons. Indeed, we note a paradox in Nyborg’s work. For all the concern about the unfortunate consequences of the ECB’s ineffective crisis response, it is striking that he never attempts to explain *why* the countless billions of euros supplied to European banks did not ameliorate the crisis as anticipated. Nyborg settles for a more or less implicit notion that a higher degree of market input in the ECB’s collateral framework might somehow have helped, but he never explains how. This paradox relates to another, equally striking, one. Despite presenting impressive detail on the ECB’s collateral framework, and the changes made to it over the course of the crisis, Nyborg misrepresents it empirically in politically misleading ways.

After a brief depiction of Nyborg’s main narrative (section 2), we demonstrate empirically that the ECB’s haircuts were not “overly generous” or “too accommodative” for lower quality bank debts and government bonds, as Nyborg claims (section 3). Following this, we demonstrate that it is also not true that market inputs were absent from the ECB’s collateral policies, another core claim by Nyborg (section 4). We then provide “the missing link” in Nyborg’s account, explaining

⁵ In Europe, Nyborg notes, “the amount of central bank money a bank can obtain... against a given security, the security’s collateral value, is set by the

ECB with relatively minor input from the markets” (Nyborg 2017: xx).



why the ECB's crisis response (up until summer 2012) did not and could not work (section 5). We further argue that had haircuts in fact been more aggressively increased, as Nyborg suggests would have been desirable, the crisis would likely have become deeper still, with potentially dire ramifications for euro resilience. What tackled the European sovereign debt and bank crisis, eventually, was that the ECB finally addressed it not as a funding liquidity crisis, but as a market liquidity crisis, and committed to providing the needed elasticity to the system. Last but not least, we argue that the disciplinary haircut regime proposed by Nyborg would be profoundly procyclical – undermining rather than enhancing financial stability – and hence would lead central banking in the opposite direction from what is needed to stabilise market-based credit systems (sections 6 and 7).

In undertaking this review of Nyborg's analysis and the new mode of disciplinary central banking that he proposes, we mobilise the money view literature on market-based finance and its implications for central banking.⁶ Apart from making a contribution to key conversations in the emerging field of critical central banking studies, we hope that this paper will help stimulate a wider problematisation of a set of policies that are potentially dangerous, both economically and politically, not least in a political climate of increasing economic nationalism in Europe (Rodrik 2017).

⁶ At the heart of this literature stands Perry Mehrling's (2011) book, *The New Lombard Street*. Other core contributions include Gabor (2016), Mehrling (2011, 2014), Mehrling et al (2012), and Pozsar (2014).

⁷ Refinancing operations without quantitative limits is termed "full allotment" in the ECB's phrasing. In addition to full allotment and maturity extension (from 3 months to 3 years), Nyborg highlights three further policies adopted by the ECB over the course of the crisis to enhance liquidity: initiation of outright purchases of

2. NYBORG'S NARRATIVE

Nyborg builds his narrative about the necessity for a new 'disciplinary' modality of central banking on a close reading of the ECB's crisis response and the changes that the ECB made to its collateral framework over the course of the crisis.

Following the collapse of Lehman Brothers in September 2008, the ECB made such "significant changes to its monetary operations", Nyborg observes, that they constituted what he calls a "super-accommodative" monetary policy (Nyborg 2017a: 43-45). The introduction of unlimited refinancing operations with extended maturities was particularly significant, he argues, because they basically "provided banks with almost unlimited funding from the central bank, constrained only by banks' eligible collateral holdings" (Nyborg 2017: 23).⁷

But the collateral constraint was soon to be relaxed too, Nyborg notes. In parallel with the expansion of the supply of central bank liquidity, the ECB eased the terms by which banks could access it. Thus, although the ECB's collateral eligibility rules were already "fairly relaxed", they were further relaxed over the course of the crisis (Nyborg 2017: 60).⁸

securities for monetary policy purposes; purchasing of asset-backed securities without sterilisation; and decreasing the reserve requirements for short-term liabilities (from 2 to 1 per cent).

⁸ Even before the global financial crisis and Europe's subsequent sovereign debt crisis, the Eurosystem accepted a broad range of asset classes as collateral in its open market operations (Wolff 2014). The ECB accepted not only a wide range of marketable collateral, "from government bonds to uncovered (unsecured) bank bonds and



For purposes of assessing collateral pledged to access central bank liquidity, the ECB classified all assets in three asset quality categories, of high, medium and low quality.⁹ Assets with a credit rating between AAA and A- were considered high quality, whereas assets with a rating from BBB+ to BBB- were deemed medium quality. Assets with a credit rating lower than BBB- were considered low quality and not eligible as collateral in credit operations with the ECB.¹⁰

In this system, the shortest route to broadening the collateral framework was by lowering the minimum threshold for asset eligibility. This is exactly what the ECB did. In late October 2008, little more than a month after Lehman Brothers collapsed, it lowered its minimum credit rating threshold from A- to BBB.¹¹

asset-backed securities”, but also several “non-marketable assets” (Nyborg 2017). The upshot is that whereas the US Fed accepts only two types of marketable assets, namely debt instruments issued by central governments and by public sector institutions other than central governments, the ECB also accepts debt instruments issued by central banks, supranational institutions, credit institutions and non-financial corporations and some non-marketable assets (ECB 2013a:9).

⁹ Until 2007, the main distinction on credit quality that the ECB deployed was that of Tier 1 assets vs Tier 2 assets.

¹⁰ However, over the course of the crisis, the ECB made exceptional and time-limited *suspensions* of the minimum credit rating threshold for countries that saw the credit rating of their sovereign debt drop below the BBB- threshold, so as to maintain their access to central bank liquidity. The ECB made special provisions for Greek government debt in May 2010, and again in July 2012. For Cyprus, the exemption from the minimum credit rating threshold was afforded from May to July 2013, when its credit rating dipped below BBB-.

¹¹ At first, asset-backed securities (ABS) were exempt from this lower credit rating threshold, but over the next few years, the ECB gradually moved from an AAA to a BBB- credit rating threshold for

A second major expansion of eligible collateral occurred in the context of the long-term refinancing operation (LTRO) undertaken in early 2012, Nyborg argues. The ECB now admitted more than 10,000 new securities to the public list of eligible collateral, thereby increasing “the number of French and Italian eligible collateral by 198.5 and 70.8 percent, respectively” (Nyborg 2017: 32). The new securities admitted to the list of eligible collateral were unsecured bank debts.¹² Data on which banks used this round of ECB liquidity strongly suggested that the inclusion of unsecured bank debts was “part of an overall package to support, or indirectly bail out, banks” in Spain, Italy and France, Nyborg notes (2017: 177).¹³

By further easing up its already relaxed collateral eligibility criteria, the ECB was entering dangerous territory, in Nyborg’s view.¹⁴ Seen over the full period, from 2004 to

these assets too. In June 2012, the lower threshold was made applicable to ABS based on auto loans, leasing, commercial mortgages or loans to SMEs, and in July 2014, it was extended to ABS based on credit card receivables (Wolff 2014: 5). By mid-November, the ECB took a further step to augment collateral eligibility, deciding to accept marketable debt instruments issued and denominated in a number of foreign currencies (USD, GBP, JPY). This was subject to the condition that the issuer was established in the European Economic Area (EEA) and that the instruments were settled in the euro area.

¹² Nyborg notes that these securities had first been made eligible, as a temporary measure, from October 2008 to December 2010. It then took a year before the measure was reintroduced, this time as a permanent feature of the Eurosystem’s collateral framework.

¹³ From December 2011 to March 2012, Spanish banks increased their aggregate Eurosystem credit from 85 to 315 billion euros, Italian banks from 161 to 268 billion euros, and French banks from 63 to 144 billion euros (Nyborg 2017: 176), corresponding to a combined LTRO uptake of 418 billion euros.

