# Monetary policy in the context of balance sheet adjustments

## Speech by Peter Praet, Member of the Executive Board of the ECB, Peterson Institute for International Economics, Washington DC, 22 May 2013

Ladies and Gentlemen, [1]

It is a great pleasure to speak to you today.

I would like to use this opportunity to discuss the ECB's monetary policy response to the profound balance sheet adjustments currently taking place in the euro area.

Like in most developed economies, different sectors in different euro area countries have entered into a deep deleveraging phase over recent years. A deleveraging phase follows a credit boom gone into reverse: financial and non-financial firms shift their focus from exploiting business opportunities to reducing risk exposure. Likewise, households seek to clean their balance sheets from sources of vulnerability. Deleveraging presents central banks with a delicate balancing act:

- It is a necessary and healthy reversal of past borrowing excesses. To that extent, policy-makers should not stand in the way of "the invisible hand" (or perhaps, more fittingly, "the invisible scissors") that trims balance sheets to sustainable proportions. Unless the oppressive load of debt and capital overhangs is run down, the misallocation of resources will constrain future opportunities. Solving a *stock* problem today means resolving a chronic *flow* problem – anaemic income, production and expenditure – for years to come.
- At the same time, deleveraging carries risks if it is abrupt and disorderly. Accelerated deleveraging by the financial industry brings with itself the threat of a protracted suspension in financial intermediation. In a worst-case scenario, this can lead to a fully-fledged financial meltdown. But, even if the meltdown scenario is avoided, lack of finance adds to the economic headwinds by suppressing investment. Sluggish investment, in turn, lowers income and prices, thus reinforcing deleveraging pressures.

If this cycle of adverse externalities across sectors sets in, the ensuing deleveraging spiral becomes a matter of public policy concern. It becomes a monetary policy concern to the extent that it impairs the transmission of monetary policy signals to the real economy.

Central banks thus have a role to play in managing the deleveraging process, knowing that crisis management has to complement, but should not obstruct, crisis resolution. They must ensure that the economy does not enter into a downward spiral that would be inconsistent with price stability.

But how can they succeed in this task without delaying structural repair? Do they have the tools? If not, who can complete the policy framework? How can central banks align short-term crisis fighting efforts with their longer-term monetary policy strategies and mandates?

These are the questions that currently preoccupy central bankers around the globe, albeit to different degrees and a varying sense of urgency. Let me frame these preoccupations today with a euro area perspective. I will proceed in three steps:

- First, I will highlight the key challenges that central banks and policy makers face when formulating their crisis response in the context of acute deleveraging pressures.
- Second, I will explain how the ECB has responded to these challenges and how other policy domains have to contribute to tackling the deleveraging risks.
- Finally, I will reflect on how the institutional framework of Economic and Monetary Union (EMU) in Europe directs, complements and bolsters the ECB's crisis response.

## 1. Ongoing balance sheet adjustments

Leverage cycles are difficult for central banks to tame, essentially for two reasons: first, they are difficult to empirically identify, measure and describe with available analytical tools, especially in real-time; second, even if analysts found ways to spot them with reasonable accuracy in real-time, central banks and other macro-policy authorities may need to apply an atypical degree of inventiveness to control the potential macroeconomic fall-out, when leveraging finally goes into reverse.

Let me explain these two issues one-by-one.

### 1.1 Identification of the leveraging cycles

First of all, it is financial cycles, i.e. long and deep swings in asset values, that policy authorities essentially care about. They do not necessarily care about leveraging *per se*. Leveraging cycles become *the* problem because, as has long been recognised, swings in asset prices do not pose serious threats to the economy, unless they are facilitated and compounded by trends in debt. This combination and mutual feed-backs between trends in asset values and sustained movements in leverage are what James Tobin defined the "Achilles heel of capitalism." So, let me concentrate on leveraging cycles, knowing that it is in fact this mutually reinforcing process between debt and financial values that we fear most.

