

The ‘Visible Hand’ of the ECB’s Quantitative Easing

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Abstract

Quantitative easing *à la* ECB has produced so far an impact on long-term nominal rates through *ex ante* channels: signalling channels, term duration channels, and risk premia channels. The term duration channel will also lead to a lengthening of the average maturity of government debts, with possible implications for fiscal policy. The ECB’s determination to buy government bonds in a fragmented market with a low net supply may also produce an *ex post* impact, during the actual asset purchases, but less on nominal rates and more on financial plumbing, as recent volatility suggests. As the effects of scarce supply in collateral markets are felt, repo rates remain well below zero. Lower supply and limited re-usability of high quality collateral, capped by regulatory requirements, is a constraint on market liquidity and compresses dealers’ balance sheets. By keeping a depressed yield curve and asset prices high, QE may also accelerate the consolidation of both traditional and capital-market based (dealer) bank business models. What is less clear is how these changing business models will interact with the sharp rise of the asset management industry in the aftermath of the crisis, which raises questions about the implications for global collateral flows and deposit-like funding channels.

JEL-Codes: E44, E52, E58, G15, G23

Keywords: Quantitative easing, risk premium, forward guidance, collateral markets, asset management

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In recent years, in the midst of market turbulence, policy rates have reached the zero lower bound for policy rates (hereinafter, ZLB), with central banks aggressively deploying their balance sheets with an array of unconventional monetary policies to ensure the transmission of monetary policy impulses in disrupted financial markets and so ultimately to set the conditions for economic recovery (Eichengreen, 2011; Hannoun, 2012). Since March 9th of this year, the European Central Bank (ECB) has also joined the club of central banks deploying the most feared monetary policy tool in the armoury. Unsterilized outright asset purchases (or so called quantitative easing, QE) aim to re-establish control over the transmission of monetary policy through policy rates by improving the conditions for unsecured market activity. This paper has three parts: an overview of the reasons for the new ECB monetary policy; the operational challenges of QE; and preliminary evidence of the effects of QE on markets.

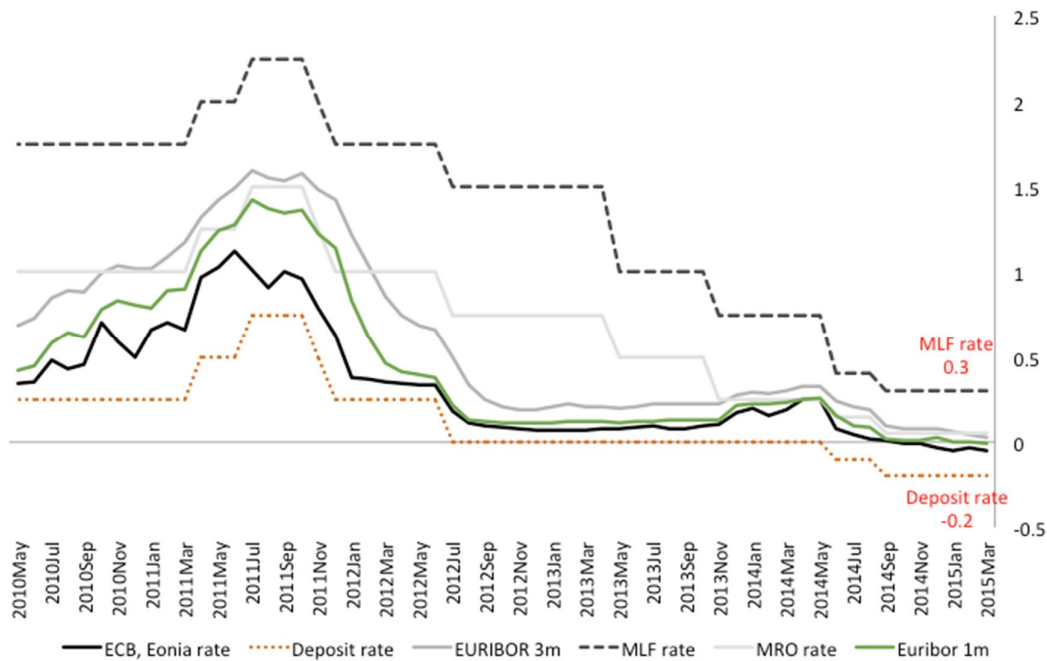
1. The troubled path of ECB monetary policy

As we navigate “uncharted waters” (Borio, 2011), central banks have been using monetary policy according to their respective policy frameworks and mandates (independence). In particular, the ECB has been paving the way for the ‘nuclear option’, having used all other available tools linked to policy rates adjustments, such as a massive lending operation (with full allotment) with extended maturity (so-called long-term refinancing operation, or LTRO).

As the figure below shows, since the peak of the sovereign crisis in the second half of 2011, the ECB has been narrowing the rate corridor to a very recent minimum. The deposit facility rate has been set at a negative value of 20 basis points, with a marginal lending facility rate down to just 30 basis points. However, this was not enough to provide incentives for banks to push liquidity out in the economy, to revive interbank activity, and to favour better conditions for economic growth. As a result, the main short-term interbank rates (including the Euribor three-month) are below the zero lower bound, with weak signs of recovery in lending to the economy.

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Figure 1. ECB's rate corridor



Source: ECB.