¹⁴ In addition to the changes already mentioned, Nyborg highlights three further changes that



2013, the nominal value of eligible marketable collateral nearly doubled from 7.5 to 14.2 trillion euros (Nyborg 2017: 54). Further, as a consequence of its liquidity interventions, the ECB's balance sheet expanded considerably, from 1 trillion in 2006 to 2.3 trillion euros in 2013, with a considerable, implied decline in the overall quality of assets accepted as collateral.¹⁵

Nyborg invokes Klaas Knot, head of the Dutch Central Bank, to make the point that as of result of the ECB's liquidity injections, Eurosystem balance sheets were "becoming more and more exposed to economic risk and political pressure" (cited in Nyborg 2017: 13).¹⁶ "Eventually", Nyborg says, citing Knot, this could "result in a substantial amount of negative capital in a central bank's balance sheet", potentially undermining its "credibility and independence" (ibid.).

The ECB's strategy of abundantly accommodating the liquidity needs of banks was not only dangerous – both economically and politically – but also largely unsuccessful, Nyborg stresses. Even after having shifted to liquidity provisioning without rationing ("full allotment"), and after increasing maturities more than ten-fold (from 3 months to 3 years), stress in government bond markets continued. Given that even unlimited amounts of long-maturity liquidity proved inadequate to calm the markets, the ECB's liquidity expansion strategy could hardly be said to have been successful, Nyborg concludes.

It is difficult to disagree with Nyborg in his overall assessment of the relative ineffectiveness of the ECB's liquidity expansion

strategy. However, a core problem with Nyborg's assessment is that he fails to offer an account of why the strategy was not working. Instead his readers must settle for an implied explanation. Nyborg's overarching thesis is that the limited use of market inputs in the ECB's collateral framework created a host of problems in the Eurozone, ranging from increasing fiscal imprudence among its member states and distortion of resource allocation to an undermining of the credibility of the euro and an endangering of the independence of central banking from democratic politics.

Against all these ailments, Nyborg provides a simple but allegedly powerful remedy: to give haircuts a disciplinary role. His proposed modality of collateral policy would create a close link between the fiscal prudence of a state and the price it would need to pay for central bank money.

The persuasive power of Nyborg's narrative relies mainly on the deep resonance between its implied, ultimate cause – collateral policies that "seem designed" to circumvent market discipline – and the disciplinary haircuts prescribed as the obvious remedy to all the problems thereby created.

However, as we shall now see, Nyborg's analysis is flawed at several junctures, and the policies he prescribes are misguided, and even dangerous, both economically and politically. To uncover these problems, we start with his core empirical claim about the ECB's collateral policies over the course of the crisis, namely that they were "too generous" to member states on the periphery of the Eurozone.

broadened collateral eligibility. First, unsecured bank debt trading on ECB approved non-regulated markets was made eligible; second, subordinated debt could be made eligible if it had adequate guarantees; and third, fixed-term deposits were included in the list of eligible non-marketable assets without a haircut.

¹⁵ The two LTROs undertaken in late 2011 and early 2012 alone amounted to 1 trillion euros provided

to banks, corresponding in quantity roughly to the entire consolidated balance sheet of the ECB prior to the crisis, 1.142 trillion euros (Nyborg 2017: 43).

¹⁶ Measured relative to euro-area GDP, the Eurosystem's balance sheet increased from 13 % in 2000 to 24 % in 2013 (Nyborg 2017: 13). The endpoint figure corresponds roughly to the equivalent for the Fed and Bank of England (ibid.)



3. ECB HAIRCUTS WERE NOT 'TOO GENEROUS'

Nyborg argues that the ECB provided too much liquidity, at too generous terms. The haircut changes made by the ECB call for considerable qualification, however. The ECB did indeed vigorously provide liquidity to European banks.¹⁷ However, it did so while at the same time sharply raising its haircuts for lower quality assets, whether government bonds or unsecured bank debts with a low credit rating.

3.1 Haircut changes on government bonds

Before October 2008, the ECB applied identical haircuts to all European government debt. There was no distinction between high- and low-quality collateral in this asset class. After the collapse of Lehman, the haircuts on highly rated government debt remained at the same level, while all of lower rated government debt was assigned haircuts that were 5 percentage points higher than the equivalent for higher rated government debt.

Overall, three observations about changes made by the ECB to its haircut schedule stand

out (see Table 1).¹⁸ First, haircuts for high quality collateral were kept at a low level throughout the crisis.¹⁹ Second, for government bonds with a low credit rating the opposite trend prevailed. Seen over the full period, low rated assets faced a dramatic increase in haircuts, in the range of 550 to 850 basis points (depending on residual maturities).²⁰ Third, the haircut spread – between assets with a low (B to BBB-) and a high credit rating (A to AAA-) – jumped 500 basis points in October 2008, was unaffected by the January 2011 revision, but increased again in October 2013, with 50 to 400 basis points (depending on residual maturities).

Over the full period, haircuts on government bonds with a low credit rating and residual maturity of less than one year were increased 12-fold, from 0.5 % to 6 %, whereas the same class of government bonds with a residual maturity of 7-10 years was nearly tripled, from 4.5 % to 13 %. These are hardly trivial increases. On the contrary, haircut increases of this scale, in and of themselves, put additional pressure on the liquidity of the government bond markets of the afflicted countries.

¹⁷ An initial 'credit enhancement programme' was followed by five successive rounds of extraordinary long-term refinancing operations (LTROs), between May 2009 and February 2012, the last two of which in and of themselves supplied a trillion euros to European banks.

¹⁸ In the period discussed by Nyborg – from late 2004 to early 2014 – the ECB made major changes to its haircut schedule at three specific junctures. New haircuts took effect on 25 October 2008, 1 January 2011, and 1 October 2013. The main haircut changes at these junctures were as follows (Nyborg 2017: 79-87): In October 2008, unsecured bank debt was made eligible, subject to an additional haircut of 5 %; subordinated debt could be eligible provided it had adequate guarantees, subject to an additional haircut of 10 %; and haircuts were increased for the unsecured debt instruments of credit institutions. In January 2011, haircuts were increased for marketable securities in liquidity categories II-V; and haircuts for non-

marketable securities were also increased. And finally, in October 2013, some haircuts for marketable securities were decreased, and "for marketable collateral in liquidity categories I, II and III, with a rating of A- or better", haircuts had "never been lower over the almost eleven-year period studied here" (Nyborg 2017: 84).

¹⁹ In the case of high-quality government bonds with residual maturities of more than three years, there is even a declining trend, with haircuts ending up 50 to 150 basis points lower in 2013 than they were prior to the crisis.

²⁰ Note, however, that the January 2011 changes gave a small decrease in haircuts for all assets with a residual maturity of more than 3 years. For government bonds with a residual maturity between 3 and 10 years, the haircut decrease was 50 basis points; for government bonds with a residual maturity above 10 years, the haircut decrease was 300 basis points.