Leveraging and deleveraging cycles are difficult to interpret and turning points hard to identify. Is a debt hump that leads to a surge in the average loan-to-income ratio justified by an increase in future incomes? Or is it a reflection of imprudent behaviour? Or is it a gamble for survival? It is difficult for a central bank to pass a clear-cut judgement in real time. This problem is not unlike the well-known identification problem for business cycles, but it applies to deleveraging to an even greater extent.

Traditionally, and until very recently, published empirical analysis has not supported policy practitioners too generously in their effort to divine the direction of financial trends. The crisis has of course propelled the study of the leverage cycles to the forefront of research. But statistical inference is imperfect when it comes to real-time identification of underlying tendencies which take a long time to develop and emerge to observation.

For example, Drehmann, Borio and Tsatsaronis (2012) at the BIS have used a methodology to visually chart how leveraging and deleveraging waves interact with the business cycle, occasionally coming to a coincidental climax that makes the successive turning of both waves very deep and prolonged.[2] That methodology identifies also points which – *ex post* – you would understand as changes in direction.

But the usual problem that we encounter in identifying business recoveries and recessions when they start is amplified here by a factor of 2. In order to identify business cycles you need statistic filters with frequencies from 1 to 8 years. To do the same for leveraging cycles – at least in the sample of advanced industrial countries that the BIS study surveys – you need a 16 year frequency. This obviously calls for long spells of data. And, the two-sided structure of the filter stretches data requirements even further – into the unknown future! So, the approach – interesting and informative as it is for retrospective inference – is not yet fully applicable for policy purposes.

Other detectors of the state of leveraging and the risks originating from leveraging cycles exist, some of them using combinations of warning indicators. For instance, Alessi and Detken (2011) use indicators, *inter alia*, of private credit to parse out costly boom-bust episodes from garden-variety changes in asset prices in real-time.[3] Claessens, Kose and Terrones (2011) characterise the interplay of cycles between different market segments, including credit, housing and equity markets, and between countries.[4] Also exploiting cross-correlations between various market segments, Holló, Lo Duca and Kremer (2012) develop a composite indicator to measure systemic stress in the financial system.[5]

Reading this analysis, we know that the credit-intensity of the expansion phase is closely associated with the severity of the recession phase. A stronger increase in financial leverage, measured by the rate of change of bank credit relative to GDP in the prior boom, tends to correlate with a deeper subsequent downturn. We know that credit changes its nature as the leveraging cycle progresses. It is a facilitating factor in the run-up stage of the boom, when agents are intent on maximising return opportunities. And it turns into a forcing factor when the first – and almost exclusive – business priority for over-indebted agents becomes reducing indebtedness. As Jordà, Schularik and Taylor (2011) report on the title of their paper on credit cycles, “credit bites back”.[6]

These analytical efforts, along with the other work currently conducted in this vibrant strand of literature, clearly enhance our appreciation of risks. At the same time, further research will be necessary to operationalize these findings in a way that can reliably guide policy-makers in a real-time. For example, more analysis is needed on how different policy action would feed back into the different indicators of financial market risk.

**1.2 The many facets of liquidity and their interaction with leverage cycles**

As I mentioned earlier, the second reason for macroeconomic authorities to be wary of leveraging cycles is that their reversal poses policy challenges of unconventional intensity. The reason is that deleveraging cycles interact with *liquidity cycles* in complicated and sometimes impenetrable ways.

Before explaining these interactions, let me introduce some additional taxonomy.

What is a liquidity cycle? In fact, there are several important concepts and definitions of liquidity. One crucial distinction refers to asset market versus funding liquidity:

- Asset market liquidity measures the ease with which an asset is traded at any time with little price concessions. It reflects the cost per unit of time of converting a financial asset into money. When market liquidity collapses – in a liquidity crisis – assets that had enjoyed high tradability become illiquid in the sense that trimming exposures is possible only at a large penalty.
- Funding liquidity – an alternative, if complementary concept – measures the ability of a financial institution which engages in maturity transformation to obtain constant funding for its long-term assets.