There is no possibility at ZLB for short-term policy rates to influence long-term rates, so asset purchases are the only way to affect interest rates and asset allocation. Nonetheless, the effects of a massive asset (government bond) purchase programme are not new to the euro area. Most notably, the long-term refinancing operations (worth almost a trillion euros gross value) ended with banks flooding the (domestic) government bond market with money, which produced downward pressure on sovereign bond yields across the euro area, and reduced rate dispersion, at the expense of banks that were unable to pass on the lower cost of credit to the economy. The “great interest rate carry trade” (Acharya & Steffen, 2015), supported by the safety net of the Outright Monetary Transactions (OMT) programme of the ECB, came at a cost for financial integration. Banks retrenched in their domestic market under the implicit guarantees of their local government, with greater risk also for the central bank’s balance sheet that took up great amounts of low quality collateral in exchange for cash. LTRO thus bought banks time at the cost of reinforcing the ‘doom loop’ between banks and governments in the euro area (for an overview, see Valiante, 2015).

Once the inflation expectations dropped and other interventions (like the targeted long-term refinancing operation) did not produce immediate effects, financial fragmentation, and the inability to revive lending to the economy, gave the ECB reasons to consider an asset purchase programme, to intervene in bond markets directly and to drive down medium and long-term interest rates.

2. A market under strain

The quantitative easing - or ‘public sector purchase programme’ (PSPP) - plans to take out of the market central government bonds for around €850 billion, which will be allocated according to the ECB capital allocation. The programme does not include Greek bonds, as the ECB will wait until most of the bonds on its balance sheet that come from Greek banks come to maturity. There are also limits to prevent the ECB from buying more than 33% from the

same issuer, and more than 25% from a single issuance. Table 1 illustrates the allocation of the programme among the euro countries according to their share of the ECB capital, provided by EMU countries adopting the euro.

Table 1. Quantitative easing allocation (excluding Greece)

	ECB capital allocation	Estimated ECB purchases (€ bn)
Austria	2.872%	24.4
Belgium	3.625%	30.8
Germany	26.328%	223.8
Estonia	0.282%	2.4
Ireland	1.698%	14.4
Greece	-	-
Spain	12.933%	109.9
France	20.742%	176.3
Italy	18.009%	153.1
Cyprus	0.221%	1.9
Latvia	0.413%	3.5
Lithuania	0.604%	5.1
Luxembourg	0.297%	2.5
Malta	0.095%	0.8
Netherlands	5.857%	49.8
Portugal	2.550%	21.7
Slovenia	0.505%	4.3
Slovakia	1.130%	9.6
Finland	1.838%	15.6

Note: Total ECB purchase of eligible government bonds (EGB), which can be estimated at €850 billion.

Source: Author's calculation from ECB.

So far, the ECB has bought over €73 billion of central government, national, and EU agencies' bonds with no major challenges. However, the picture gets more interesting if we look at estimates of the total eligible government bonds (hereinafter QE-EGBs) available in the market, and the ECB target. On the one hand, as suggested below, we estimate that the ECB may buy as much as 29% of German bonds available with maturity between two years and 31 years. It may also purchase more than 20% of available Dutch and Spanish central government bonds. This year the net supply of German government bonds between two and 31 years is going to be much lower than the ECB's target (Barclays, 2015), which means that the ECB will take a big chunk of government bonds out of the market. Moreover, it is likely that the central bank will get very close to the 33% issuer limit for several countries by September 2016.

Table 2. ECB QE-EGBs purchase and total supply (selected countries)

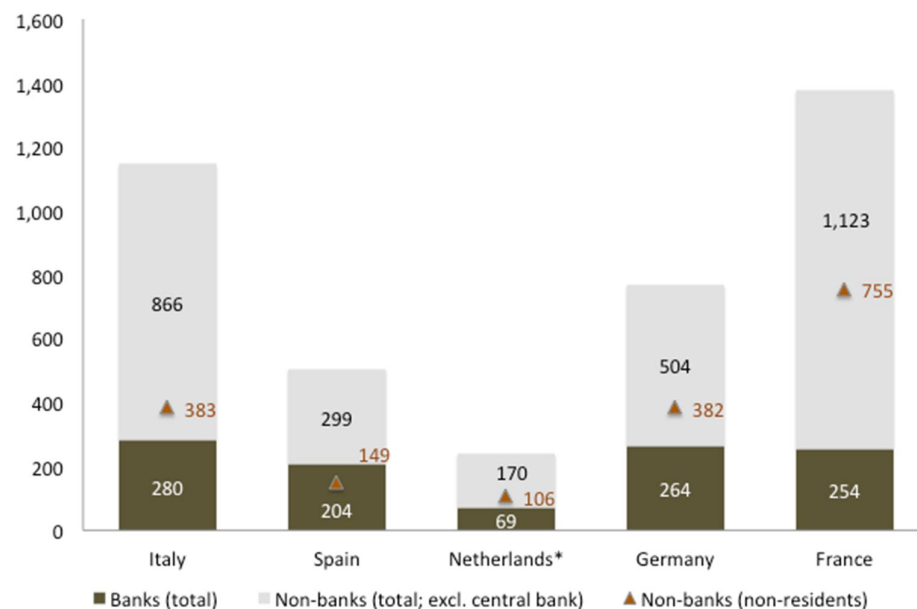
€ bn	Italy	Spain	Netherlands*	Germany	France
Total government debt	1,799.3	995.8	348.2	1,817.8	1,522
Central government debt	1,731	769	345	1,124	1,522
Eligible central government debt (2y - 31y)	1,225	503	239	768	1,043
ECB max purchase	153.1	109.9	49.8	223.8	176.3
ECB max purchase (% tot. eligible)	12%	22%	21%	29%	17%

Source: Author's calculation from NCBs, EBA, BIS, Barclays (2015).