Table 1 - Haircuts on government bonds (in % of market value of the collateral)²¹

	<i>Before Lehman collapse (-Sept 08) High CR-Low CR</i>	<i>After Lehman (Oct 08 -) High CR-Low CR</i>	<i>From Jan 2011 High CR-Low CR</i>	<i>From Oct 2013 High CR-Low CR</i>
RM: 0-1	0.5 – 0.5 (0)	0.5 – 5.5 (5)	0.5 – 5.5 (5)	0.5 – 6 (5.5)
RM: 1-3	1.5 – 1.5 (0)	1.5 – 6.5 (5)	1.5 – 6.5 (5)	2 – 8 (6)
RM: 3-5	3 – 3 (0)	3 – 8 (5)	2.5 – 7.5 (5)	2.5 – 10 (7.5)
RM: 5-7	3.5 – 3.5 (0)	3.5 – 8.5 (5)	3 – 8 (5)	3 – 11.5 (8.5)
RM: 7-10	4.5 – 4.5 (0)	4.5 – 9.5 (5)	4 – 9 (5)	4 – 13 (9)
RM: > 10	8.5 – 8.5 (0)	8.5 – 13.5 (5)	5.5 – 10.5 (5)	7 – 16 (9)

Note: RM=residual maturity; CR=credit rating

3.2 Haircut changes to debt instruments of banks (liquidity category IV)

Nyborg objects to the far too favourable terms on which banks in distressed countries could access credit from the ECB by pledging unsecured bank debts as collateral. The actual changes made to haircuts applied to the debt instruments of credit institutions, including unsecured bank debts (that is, for assets in liquidity category four), do not lend themselves to this interpretation, however.

Tables 2 and 3 present the haircuts for securities in this asset class, for the shortest (0-1) and the longest (>10) residual maturities respectively. As a rule of thumb, the haircuts listed for assets with high and low credit ratings can be regarded as applying to the debt instruments of German and Italian banks respectively.

Again, three observations stand out. First, on the short maturity spectrum there was a substantial raise of the haircut from 2 to 6.5 % for highly rated assets in 2008, but after that no changes. For short maturity assets with a low credit rating, the haircuts increased from 2 to 11.5 % in 2008, then to 15 % in January 2011.

Haircuts increased three-fold for highly rated assets, in other words, but almost six-fold for assets with a low rating.

Second, haircuts for longer maturities exhibit a similar trend: a large increase at the beginning of the period for highly rated assets (increasing from 8 to 20 %), with no further changes later, as opposed to a larger and more continuous increase for lower quality assets (increasing from 18 to 46 %).

Third, focusing on lower quality assets, haircuts were increased more than seven-fold, from 2 to 15 %, for securities with a residual maturity of less than a year, and for low quality securities with long residual maturities to almost 50 %. We suggest that such haircuts do not match their depiction by Nyborg as “overly generous” too well. Indeed, it is difficult to imagine that haircut increases at this scale did not add substantially to the already severe liquidity strains of troubled banks in distressed countries.

²¹ All haircuts cited in Tables 1, 2 and 3 are for zero coupon (as opposed to fixed coupon). Data are from the ECB (2017b) and Nyborg (2017: 66-77).



Table 2 - Haircuts on bank debts with short RM (in % of market value of the collateral)

	Low CR	High CR	Difference
2004 – 2008	2	2	0
2008 – 2010	11.5	6.5	5
2011 – 2013	15	6.5	8.5

Table 3 - Haircuts on bank debts with long RM (in % of market value of the collateral)

	Low CR	High CR	Difference
2004 – 2008	18	8	10
2008 – 2010	25	20	5
2011 – 2013	46	22.5	23.5

4. TOO LITTLE MARKET INPUT IN ECB COLLATERAL POLICY?

Nyborg is astonished by the infrequency of ECB haircut changes. The average time between each new haircut table was effectively more than three years, he notes. For some securities the haircuts even remained the same “throughout the 3493 day period” on which he focused (Nyborg 2017: 84-85).

Apart from these infrequent updates to the haircuts schedule, “the only events that bring about a haircut change for an individual security”, Nyborg observes, are “the yearly reduction in residual maturity” and “a possible ratings change should the security’s rating fall below A- or BBB- ” (ibid). Given that both discrete and generic changes to the ECB’s haircuts are so infrequent, the only “direct

input from the market itself to a security’s collateral value in Eurosystem operations”, Nyborg concludes, is “the market price, if any, of the collateral” (Nyborg 2017: 85). The upshot, Nyborg argues, is that “markets are used” only to a “small degree” in the ECB’s collateral framework (Nyborg 2017: 178).

When the amount of central bank money that a bank can obtain from the ECB against collateral is influenced only to a limited extent by market forces, market discipline is systematically undermined and, as a result, money and asset markets are systematically distorted (Nyborg 2017: 30-35).²² In fact, Nyborg ponders, “it appears that many features of the framework are designed to circumvent market discipline” (ibid.).²³

The notion that the ECB’s collateral policy lacks market inputs is considerably off target,

²² For a similar line of reasoning, see González-Páramo, member of the ECB’s Executive Board: “making a wide range of liquid and illiquid assets eligible for central bank refinancing may – if not adjusted for by the central bank via risk control measures and adequate pricing policy – lead to a preferential treatment of illiquid assets relative to liquid ones, raise the relative price of illiquid assets and lead to oversupply and a consequent impact on credit allocation” (González-Paramo 2009).

²³ Nyborg identifies no less than 14 aspects of the ECB’s collateral requirements that “impair market forces and market discipline” (Nyborg 2017). To highlight just a few; non-marketable assets are included in the set of eligible collateral; a substantial fraction of eligible collateral is based on ‘theoretical prices’, as opposed to market prices; and when market prices are finally used, they are often ‘stale’ (i.e, up to five days old).



however. At the heart of the ECB's collateral policy are daily collateral valuation and margining practices. These practices are operated to ensure that the amount and quality of collateral is continuously adapted to reflect changing market perceptions of credit, counterparty and liquidity risk.

In the words of the ECB itself, its mark-to-market and margin call practices are adopted to “protect the Eurosystem against the risk of financial loss if underlying assets have to be realised owing to the default of a counterparty” (ECB 2017a). If the market value of an asset pledged by a bank to access central bank liquidity falls, the ECB will demand that the bank pledges more collateral – so as to continuously ensure that the market value of the collateral pledged to the ECB matches the liquidity provided to the bank.

At its very core, the ECB's collateral framework is concerned, in other words, with ensuring that liquidity is provided to banks only in proportion to the market value of the assets they pledge. Not once in Nyborg's book does he discuss the mark-to-market and margining practices of central banks.²⁴ His disregard of these daily practices of aligning the collateral pledged by banks with market valuations is surprising given the considerable concern with market inputs he expresses.

While these practices are the backbone of the collateral policies of central banks in normal times, they are also at the core of any readjustment strategy in times of crisis. Ironically, most central banking scholars – from Walter Bagehot to Charles Goodhart and Perry Mehrling – would find little disagreement that a key role of central banks in a liquidity crisis is

to loosen the link between market valuations of collateral assets and access to central bank liquidity. This makes it all the more paradoxical that Nyborg is so insistent on his identification of there being too little market input as the core flaw of the ECB's collateral policies during the crisis. Paradoxical as it may be, it reflects a deeper conceptual shortcoming of Nyborg's work.

Throughout his book, Nyborg fails to distinguish between what is required of central bank collateral policies in normal times and times of crisis respectively.²⁵ This is particularly surprising given that the distinction is standard methodology in the literature on the collateral policies of central banks (BIS 2015: 1). “In crisis times”, the Bank of International Settlements (BIS) notes, “collateral acceptance typically becomes more conservative in private markets, and the pool of assets deemed suitable as collateral shrinks as the perceived risk of assets and counterparties rise” (BIS 2015: 5). Under circumstances of financial distress, the very point of central bank operations is to accommodate the “greater scarcity of collateral”, by introducing, for example, “facilities that allow banks to post *illiquid* collateral assets in place of liquid securities that, in turn, can be used to obtain funding in the private market” (BIS 2015: 2, emphasis added). If, on the other hand, central banks replicate the conservatism of markets, as Nyborg advocates, the effect will be profoundly procyclical.

In money view terms, what the central bank needs to do in a liquidity crisis is to stabilise the system by enhancing the elasticity of its liquidity provision. If the central bank instead shrinks the pool of assets that are eligible in its

²⁴ No entries are given for these two core practices in the index of Nyborg's book.

²⁵ “Making monetary policy under conditions of orderly markets is really not that hard”, note Buiter and Sibert, but “dealing with a liquidity crisis and credit crunch is” (Buiter and Sibert 2007). “Any

group of people with IQs in three digits (individually) and familiar with (almost) any intermediate macroeconomics textbook” could devise monetary policy for normal times, Buiter and Sibert argue (ibid).



credit operations – or greatly increases the haircuts it charges – it will reduce the elasticity of the system. Such action, in the midst of a market liquidity crisis, will only aggravate matters.

Similarly, if the ECB had insisted on continuous calibration of haircuts with changing market perceptions of credit, liquidity and counterparty risk – and hence on an even higher degree of differentiation between haircuts on higher and lower quality assets – the consequences would likely have been detrimental, not just for market liquidity in the government bond markets of distressed member states, but for the sustainability of the euro too.

5. EXPLAINING THE INEFFECTIVENESS OF ECB LIQUIDITY INJECTIONS

While Nyborg argues that the ECB's crisis response was ineffective, he fails to offer an explanation as to why. Instead, the reader is left to infer that Nyborg sees the ineffectiveness of the ECB's crisis response as rooted in the flaws of its collateral policies. Nyborg identifies three major shortcomings in the ECB's collateral policies. First, haircuts were adjusted too infrequently, with limited inputs from market forces; second, differentiation in haircuts, within and across asset classes, was too small; and third, haircuts on government bonds with a low credit rating were too low, such that the ECB's lending to banks in heavily indebted countries was much too generous.

In preceding sections, we have seen that each of these three claims is at odds with the empirical evidence, as well as conceptually misguided. If we are to identify the ways in which the ECB's collateral policies contributed

to the ineffectiveness of its crisis response (until summer 2012), we need to look in the opposite direction to where Nyborg points us.

In essence, there are two layers to an answer as to why the ECB's crisis response was ineffective. One has to do with the ECB's schizophrenic collateral policies, the other with its flawed perception of the nature of the liquidity crisis.

The ECB's collateral policies during the crisis were schizophrenic in the sense that they consisted of vastly expanding collateral eligibility, while sharply raising haircuts on lower quality assets. Although a dual strategy of safeguarding financial stability while at the same time pursuing risk management of the ECB's own balance sheet seems common sense, in fact one undermines the other, in a period of financial distress. Such a strategy amounts, essentially, to pushing in opposite directions at the same time. In money view terms (Mehrling 2011, 2012, 2014), enhancing collateral eligibility corresponds to increasing the "elasticity" of the credit system, whereas higher haircuts for lower quality assets correspondingly decrease elasticity. A central bank cannot expand and contract liquidity at the same time. If it tries to do both, it will achieve little else than launching two effects working against each other, at worst cancelling each other out, with the predictable result that the crisis lingers on, unresolved.

The second major problem is that the ECB addressed the crisis as a banking crisis to be resolved by providing ample funding to banks, in accordance with the standard crisis role of central banks as lenders of last resort (LLR). When financial distress haunts a financial system in which money markets and capital markets are closely intertwined, however, central bank interventions that aim at restoring funding liquidity are unlikely to be enough.²⁶ If

²⁶ The notion of market liquidity refers to the ease with which an asset can be traded (without

affecting the market price of the asset), whereas funding liquidity refers to the ease with which



an asset class held in abundance by a financial institution is subject to a spiral of declining market valuation and fire-sales, no amount of additional funding, provided by the central bank, will solve its liquidity problem.

As soon as the ECB changed its perspective, approaching the crisis as a crisis of market liquidity, the crisis abated. After four years of repeated liquidity injections to European banks, Mario Draghi's statement that the ECB would be prepared to do "whatever it takes" to preserve the euro (ECB 2012), convinced financial markets that the ECB was now firmly committed to backstopping the values of all Eurozone government bonds, the core collateral for European banking and finance.

As Draghi predicted, his commitment proved sufficient to restore market confidence and normalise government bond spreads. How could a few sentences, spoken by the president of ECB, achieve what 1.5 trillion euros had not been able to accomplish? How could it make such a big difference when the ECB signalled that it no longer addressed the crisis as a bank funding crisis, but as a crisis of market liquidity?

In financial systems where collateral values are key to market liquidity, liquidity provision in itself is unlikely to be enough. In such systems, if central banks are to backstop liquidity, they are likely to have to engage in a market-maker of last resort (MMLR) role, focusing on "some subset of the risky assets that are serving as collateral" ((Mehrling2012 111)ibid.) The point of such interventions, Mehrling explains, is "not so much to take risky assets off the market but rather to prevent a liquidity spiral from destabilising the price of those assets and so, as a consequence, undermining their use as collateral in the market-based credit system" (ibid.):

For this purpose, it is helpful to think of the dealer of last resort function as a kind of tail risk insurance. For example, think of the Fed as standing ready to buy some select group of AAA private securities at eighty cents on the dollar; this is a kind of limit order, an out-of-the-money trading option, but it can also be viewed as a kind of credit protection that insures the price of the referenced security will never fall below eighty. The twenty-cent haircut is there to serve the same function that the high interest rate does in classic LLR intervention: it ensures that those who use the facility do so only as a last resort (Mehrling 2011: 138)

"Much of the impact of such intervention comes not from the actual positions taken by the central bank", explains Mehrling, "but rather from the price support provided by trading options that may well remain unexercised and so never show up on the central bank's balance sheet" (Mehrling 2011: 111). This statement essentially predicted what would happen if and when the ECB committed to backstopping the collateral values of European government bonds. And so without ever actually activating the Outright Monetary Transactions (OMT) programme, Draghi's commitment to intervene almost instantly stabilised European government bond markets.

traders can obtain funding for their trading (Brunnermeier and Pedersen 2009).



6. ARE DISCIPLINARY HAIRCUTS THE WAY FORWARD?

Official thresholds for fiscal deficits and public debts are still not being met by many member states two decades after the signing of the Maastricht treaty, Nyborg notes. Indeed, “despite a no-bailout clause in the Maastricht Treaty”, he continues, “bailouts of member states have become an integral part of the fabric of the euro” (Nyborg 2017: 246). At the end of the day, these perpetual bailouts have been caused by sovereign states being allowed to act in violation of agreed rules and against the spirit of the European Union, Nyborg argues.

The ECB’s crisis response and its collateral policies cannot be held entirely accountable for this phenomenon, but they have contributed to it fatally, in Nyborg’s view, by making the cost of borrowing far too low for the banks and governments of distressed countries. There is a silver lining, however, Nyborg notes. If collateral policies are designed so as to embed and reinforce mechanisms of market discipline, they can contribute crucially to the prevention of central bank-facilitated over-borrowing in the future.

Instances of over-borrowing could be prevented, Nyborg argues, by using haircuts to discipline countries to adhere to the debt and deficit thresholds of the Maastricht treaty. “The idea is simple”, Nyborg states: “if a debt-to-GDP ratio of no more than 60 percent is desired”, all you have to do is “increase haircuts progressively in the debt-to-GDP ratio beyond this” (Nyborg 2017: 257). The same mechanism can be established for fiscal deficits, such that haircuts are increased

progressively as fiscal deficits exceed the agreed threshold.²⁷

“My proposal works”, explains Nyborg, “by reducing the liquidity and value of a highly indebted country’s bonds” (Nyborg 2017: 257-258). The effect is to increase the borrowing costs, thereby reducing the “appetite” for borrowing in excess of the Maastricht treaty thresholds. The disciplining effect is contingent on the scale of the haircut discrimination, of course. Only if the increases in haircuts are substantial, will the disciplinary effect be significant, Nyborg notes. The uniqueness and strength of the proposal, in Nyborg’s view, stems from the fact that it will effectively rein in the power of sovereigns by carefully deploying the supranational status of the ECB. After that, Nyborg surmises, “markets will do the rest” (Nyborg 2017: 258).