*End 2013, otherwise Q4 2014 for Spain and Q3 2014 for the remainder.

On the other hand, it is likely that the ECB will find enough securities in its asset purchase operations. QE-EGBs holdings are mostly in the hands of (foreign) non-banks, which might be willing to offload eligible securities if rates remain in negative territory for a prolonged period.¹ However, we should not assume that all foreign non-banks will offload their exposure of German bonds because they provide a good portfolio balance as a risk-free asset. Banks instead may hold most of Germany's QE-EGBs, as the opportunity costs of selling government bonds are fairly high, certainly higher than the opportunity costs for non-banks. The biggest holding of QE-EGBs by banks is around 40% of the total, in Spain.

Figure 2. QE-EGBs holdings by banks and non-banks (€ bn)



Source: Author's calculation from NCBs, BIS, EBA, Barclays (2015).² Note: 'Non-bank' data do not include central bank holdings. *End 2013 data. Q4 2014 data for Spain, otherwise Q3 2014.

¹ Bill Gross defined this situation as the 'short of a lifetime', see <http://www.bloomberg.com/news/articles/2015-04-22/bunds-stuck-in-qe-black-hole-defy-gross-s-short-of-a-lifetime>

² These estimates rely on the following assumptions: i) that short-term debt is equally distributed across non-banks and ii) that claims of international non-banks include only debt securities (no loans).

The following factors may thus become opportunity costs to sell government bonds for banks:

- That capital requirements attribute to government bonds the same risk weights as liquidity, including for the liquidity coverage ratio, with the additional benefit of receiving a return;
- That asset purchases push prices up and make it more convenient to hold assets as long as the ECB stays in the market;
- The alternative use of government bonds in collateral market to produce additional returns (not available with cash);
- The risk aversion in a 'balance sheet repair' environment, which reduces banks' appetite to take on more risk with either an alternative investment or a minus 20 basis points if left in deposits; and
- That investment portfolios balance, which may require holding a minimum level of risk-free government bonds.

In any case, it will be clear whether the ECB will find enough QE-EGBs during a period of seasonal supply scarcity in the bond market (such as during the summer period), as the programme buys a fixed total amount per month, irrespective of the liquidity in the market.

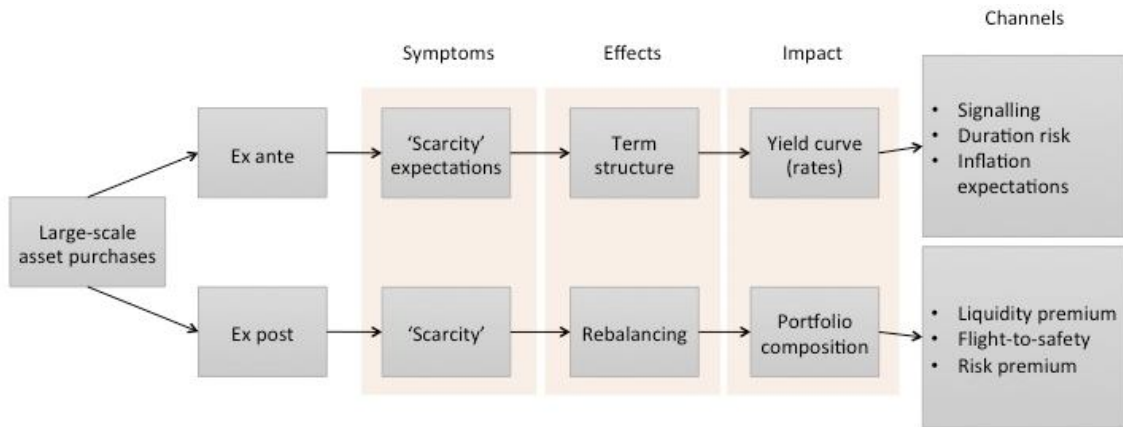
More problematic might be the implications of the asset purchase programme for collateral markets. The ECB intervention takes out high-quality collateral available in the market, creating a temporary artificial scarcity that has already driven interest rates in collateral (repo) markets down. In effect, while the past LTRO was taking out bad collateral with low turnover velocity, the ECB is now taking out high-quality collateral, which has more value for the possibility to re-use it in the market in secured operations (with higher turnover than money; Singh 2014). According to Barclays (2015), general collateral (GC) rates may even go below minus 20 basis points (deposit rate). German GC rates have already gone close to minus 20 basis points because of the scarcity of German bonds. As a result, scarcity of supply may have two major implications: temporary price distortions on financial instruments with similar risk (such as bonds of government agencies of triple A rated countries) and pressures on banks to either invest in riskier assets or shrink. In effect, with long-term interest rates at ZLB, banks would be unable to meet the funding needs of impaired liabilities, which still sit on European banks' non-performing loans.³ Further bank restructuring might be, in effect, a welcome side objective of the ECB as bank supervisor, consistent with the conclusions of its macroprudential body (the European Systemic Risk Board, ESRB) last year that the euro area is 'overbanked' (ESRB 2014). To deal with the scarcity issue, the Eurosystem is implementing a securities lending facility to minimise the impact on collateral usability and so on market liquidity (Coeuré 2015).

3. Mapping the impact channels of QE

Building on the findings of Joyce et al. (2011), Krishnamurty and Vissing-Jorgensen (2011), and D'Amico et al. (2012), among others, this section reviews the typology of QE channels and the preliminary evidence about their role under the ECB QE. Massive asset purchases produce two types of impact, through the prospect of 'supply scarcity' (expectations about net supply): an ex-ante impact on expectations about future prices (interest rates); and an ex-post impact on the actual availability of those assets in the market (portfolio rebalancing).