Nyborg acknowledges the possibility that some countries may still experience periods of excessive deficits and debt, despite the introduction of disciplinary haircuts. For Nyborg, finding ways to secure sovereign debt is therefore one of the most important challenges for central banking. The task is especially important in a “common currency area such as the euro area”, because the debt problems of one country may soon become problems other member states have to tackle.

The solution Nyborg proposes is to make collateral eligibility of government bonds in ECB credit operations contingent on member states agreeing to secure their debt issuance, by signing up for an “asset escrow agency” (Nyborg 2017: 258-261). This would make it possible for creditors to confiscate assets pledged to secure sovereign debt, with no legal recourse for their previous owners.²⁸

²⁷ In fact, Nyborg reflects, one might consider raising the haircuts even before threshold levels are breached, so as to further increase “the incentives for member states to adhere to the maximum levels” (ibid).

²⁸ States would still be able to issue unsecured debt, but as this would not be eligible as collateral in repo trading with the ECB, it would be more costly, in terms of haircuts and potential margin calls.



A crucial feature of such a system would be that whatever assets used as collateral for these purposes – whether “tax receipt accounts” or “physical assets” – member states should not be able to expropriate them back after a default (ibid). While this would involve “signing away some sovereign rights under international and national law”, and hence represents a “weakening of sovereignty”, it is in practice the only effective way “to rein in fiscal profligacy and limit the ability for brinkmanship”, Nyborg argues (ibid).

In the case of Greece, for instance, there is no shortage of assets that could be sold off to “service and repay her debt”, Nyborg notes, but there is no mechanism that “can enforce such sales” and no “well-considered plan as to what assets to sell” (Nyborg 2017: 258-59). An asset escrow scheme would rectify this predicament, Nyborg argues. If the debt had been explicitly secured, these arrangements would have been in place long before the situation spun out of control. It is the absence of sound mechanisms and procedures for securing sovereign debt that allowed Greece “to hold up the rest of the euro area with the implicit threat of a full-blown crisis, arising from contagion to other euro-area member states”, Nyborg claims (ibid).²⁹

Nyborg’s proposed system of disciplinary haircuts and asset custody is a manifestation of his conviction that access to liquidity – both in terms of its ease and cost – should be closely tied to the forces of market discipline. The core idea is that central bank credit operations should be devised so as to function as a disciplinary system of reward and punishment.

²⁹ In passing, Nyborg discusses using haircuts on collateral as a disciplining device on private banks too (Nyborg 2017: 261). When banks access central bank funding, haircuts on the collateral they pledge can be tailored to reflect “key financial measures”, Nyborg argues (ibid.). If haircuts are increased as the financial health of a bank declines, the bank will “be more inclined to raise additional

Good quality collateral – government bonds of fiscally prudent states – should give low-cost access to central bank money; poor quality collateral – government bonds of fiscally reckless states – should cause access to central bank money to be possible only at very high cost.

In this system, central bank credit provision would be merit-based, in other words. Yet perhaps even more importantly for Nyborg, liquidity provision organised along these lines would mobilise central banks to perform a disciplining function over governments that other European institutions have failed to accomplish.

However gratifying such a system might be, in terms of its moralising premiums, the main problem with Nyborg’s proposal is that it would not serve the primary purpose of ensuring financial and monetary stability. If haircuts were proportional with fiscal deficits and public debt to GDP (by a rule-based, automatic mechanism), collateral policies would exert a profoundly procyclical and destabilising influence not just on collateral markets, but on financial systems more generally.

Ironically, Nyborg’s disciplinary haircuts would be detrimental not only to market liquidity, but also to central bank balance sheets, because the need for liquidity provision would be insatiable in a collateral policy regime that is systemically procyclical. Using haircuts on sovereign debts, pledged as collateral in order to access central bank liquidity in a disciplinary logic of reward and punishment would thus not resolve but prolong a market liquidity crisis.

equity or seek resolution before the situation gets out of hand” (ibid). In this dimension, Nyborg’s proposal mirrors that of Mervyn King, in which disciplinary haircuts play a crucial role too. King’s proposal, however, is launched in the context of a particular type of narrow banking proposal, a type of thinking from which Nyborg explicitly distances himself (see Nyborg 2017: 263-73).



7. BEYOND 'MARKET DISCIPLINE'

In the absence of an explicit identification of the cause of the ineffectiveness of the ECB's initial crisis response, *market discipline* silently becomes the all-pervasive *explanans* in Nyborg's narrative. It was the lack of market input in its collateral policies that steered the ECB's crisis response so thoroughly off track – and the way forward is to take such inputs to their logical extreme, by embedding them in a rules-based, automatic mechanism of disciplinary haircuts, reinforced by an asset custody scheme.

Given that it guides his negative assessment of the ECB's crisis response, as well as his proposal for a more appropriate modality of central banking, it is not an exaggeration to say that 'market discipline' is one of the core concepts of Nyborg's book. It is therefore all the more unfortunate that his use of it is normative rather than analytical.

The notion of market discipline encapsulates an ethic of letting markets reinforce what is good and virtuous, while punishing the bad and the vicious (Vestergaard 2009). With respect to funding, market discipline expresses the idea that market forces, if allowed, will ensure that funding flows to those who deserve it, because price differentials would then reflect the relative risk-reward profiles of competing assets.

In a conceptualisation of central banking as a system of disciplinary power – where credit provision is used to reward high quality collateral and punish low quality collateral – there is no conceptual space for concerns with market liquidity. Embedding a logic of market discipline in central bank credit operations only

makes sense conceptually in a *funding* liquidity logic. Once the horizon of central bank crisis interventions shifts from institutions to markets, and therefore from funding to market liquidity, a logic of market discipline has little to offer, predicated as it is on an atomistic conceptualisation of the financial system. The language of market discipline simply cannot articulate concerns with market liquidity, nor guide central banks in addressing market liquidity crises.

Against this background, it is hardly surprising that Nyborg makes no reference to the concept of market liquidity at all.³⁰ While there are dozens of entries for 'market discipline' and 'market forces', in the book's index, there are none for market liquidity. Nyborg fails to distinguish between funding and market liquidity. And hence, where money view scholars see the fragile dynamics of market liquidity, Nyborg sees only an absence of market discipline on governments and banks. Although the particulars are specific to Nyborg, his analysis may be said to reflect a wider tendency of much central banking scholarship to fail to "appreciate the liquidity dimension of the system" (Mehrling 2011: 129).

³⁰ Under the category of 'market forces', there are two sub-references that have to do with liquidity. One is 'market forces and fundamental liquidity' (Nyborg 2017: 118), the other is 'market forces and

liquidity' (Nyborg 2017: 6-7). There are also a few references to 'marketable assets' (Nyborg 2017: 60-62; 84-85; 149-162).



8. A BAGEHOT RULE FOR COLLATERALISED FINANCE?

The preceding analysis of Nyborg's work has implications beyond the particulars of the ECB's crisis response. To tease out the generic lessons for central banking going forward, a brief reflection on an early assessment of Nyborg's work by two key figures of the European monetary establishment is expedient (Bindseil and Laeven 2017).³¹

As we have seen, Nyborg argues that the terms on which the ECB provided liquidity to struggling banks were too generous. Implicit in this criticism, note Bindseil and Laeven, is the idea that Bagehot's rule suggests that central banks should be offering liquidity freely on terms that are *less* favourable than the terms offered in private markets.³² This, in their view, is a serious misunderstanding (but one that is nevertheless not uncommon):

*(The Bagehot) principle is often misunderstood as implying that the central bank should lend at terms that are less favorable than the market, even in a crisis. In fact, the opposite is true. Loan terms should be less favorable compared to normal times, but precisely because of market malfunction during a crisis they should be offered at below-market rates during a crisis (Bindseil and Laeven, 2017: 2)*³³

In Bindseil and Laeven's view, it was by engaging in lender of last resort (LLR) operations – on terms that were favourable compared to market rates – that the ECB prevented a financial meltdown in Europe,

while at the same time ensuring that it did not make any financial losses (Bindseil and Laeven 2017: 2). “This illustrates the powerful economic logic underlying the LLR”, they stress (ibid.).