³ Please see EBA stress test data and ECB comprehensive assessment. For a quick overview, please see <http://data.worldbank.org/indicator/FB.AST.NPER.ZS/countries>.

Figure 3. Large-scale asset purchases channels



Source: Author.

The impact of expectations on the term structure of the yield curve, which usually becomes flatter (depending on the targeted maturity), mainly takes place through three channels:

1. Signalling
2. Duration risk (term premium)
3. Inflation expectations

These channels mainly operate *ex ante*, i.e. they impact investors' expectations about the long-term rates by signalling further easing, lower duration risk and ultimately stabilising inflation expectations.

On the one hand, because of the large-scale asset purchases, the actual shortage of instruments ('scarcity') can further reduce long-term interest rates under the 'preferred-habitat' investor theory (see Vayanos and Vila, 2009; D'Amico et al., 2012). On the other hand, it may lead the market to rebalance the portfolio composition in favour of alternative comparable assets. This portfolio rebalancing essentially happens in three additional ways:

1. Liquidity premium
2. Risk premium
3. 'Flight-to-safety'

These three channels change the premium (preferences) of investors in a specific class of assets, with implications for portfolio composition. As a result, the *ex post* channels may relieve pressure on the target interest rates, as the portfolio shifts towards investments with higher risk premium.⁴

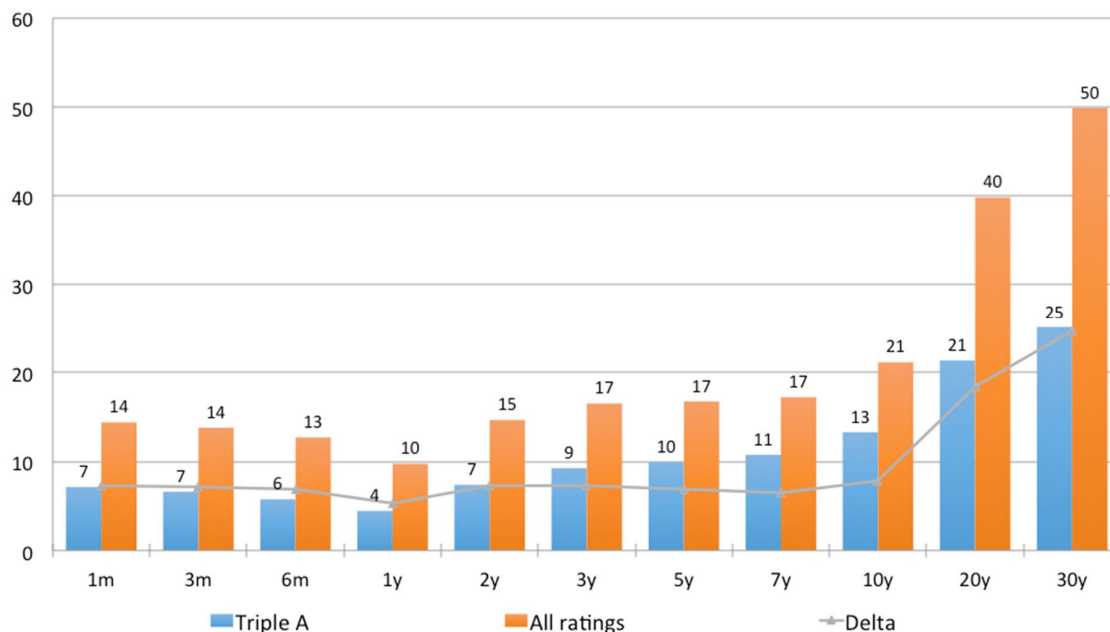
3.1 The interest rate term structure

The signalling channel is certainly very effective before the asset purchase takes place (*ex ante*). It measures the credibility of the commitment to bringing down interest rates through market expectations about further credit easing. Those effects usually affect the whole market and rely on the large quantities and duration of the programme, i.e. its credibility. The signalling channel can be divided into the forward guidance and the announcement effect. Forward guidance occurs when a central bank gives signals to the market about the probability of a future policy intervention, so allowing the market to discount it over a longer period of time

⁴ In the case of FED QE, rates started to increase as the *ex post* QE channels (actual purchases) kicked in because both the portfolio rebalancing effect and a net supply that was higher than the purchases that FED was making in the market.

and reducing market impact. The announcement effect takes place once the programme is announced and markets have certainty that the programme will be implemented, as well as the details. The announcement effect thus measures the ability of the programme to surprise the market. In the case of the QE *à la* ECB, it appears that the market was indeed surprised. Figure 4 shows that, between the date of announcement and the beginning of the programme, interest rates in Eurozone government bonds dropped especially for the bonds under the programme (two-year to 31-year) up to 50 basis points (for the 30 years maturity). The announcement effect also reduced the differential between triple A bonds and other government bonds in the EMU.