While Bindseil and Laeven's critique of Nyborg's work is insightful, their policy prescription is problematic. In fact, what they propose overlooks the specifics of what is required of central banks to safeguard financial stability in liquidity crises of collateralised financial systems.

Bindseil and Laeven mobilise Bagehot's insights as if they translate into contemporary central banking challenges in a straightforward, uncomplicated manner. We argue that this is not the case. The realities of banking and finance today are such that, to address financial stability concerns, two things are required of central banks, both of which go far beyond the strategy advocated by Bindseil and Laeven: that central banks adopt a market-maker of last resort (MMLR) role, and do so in a decidedly countercyclical (non-schizophrenic) manner.

Lender of last resort funding for financial institutions may buy time, but ultimately the only way a central bank can address a market liquidity crisis is by committing to put a floor under the value of the securities subject to liquidity spirals. The best way to do so is by intervening in the markets where banks fund themselves, backstopping the values of core assets used by banks to obtain funding in money markets. If the market values of core

³¹ Ulrich Bindseil is the chief economist of the ECB and a former colleague of Nyborg, and Luc Laeven is the director-general of research at the ECB.

³² The debate on Bagehot's insights and the lender of last resort role of central banks has a long history in central banking scholarship. Key contributions include Bordo (1990), Fetter (1978), Freixas et al (2000), Goodhart (1999, 2000), Goodhart and Illingl (2002), Hawthrey (1932), Humphrey (1989), and Laidler (2003).

³³ Against Nyborg's repeated complaints that haircuts are modified far too infrequently, Bindseil and Laeven stress that when collateral frameworks of central banks apply haircuts that are “more stable through the financial cycle than those observed in the market” this too is in full accordance with the Bagehot principle (Bindseil and Laeven 2017: 2).



collateral assets can be stabilised through central bank interventions in repo markets, then the market liquidity of those assets will be restored, to the benefit of funding liquidity too. However, to achieve this, the central bank must adopt the role of market-maker of last resort (MMLR) in the securities markets that suffer a market liquidity crisis.³⁴

The protracted nature of Europe's crisis, as compared with the sharper but shorter US crisis, was a result, first and foremost, of the ECB's reluctance to support market liquidity by guaranteeing a floor to the collateral values of the core assets in European credit intermediation, that is, the government bonds of Eurozone member states.³⁵

"A key lesson of the crisis", says Mehrling, is that supplying "funding liquidity is not enough, since in a crisis funding liquidity does not get translated into market liquidity, no matter how hard (the central bank) works to push funds out the door" (Mehrling 2011: 137). The role of "translating" funding liquidity into market liquidity is normally a function performed by profit-seeking private dealers, but Mehrling's suggestion is that when the private dealers stop performing this function – as is the case in a market liquidity crisis – the central bank is well-advised to step in and become the market-maker of last resort.

Rephrasing Bagehot's rule in a manner suitable for an era of collateralised finance, Mehrling suggests that the appropriate role for central banks in crisis times is best encapsulated by the proviso to trade "freely at a wide bid-ask spread, against good security in the money market and in the class of good securities in the capital market" (Mehrling 2014: 110). Mehrling

does not elaborate on the issue of what might constitute "good securities", and thus stops short of addressing the crucial issue of what might constitute appropriate collateral policy in a market liquidity crisis.

We argue that if central banks adopt a market-maker of last resort (MMLR) role, its effectiveness will hinge on the extent to which its approach is countercyclical or not. Effective MMLR requires that a central bank lends against all eligible collateral on equal terms – thus suspending the link to market valuations – and that it abandons a nominal approach to the risk management of its own balance sheet (by lowering its haircuts to enhance market liquidity).

In propositional form, the main points with respect to the collateral policies of central banks pursuing an MMLR role are as follows. First, the key to successful liquidity provision in crisis times is not so much whether or how favourable the terms are, but whether liquidity is provided in a manner that convinces markets that collateral values are backstopped or not. Second, haircuts are an integral element of money hierarchies; without them, securities would not be convertible into bank money through repos. In normal times, central banks rightly use them to manage credit and liquidity risks on their own balance sheet, but in crisis times they should be used as a signalling device; by lowering them, central banks communicate to markets that the collateral values of core assets are solid, which is a crucial prerequisite for restoring market liquidity. Third, while the convertibility of assets with different degrees of moneyness depends on intricate mechanisms of daily collateral valuation and margining, in crisis times these

³⁴ Perry Mehrling suggested similar insights in reflections on the response of the Fed Reserve Bank to the US financial crisis of 2007-2009 (Mehrling 2012). The application of his "principles of market-based credit regulation" to the European case should not be too controversial, however.

³⁵ For a brief exposition of the three channels through which the ECB's liquidity injections were meant to alleviate liquidity strains and stimulate credit, see Gabor (2014).



very practices should be temporarily suspended to ensure the preservation of their moneyness beyond the crisis, thereby contributing crucially to the stabilisation of market liquidity.

By the proposed definitions (see table below), we can talk of MMLR as soon as a central bank

lends against collateral to restore market liquidity, but only of effective MMLR if the central bank has adjusted its collateral policies to be explicitly countercyclical.

Table 4 - From lender of last resort to market-maker of last resort

	<i>LLR</i>	<i>Generalised LLR</i>	<i>Schizophrenic MMLR</i>	<i>Effective MMLR</i>
<i>Objective</i>	Restore funding liquidity	Restore funding liquidity	Restore market liquidity	Restore market liquidity
<i>Counterparty</i>	One institution	Many institutions	One or several financial markets	One or several financial markets
<i>Strategy</i>	Discount window	Lending against good collateral	Lending against an expanded range of collateral, but with higher haircuts for low quality collateral	1/ Lending against all eligible collateral on equal terms 2/ Inverse use of RM tools: lower haircuts to enhance market liquidity

When Buiter and Sibert noted that “our central bankers should earn their keep by acting as market makers of last resort”, they did so while stressing that “covering the central bank’s posterior” is considerably less important “than preventing avoidable financial instability” (Buiter and Sibert 2007). While we greatly agree with the importance of this reversion of the policy goals – preserving market liquidity first, worrying about losses later – a crucial point to appreciate is that it can only be achieved if the use of risk management tools is inverted. For central banks to pursue an MMLR crisis role effectively, they must decrease haircuts, not increase them. This is essential to market liquidity. Incidentally, it is also by far

the best risk management strategy, because the need for liquidity injections will be much more speedily satisfied with this policy mix.

The ECB’s ambivalent strategy – of providing liquidity while raising haircuts – did not amount, in any measure, to “lending freely, against any and all collateral, that is good in normal times”. By expanding collateral eligibility but raising haircuts (especially on government bonds and bank debts with low credit ratings), the ECB’s strategy was sending mixed signals to the markets, undermining the liquidity it was trying to restore.³⁶ To stop collateral valuation spirals, central banks should suspend rather than follow the collateral valuation practices of financial

³⁶ The ECB’s ambivalent approach to Europe’s market liquidity crisis has deep political roots. To legitimise sovereign bonds being given equal treatment across the Eurozone in terms of haircuts applied, the ECB stressed that it would follow market prices in its collateral valuation practices,

notably in the form of daily mark-to-market and margin call practices. While these practices may have been politically imperative, as well as expedient in normal times, their suspension nevertheless remains essential in periods of market stress.



markets. What Nyborg views as an erosion of market discipline – the non-market-based provision of liquidity against collateral – from an MMLR perspective is an indispensable financial stability tool.