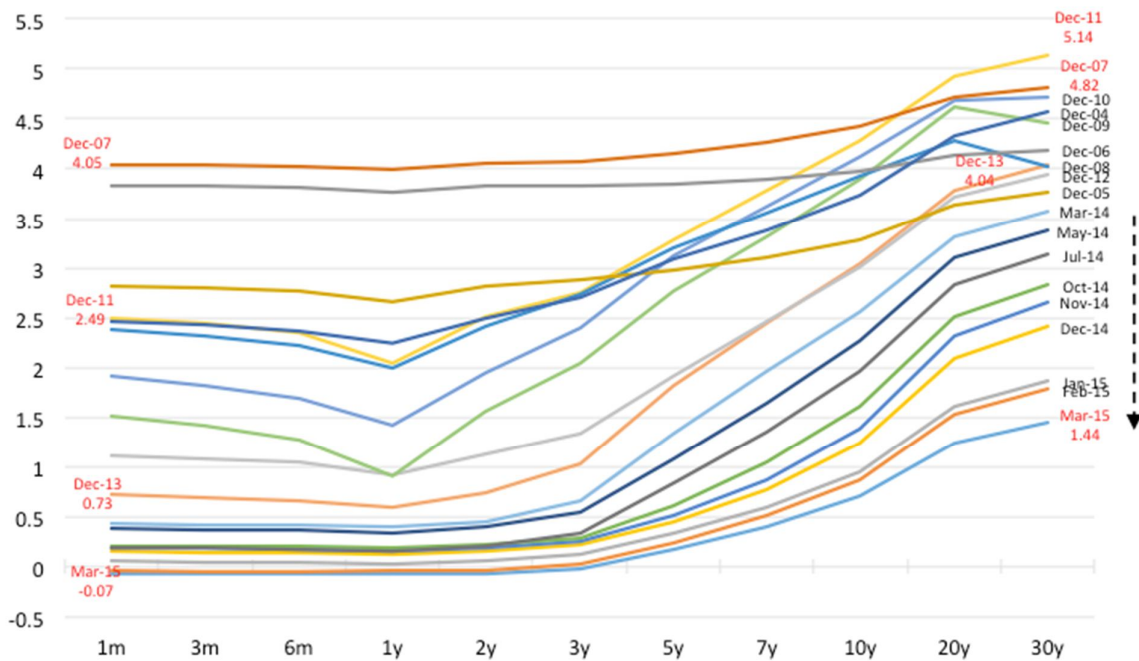
Figure 4. Announcement effect (delta Jan 21st – March 6th; basis points)



Source: ECB.

However, beyond the announcement effect, the forward guidance process conveyed the ECB 'reaction function' to the market when certain conditions were going to be met (Draghi, 2015). This information got gradually priced in the interest rates, reducing the magnitude of the announcement effect, which in case of significant sizes like this can, if not properly diluted, create market disruptions. Figure 5 suggests that, since Mario Draghi initially revealed the ECB 'reaction function' in April 2014 (Draghi, 2014), the yield curve has been flattening very quickly, as the probabilities that conditions for an unconventional intervention were met increased. The forward guidance, combined with the QE announcement, reduced rates by more than two percentage points on their highest maturity, reaching in March 2015 a historical low (e.g. 30 year German bonds have gone as down as much as 80 basis points). Changing expectations on global inflation, driven by the Eurozone in particular, drove down interest rates in advanced economies. Nonetheless, looking at the intensity of the drop in the Eurozone, there are few doubts that the anticipation of the ECB PSPP provided a major contribution.

Figure 5. Yield curve (all ratings, eurozone)



Source: ECB.

This situation shows also the existence of an *ex ante* duration risk channel. In effect, the expectations (via forward guidance) about a massive purchase of long-term securities reduce the term premium and so it alters the shape of the yield curve, flattening the long-term part (as the figure above suggests). By affecting the duration risk, QE makes long-term issuance cheaper, especially for governments (as main target of the ECB intervention). It is therefore more convenient for public debt management to increase the average maturity of issued government debt securities.

Finally, less volatile long-term interest rates will also help to stabilise inflation expectations, but there is no clear evidence that this channel is working now or has ever worked in Europe, Japan, or the United States.

3.2 Portfolio rebalancing effects

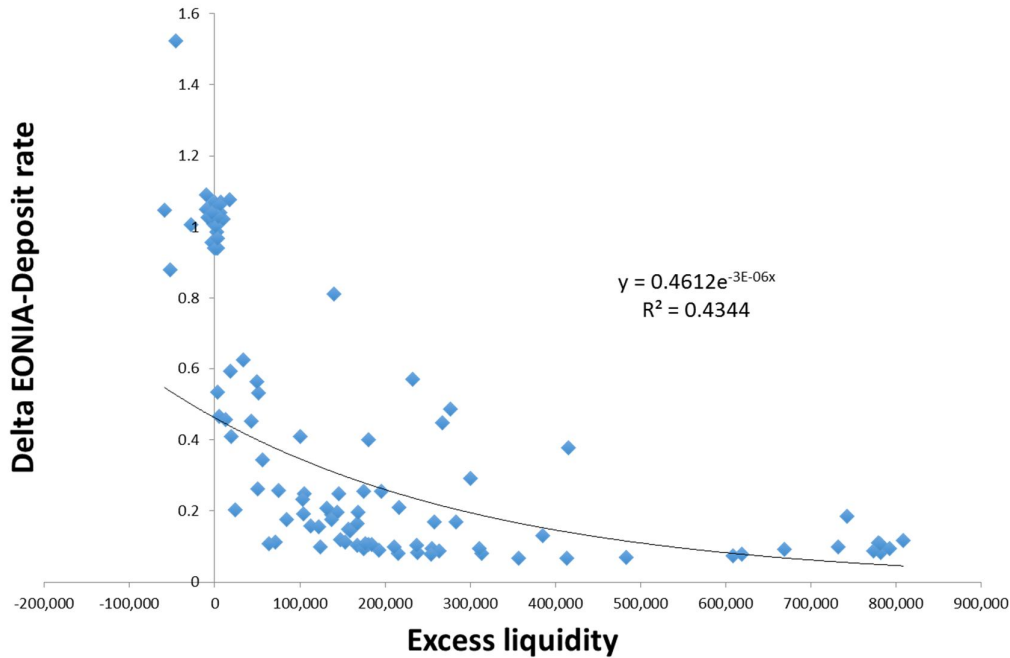
Large-scale asset purchases create a shortage of long-term (high-quality) assets in the market, which may then result *ex post* in a change of preferences in portfolio composition. It is too early to reach conclusions on the impact of the ECB quantitative easing on portfolio composition, but the intervention will probably produce an impact through liquidity premium, risk premium, and 'flight-to-safety' channels.