9. CONCLUDING REMARKS

Nyborg's core claim is that the ECB's collateral policies undermined market discipline and allocational efficiency and that the combination of vastly expanded collateral eligibility and infrequent and insufficient hikes in haircuts encouraged the fiscal imprudence of indebted member states, ultimately threatening the survival of the euro. "By allowing central bank money to be issued against sovereign debt at overly generous terms", the ECB "helped lower the funding costs for these more indebted nations" – effectively encouraging them to keep lending rather than put their houses in order (Nyborg 2017: 257).³⁷ Greece and Italy, in particular, caused "great hardship on the rest of the euro area, and indeed the global economy", Nyborg argues, because their ever increasing indebtedness made "the threat of default credible" (ibid.).

While Nyborg's work sheds important light on an often overlooked aspect of central banking – the collateral eligibility and haircut rules that constitute the foundation for open market operations – we have shown that Nyborg's work is problematic in four significant ways:

First, it incorrectly claims that the ECB's collateral framework has almost no market inputs. Second, its suggestion that the ECB's haircut framework was too "generous" for banks and governments in distressed member

states is at odds with the fact that the ECB raised haircuts sharply several times over the course of the crisis for lower quality assets. Third, the mode of disciplinary collateral policy that Nyborg advocates as the future for central banking would be profoundly procyclical and destabilising, economically as well as politically. Fourth, his policy prescription does not flow convincingly from his analysis, but is rooted in the notion of 'market discipline', a concept ill-suited for market liquidity concerns.

These problems are inextricably intertwined with Nyborg's failure to articulate and distinguish between funding and market liquidity. If the objective of preserving market liquidity in crisis times drops below the radar, it is hardly surprising that issues of market discipline and central bank independence become the all-pervasive concerns. However, the point remains that there is no conceivable measure of market discipline that can restore and preserve market liquidity in a collateral valuation spiral, much less prevent such dynamics being set in motion in the first place. We stress that the European sovereign debt and bank crisis was only overcome when the ECB addressed it not as a funding liquidity crisis, but as a market liquidity crisis, committing to providing the needed elasticity to the system.

The suspicion lingers that the various conceptual shortcomings of Nyborg's work ultimately reflect a failure to take into account the structural changes in European finance over the past few decades. There is little reflection in his book on the evolution of the funding patterns of European banking and the concomitant shift towards a credit system where money and capital markets are inextricably intertwined, and where

³⁷ It is noteworthy, says Nyborg, that "the lowering of the minimum ratings threshold was especially important for non-marketable collateral in

countries with weak sovereigns and banking sectors" (Nyborg 2017: 81).



government bonds are the core collateral assets for credit creation.

The neglect of these phenomena is unfortunate, given that they fundamentally alter the challenges of modern central banking. In an era of collateralised finance, central banks simply cannot refuse to take upon themselves the role of market-makers of last resort, backstopping the market value of core assets, if they are to be successful in containing market liquidity crises.

The US Fed was quick to adopt a role of market-maker of last resort (MMLR) and the Bank of England soon followed suit, formalising such a role in its 2015 Red Book. The ECB, however, only took this path with hesitation, delay and reluctance, at cross-purposes with itself. The continental-European central banking community remains divided and torn even today – almost eight years after the peak of the European crisis in 2012.



10. BIBLIOGRAPHY

- Bagehot, W. (1873), *Lombard Street: A description of the money market*, London: John Murray.
- Bank of Canada (2011), "Liquidity provision and collateral haircuts in payments systems", *Bank of Canada Review*, Autumn 2011.
- Beck, T. and Kotz, H-H. (2017), *Ordoliberalism: A German oddity?*, Voxeu.org book (<https://voxeu.org/content/ordoliberalism-german-oddity>)
- Bibow, J. (2013), "At the crossroads: the euro and its central bank guardian (and saviour)?", *Cambridge Journal of Economics*, 37 (3): 609-626.
- Bibow, J. (2015), "The euro's savior? Assessing the ECB's crisis management performance and potential for crisis resolution", IMK Working Paper No. 42, Macroeconomic Policy Institute.
- Bibow, J. (2016), "[From antigrowth bias to quantitative easing](#)", Working Paper No 868, Levy Economics Institute.
- Bini Smaghi, L. (2010), "[Monetary policy transmission in a changing financial system: lessons from the recent past, thoughts about the future](#)", Speech given at Barclays Global Inflation Conference, New York, 14 June.
- Bindseil, U. and Laeven, L. (2017), "Confusion about the lender of last resort", *Vox*, 13 January.
- BIS (2013), *Central bank collateral frameworks and practices*, Bank for International Settlements.
- BIS (2014), "Rethinking the lender of last resort", BIS Papers No 79, Bank for International Settlements, September.
- BIS (2015), "Central bank operating frameworks and collateral markets", CGFS Paper No 53, Committee of the Global Financial System, Markets Committee, Bank for International Settlements.
- Buiter, W.H. (2008), "Central banks and financial crises", Paper presented at the Federal Reserve Bank of Kansas City's symposium on Maintaining Stability in a Changing Financial System, Jackson Hole, Wyoming, 21-23 August.
- Buiter, W.H. (2009), "The unfortunate uselessness of most 'state of the art' academic monetary economics", *Maverecon Blog, Financial Times*, 3 March.
- Buiter, W.H. (2012), "The role of central banks in financial stability: how has it changed?", Discussion Paper No. 8780, Centre for Economic Policy Research, London.
- Buiter, W.H. and Rahbari, E. (2012a), "[Looking into the deep pockets of the ECB](#)", *Global Economics View*, Citi Group, 17 February.
- Buiter, W.H. and Rahbari, E. (2012b), "The ECB as a lender of last resort for sovereigns in the Eurozone", *Journal of Common Market Studies*, 50: 6-35.
- Buiter, W.H. and Sibert, A. (2006), "How the Eurosystem's open-market operations weaken financial market discipline (and what to do about it)" in *Fiscal Policy and the Road to the Euro*, National Bank of Poland, Warsaw.



Buiter, W.H. and Sibert, A. (2007), "[The central bank as a market maker of last resort](#)", *Financial Times*, 12 August.

Bordo, M. (1990), "The lender of last resort: alternative views and historical experience", *Economics Review*, 76 (1): 18-29.

Brunnermeier, M. and Pedersen, L.H. (2009), "Funding liquidity and market liquidity", *Review of Financial Studies*, 22 (6): 2201-2238.

Chapman, J., Chiu, J. and Molico, M. (2011), "Central bank haircut policy", *Annals of Finance*, 7 (3): 319-348.

Cheun, S., von Köppen-Mertes, I. and Weller, B. (2009), "The collateral frameworks of the Eurosystem, the Federal Reserve System and the Bank of England and financial crisis turmoil", Federal Reserve Occasional Paper 107.

Claeys, G. (2014), "The (not so) unconventional monetary policy of the European Central Bank since 2008", European Parliament, IP/A/Econ/2014/02, June.

Constancio, V. (2014), "A new phase of the ECB's monetary policy", Speech, Frankfurt, 6 October.

de Grauwe, P. (2011a), "The European Central Bank: lender of last resort in government bond markets?", CESifo Working Paper Series No. 3569:11.

de Grauwe, P. (2011b), "[The European Central Bank as lender of last resort](#)", *Vox*, 18 August.

Dooley, M. (2014), "Can central banks be market makers of last resort?", in BIS (2014), *Rethinking the lender of last resort*, Bank for International Settlements.