The liquidity channel may play a very important role in asset allocation. As Figure 6 shows, when the benefit of the main alternative use for bank liquidity goes down, i.e. the distance between the rate received for the liquidity deposited at the ECB and the cost of the 'safest' alternative allocation of liquidity (the unsecured overnight interbank market with one-day maturity, EONIA),⁵ excess liquidity moves non-linearly and therefore typically expands at an increasing rate when the differential approaches zero. On the contrary, excess liquidity seems

⁵ Euro OverNight Index Average. This differential represents the minimum return available to the bank, if it does not return liquidity to the ECB at the end of the day.

to remain around or below zero when the differential goes above a certain level, depending on the size of the rate corridor.

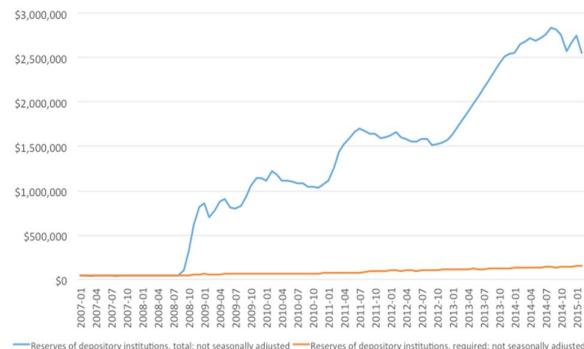
Figure 6. Excess liquidity and opportunity cost



Source: Author's calculation from ECB. Note: Monthly data points between May 2010 and March 2015.

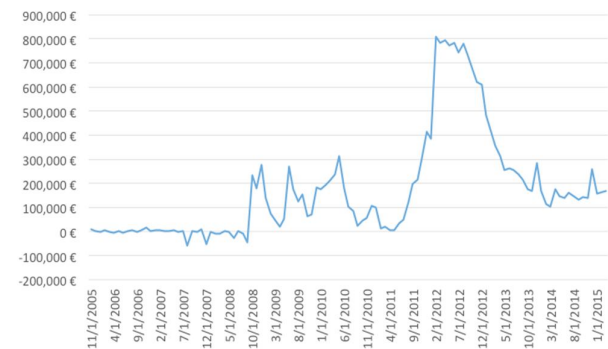
As a result, the excess liquidity is set to increase more or less in the same way as we saw during the LTRO operation in 2012, at around €800 billion (see Figure 8). This is what happened in the United States. Figure 7 shows at least four important spikes in excess reserves with: QE1 (2008); QE1 expanded (2009); QE2 (2010/2011); and QE3 (2012/2013). The key difference with LTRO is the type of collateral that was taken out by the FED, which was the main lubricant of financial plumbing (Singh, 2014).

Figure 7. FED excess reserves (\$ mn)



Source: FED database. Note: Up to end of February 2015.

Figure 8. ECB excess liquidity (€ mn)



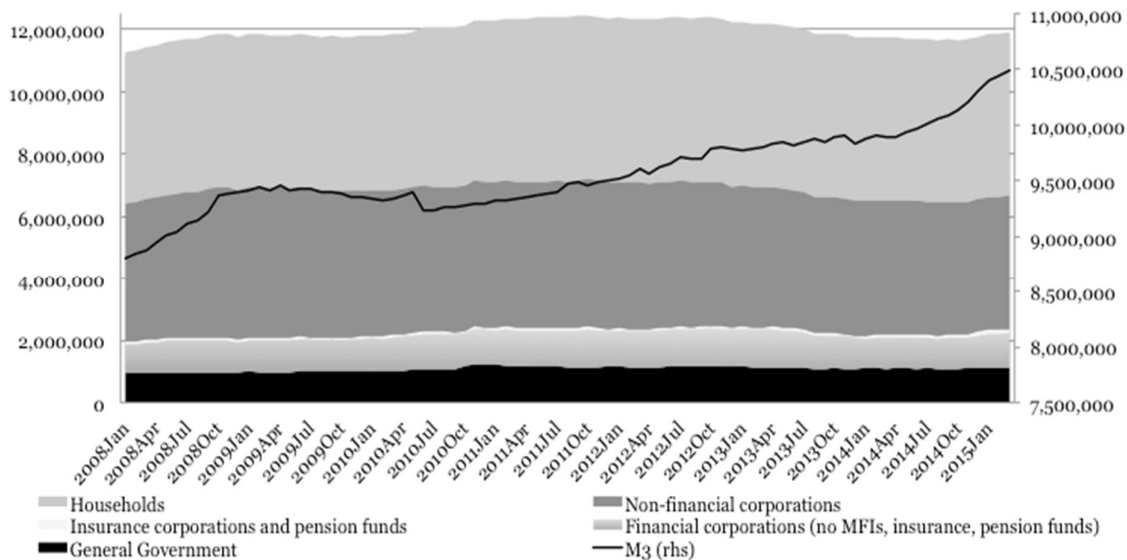
Source: Author's calculation from ECB. Note: Up to the end of March 2015. 'Excess liquidity' is equal to the value of the deposit facility, minus the marginal lending facility, plus the difference between current accounts (covering the minimum reserve system) and the required reserves.

As a result, the liquidity premium is likely to drop on most liquid bonds, with a relative increase of yields on short-term securities. This may have a rebalancing effect on investment portfolio, in favour of more long-term assets.

A large-scale asset purchase creates an actual scarcity of long-term 'safe' assets, which in turn produces an impact on risk premium in two ways. Firstly, there is a bulk of investors that prefer a 'near-to-zero' default risk and their flight-to-safety will continue for assets that are close (in terms of risk) to those that are being bought by the central bank (most likely triple A or double A government agencies or development banks). Secondly, asset purchases reduce risk premiums on alternative assets, by lowering the value of the risk-free interest rate component of the risk premium. Investors, including banks, might therefore modify the composition of their investment portfolio.

On the one hand, as the M3 monetary aggregate grows, led by growth in overnight deposits, there are some faint signs that this is leading to more bank lending to non-financial corporations and households (see Figure 9). It is also impossible to disentangle the effect of the conditions created by the quantitative easing from the ongoing action of the ECB under the Targeted Long-term Refinancing Operation (TLTRO). Overall, under these market conditions, banks continue their consolidation process, but the size of their balance sheet has started to grow again as new liquidity flows into the banking system.

Figure 9. MFIs loans and M3 (€ mn)



Source: ECB.

New market conditions have been highly beneficial for stock markets in Europe, as they have been growing steadily since March 2014 when the ECB reaction function was first revealed to the market, and at a faster pace when the ECB announced the programme on January 22nd (see Figure 10).

Figure 10. Europe Stoxx 600 and U.S. S&P 500



Source: Stoxx and Yahoo Finance.

Table 3. Europe Stoxx 600 and S&P 500 performance

	Stoxx 600	S&P 500
1 Mar 2014 – 30 Apr 2015	19.8%	13%
21 Jan 2015 – 21 April 2015	14.2%	3.2%

Source: Author's calculation from Stoxx and Yahoo Finance.

In particular, the index including 600 listed companies across Europe (Stoxx 600) has increased by more than 14% since January 22, compared to only 3% for the US S&P 500 (see Table 3). It out-performs US equities even after the announcement effect ended and the purchase programme began.

4. Understanding the long-term impact of QE

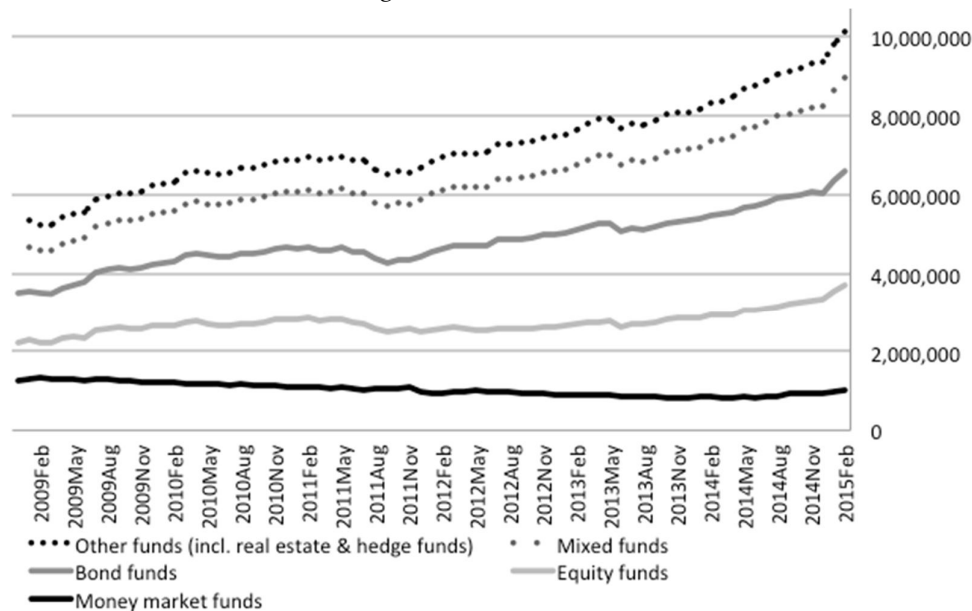
For both interest rate term structure and portfolio rebalancing, there are more long-term trends interacting with the QE operation. Interest rates on government bonds in Europe and the United States have been moving in tandem for years. Despite short-term divergences, caused by time inconsistency between central bank actions in the two continents, there is a strong convergence between real interest rates in advanced economies that are at ZLB. Whether due to a chronic shortfall because of a 'secular stagnation' (Summers, 2013) or to a debt overhang (Rogoff, 2015), underlying structural factors are the key drivers of low real interest rates (according to Blanchard, Caballero and others, in Teulings and Baldwin, 2014). Looking at simple correlations, Gros et al. (2015) argue that this underlying common trend makes QE somewhat irrelevant, as the drop in interest rates of 'safe' assets would inevitably continue because of those structural factors.

However, the story may be more complicated than that. As Borio and Disyatat (2015) pointed out, money and finance are not neutral, despite what macroeconomic modelling might tell us. Although the effects of QE on interest rates are typically short-lived, due to the temporary

nature of the asset purchase programme (artificial demand), there are potential long-lasting effects on asset allocation and the transmission channel of risk into interest rates. Portfolio rebalancing effects may produce a change in the intermediation channel of capital flows. Reduced risk premium for long time (under financial repression) is gradually reducing the profitability of banks as the traditional intermediation channel of capital flows (in the form of deposits). The disappearing interest carry trade between ECB liquidity and ‘safe’ assets for traditional banking is creating a systematic low-margin business environment, pushing an overgrown banking system (ESRB, 2014) to deal with the skeletons in the closet (particularly, non-performing loans) through deleveraging and consolidation. Deleveraging, though, is still not happening as high asset prices create incentives to hold for some time at least.