ECB (2000), Guideline of the ECB of 31 August 2000 on monetary policy instruments and procedures of the Eurosystem (ECB/2000/7)

ECB (2008), Guideline of the ECB of 21 November 2008 on temporary changes to the rules relating to the eligibility of collateral (ECB/2008/18)

ECB (2010), Guideline of the ECB of 16 September 2010 amending guideline ECB/2000/7 on monetary policy instruments and procedures of the Eurosystem (ECB/2010/13)

ECB (2011), Guideline of the ECB of 20 September 2011 on monetary policy instruments and procedures of the Eurosystem (recast) (ECB/2011/4)

ECB (2012), Verbatim of the remarks made by Mario Draghi. Speech by Mario Draghi, President of the European Central Bank, at the Global Investment Conference in London, 26 July (<https://www.ecb.europa.eu/press/key/date/2012/html/sp120726.en.html>)

ECB (2013a), *Collateral eligibility requirements: a comparative study across specific frameworks*, July.

ECB (2013b), "The Eurosystem Collateral Framework throughout the crisis", *ECB Monthly Bulletin*, July.

ECB (2013c), Decision of the ECB of 26 September 2013 on additional measures relating to Eurosystem refinancing operations and eligibility of collateral (ECB/2013/35).

ECB (2017a), "[What are haircuts](#)", European Central Bank.



ECB (2017b), "[ECB introduces a new haircut schedule for marketable assets](#)", European Central Bank.

Eichengreen, B., El-Erian, M., Fraga, A., Ito, T., Pisani-Ferry, J., Prasad, E., Rajan, R., Ramos, M., Reinhart, C., Rey, H., Rodrik, D., Rogoff, K., Shin, H.S., Velasco, A., Weder di Mauro, B. and Yu, Y. (2011), *Rethinking central banking*, Brookings Report.

Feld, L.P., Köhler, E.A. and Nientiedt, D. (2015), "Ordoliberalism, pragmatism, and the Eurozone crisis: How the German tradition shaped economic policy in Europe", Freiburg Discussion Papers on Constitutional Economics, 15/04, Walter Eucken Institute.

Fetter, F.W. (1978), *The development of British Monetary Orthodoxy 1797-1875*, Cambridge MA: Cambridge University Press.

Freixas, X., Giannini, C., Hoggarth, G., and Soussa, F. (2000), "Lender of last resort: what have we learned since Bagehot?", *Journal Financial Services Research*, 18 (64).

Gabor, D. (2014). The ECB and the political economy of collateral, in Goodhart et al (eds), *Central banking at a crossroads*, Anthem Press.

Gabor, D. (2016), "The (impossible) repo trinity", *Review of International Political Economy*, 23 (6): 967-1000.

Gabor, D. and Vestergaard, J. (2016), "Towards a theory of shadow money", INET working paper, Institute for New Economic Thinking, New York.

González-Páramo, J.M. (2009). Central banking in and out of the crisis: from non-conventional to new conventional. Speech at the Challenges to monetary policy Workshop, Frankfurt am Main, 1 December.

Goodhart, C.A.E. (1999), "Myths about the lender of last resort", *International Finance*, 2 (3): 339-360.

Goodhart, C.A.E. (2000), *Which lender of last resort for Europe?*, Central Banking Publication, London.

Goodhart, C.A.E. (2012), "Monetary policy and public debt", *Banque de France Financial Stability Review*, No. 16, April, 123-130.

Goodhart, C.A.E. and Illing, G. (2002), *Financial crises, contagion and the lender of last resort: A reader*. Oxford: Oxford University Press.

Hawthrey, R.G. (1932), *The art of central banking*. London: Longman Group.

Humphrey, T. (1989), "Lender of last resort: the concept in history", *Economic Review*, 75 (2).

Irwin, N. (2013), *The alchemists: three central bankers and a world on fire*, New York: Penguin.

Jones, H. (2015), "[IMF's Vinals says that the central banks may have to become 'market makers'](#)", *Reuters*, 18 June.

Laidler, D. (2003), Two views of the lender of last resort: Thornton and Bagehot", *Papers in Political Economy*, 2 (45).

Mehrling, P. (2011), *The New Lombard Street*, Princeton University Press.



Mehrling, P. (2012). Three principles for market-based credit regulation. *American Economic Review: Papers and Proceedings 2012*, 102 (3): 107-112.

Mehrling, P. (2014), "Why central banking should be re-imagined", in BIS (2014), *Rethinking the lender of last resort*, Bank for International Settlements.

Mehrling, P., Poszar, Z., Sweeney, J. and Neilson, D. (2012), "Bagehot was a shadow banker: shadow banking, central banking and the future of finance", Working Paper, New York University.

Nyborg, K. (2016), "Central bank collateral frameworks", Research Paper Series No 15-10, Swiss Finance Institute.

Nyborg, K. (2017), *Collateral frameworks: The open secret of central banking*, Cambridge University Press.

O'Driscoll, G.P Jr. (2017), "Rethinking central banking", *Cato Journal*, 37 (2): 287-302.

Oganesyan, G. (2013), "The changed role of the lender of last resort. Crisis responses of the Fed, the European Central Bank and the Bank of England", Working Paper No 19, Institute for International Political Economy, Berlin.

Poszar, Z. (2014). Shadow banking: the money view. *OFR Working Paper*, Office of Financial Research.

Rodrik, D. (2017), "Populism and the economics of globalization", Working Paper, John F Kennedy School of Government, Harvard University, August.

Snoddy, I. (2012), "From Thornton, to Bagehot to the European Central Bank: An analysis of the lender of last resort", *Monetary Thought*.

Thornton, H. (1802), *An enquiry into the nature and the effects of the paper credit of Great Britain*, London: George Allen and Unwin, 1939.

Tucker, P. (2009), "The repertoire of official sector interventions in the financial system: last resort lending, market-making, and capital", Bank of Japan 2009 International Conference, 27-28 May.

Tucker, P. (2014), "The lender of last resort and modern central banking: principles and reconstruction", BIS Papers No. 79, September.

Vestergaard, J., (2009), *Discipline in the global economy? International Finance and the End of Liberalism*, London: Routledge.

Winkler, A. (2014), "The ECB as a lender of last resort: banks versus governments", LSE Financial Markets Group Special Paper No. 228, February.

Wolff, G. (2011), "Lack of collateral will stop euro flows", *Financial Times*, 8 June.

Wolff, G. (2014), "Eurosystem collateral policy and framework: was it unduly changed?", Bruegel Policy Contribution 2014/14, November.



11. ABOUT THE AUTHORS



Jakob Vestergaard, Associate Professor at Roskilde University and Research Associate at the London School of Economics

Jakob does research that cuts across the disciplines of economics, politics and the philosophy of science. Empirically, he has focused on financial crises and financial regulation, emphasising how and to what extent competing narratives shape subsequent policy responses. Jakob's publications include *Discipline in the Global Economy? International Finance and the End of Liberalism* (Routledge, 2009) and *Central Banking at a Crossroads* (Anthem Press, 2014, co-edited with Goodhart, Gabor and Ertürk).



Daniela Gabor, Professor of Economics and Macro-Finance at University of the West of England – Bristol

Daniela is Professor of Economics and Macro-Finance at the University of the West of England – Bristol (UWE Bristol). She is the lead-scientist for research projects supported by the Institute for New Economic Thinking and FEPS. She is expert and regularly publishes on shadow banking, transnational banking models, capital controls, central banking and IMF conditionality.

12. ACKNOWLEDGEMENTS

This paper draws upon research funded by the Foundation for European Progressive Studies (FEPS) and the Institute for New Economic Thinking (INET). Comments on a previous version of the paper from Perry Mehrling are gratefully acknowledged.

This paper It has been developed in the framework of the project 'De-risking the Future of Europe - Reforming the European Macro-Financial Architecture' carried out by FEPS in partnership with the University of the West of England -Bristol (UK) and Roskilde University (DK).