This new environment may benefit the capital-market based banking model (also called ‘shadow’ banking) instead. The supply scarcity in collateral markets, however, may continue to put strain on dealers’ balance sheets expansion, but at some point it will follow the on-going rise of the asset management industry in Europe, which has soared to more than €19 trillion in 2014, compared to €10.9 trillion in 2008 (EFAMA, 2015). Collateral and cash management for both active and passive investment management, through repo and derivatives operations, will keep the link with dealer banks strong for some time. The outstanding amounts of funds units, which is a good source of collateral for repo markets, only in the euro area has now reached more than €10 trillion and counting (see Figure 11).

Figure 11. Funds units/shares outstanding amount in the Euro area (€ mn)



Source: ECB.

The search for higher yields, under unconventional monetary policies (on top of ‘secular stagnation’ and/or ‘debt super-cycle’ theories), is indeed shifting the bank intermediation model towards an agency-based model with matched books. Via enhanced portfolio rebalancing effects, QE is speeding up this process by reducing profitability and pushing banking into a lower-margin business environment, leading to further shrinking or reconversion of the business in pure dealer activity for asset managers (Pozsar 2013; Mehrling et al. 2013). However, by taking good collateral out of the market, QE is also reducing overall collateral turnover velocity (and potentially the liquidity offered by dealers/market-makers; Singh, 2012, 2013), as the collateral velocity of outstanding securities available in the market is

capped by capital, margin, and custody regulations.⁶ This happens while the asset management industry flourishes. Only last year, the net inflow of capital in investment funds in Europe was €634 billion, a historical record for the industry (see Figure 12).

Figure 12. Net sales of investment funds units (€ bn)



Source: EFAMA.

While this development is far from harmful per se, there is an element of uncertainty when capital flows lose intermediation too fast. The traditional bank assets/liabilities mismatch is not the main concern in an agency model. The financial stability implications of asset managers being both prominent ultimate borrowers (repoing collateral) and ultimate savers (reverse repoing, i.e. exchanging cash for collateral; Pozsar & Singh 2011), in an environment in which the concept of what is 'safe collateral' changes rapidly because of unconventional monetary policies, are still poorly understood. This comes on top of other financial stability concerns, such as herd behaviours and 'enhanced' pro-cyclicality, the fire-sale of assets, which are currently under scrutiny by macroprudential regulators, as the size of the industry is gradually overtaking the traditional banking system (Haldane, 2014). Those risks are somehow different from those related to traditional banks' activities and perhaps need different policy responses.

Nonetheless, it should be recognised that in an environment in which collateral with high turnover re-usability is scarcer, the negative impact on market-makers' inventories - and ultimately on market liquidity - can be softened by more active asset management intermediation that can free more good collateral for the good functioning of the financial system. Asset management intermediation is also coming from banks themselves, as their business model evolves, raising questions of the governance of asset management companies. More independent entities could minimise distortions in the collateral flows that may be driven by the commercial interest of the banking group owning the management company.⁷ More asset management intermediation offers other benefits too, such as greater yields to meet long-term liabilities (for insurance and pension funds, among others) and greater financial integration on a global scale. All these are crucial to promote diversification of the financial ecosystem and better financial conditions for the fostering of investments and, ultimately, economic growth.

⁶ What Singh (2012) defines it the '(other) deleveraging'.

⁷ Developments in the business model of banks like UBS appear a common trend for banks that have been traditionally active in investment banking.

5. Summary conclusions

- QE in Europe comes at the end of a long-thought monetary policy path that left some collateral damage on its way (financial fragmentation). The decision to narrow the rate corridor to 50 basis points left no alternative to an asset purchase programme to revive unsecured market activity when inflation hit the negative territory.
- So far QE has produced its main impact on the term structure of interest rates through ex-ante channels: forward guidance and announcement. Forward guidance and announcement effects have flattened the yield curve to an unprecedented level. The duration risk channel may also have fiscal policy implications, leading government debt management offices to lengthen the average maturity of outstanding debts.
- The ECB determination to buy government bonds in a fragmented market with low net supply will continue to put a strain on liquidity, as the scarcity of supply in collateral markets begins to be felt. Due to fragmentation, this impact will be more prominent than that seen in the United States, but systemic implications will be limited.
- Both term structure and portfolio rebalancing effects begin to produce an impact on stocks and on overnight deposits, reflected in higher M3. Nonetheless, impact on bank lending is limited and hard to disentangle from the TLTRO intervention.
- A depressed interest rate curve (and limited carry trade with central bank liquidity) is throwing traditional bank business models into a low-margin environment with high asset prices, slowing down deleveraging but increasing incentives for further consolidation in the banking system.
- Massive purchases in fragmented collateral markets, in conjunction with regulatory requirements limiting re-usability, put a strain on dealers' balance sheet expansion to match a fast-growing asset management industry, at the centre of global financial collateral and deposit-like instruments.
- Governance independence of asset managers from banks and macro-prudential concerns with asset management (herd behaviours, etc.) are still poorly understood. This limited knowledge, nonetheless, will not overshadow the role that a more balanced financial ecosystem can bring to a traditional bank-dominated model like Europe.

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