This distinction is at the centre of Brunnermeier's and Pedersen's (2009) analysis on the interplay between leverage and liquidity cycles. Here, the authors show the reinforcing nature of funding shocks and leverage in shadow-banking intermediation.[7] Here, a funding shock materialises in the form of higher haircuts in the repo market, where intermediaries operating in the shadow-banking market – say, a hedge fund – finance the acquisition of assets. For a hedge fund that is financing asset holdings in the repo market, mechanically, a rise in haircuts that is not offset by either slack in the existing equity capital base or an infusion of fresh equity capital will cause the fund to liquidate assets. A collective trend to liquidate assets cannot happen unless prices drop. But a fall-off in asset prices devalues the collateral that is pledged in parallel leveraged operations and more margin calls are triggered. So, the original *funding liquidity* shock turns into an *asset market liquidity* shock. The latter then retroacts into a more severe and widespread funding liquidity problem. See also how these cycles get intertwined with leverage decisions and can trigger rapid deleveraging in the shadow banking industry: for hedge funds or broker-dealer businesses, which typically finance an asset acquisition in the repo market, the maximum leverage for that specific operation is given by the inverse of the haircut which is applied on the value of collateral by the funding entity in the repo transaction. As the haircut increases in the adverse liquidity conditions that I have described, the leveraging potential of the shadow-bank plunges almost mechanically.

These notions of liquidity cycles – and their interactions with leverage – are now almost old hat for macroeconomists.

But there is another representation of a liquidity cycle that has escaped much academic investigation. This representation distinguishes different types of liquidity depending on its issuer:

- Outside liquidity comprises currency or, more generally, central bank overnight liabilities. These liabilities are what we typically understand as "money" in the narrowest sense of the word. In our modern fiat-money systems, this form of money is backed by a legal and social promise to essentially preserve its purchasing power and transaction services over time.
- Inside liquidity is a much broader object, including short-dated money-like liabilities that are issued by the private entities and thus backed by private credit. They would cancel out if all the claims held by banks on private creditors were to be settled. So, it is one form of currency that is created – and can be destroyed – within the private economy.

On the basis of this distinction, we can explain another type of liquidity cycle, which I will refer to as the “outside-inside” liquidity cycle. This cycle reflects the alternating phases and sometimes wild swings characterising banks’ demand for precautionary buffers of outside money from the central bank.

Again, the alternating phases of this type of cycle come to interplay with the underlying deleveraging course. And they do so in a way that can strongly complicate policy.

**1.3 The scope and limits for central banks to control leveraging cycles**

Let me describe how these complications played out in the current crisis.

In the early days of the financial crisis, banks were saddled with a legacy of illiquid and unprofitable assets, which they were forced to refinance. As the markets had withdrawn credit, and the price of those assets in the market had plunged, they came to central banks for refinancing. This produced a huge expansion in central bank liquidity which banks were drawing into the system as central bank credit was replacing private finance. Because the network of interbank trading had seized up almost entirely, banks with excess deposits were unwilling to lend to banks with a structural funding shortfall. The trading gap was filled by the ECB, which was asked to absorb the liquidity supplied by the former and give more credit to the latter.

In other words, outside liquidity substituted for an erosion of inside liquidity.

As a consequence, in the ten months following the collapse of Lehman Brothers, outstanding ECB credit to euro area banks rose by around 90%, while the outstanding volumes of euro liquidity deposited overnight with the ECB went from virtually zero to three-digit billion figures. By any account – whether measured on the ECB’s assets side or on its liabilities side – the demand for central bank liquidity had reached unprecedented peaks. That was the first stage of a very severe outside-inside liquidity cycle, which central banks – everywhere – had to accommodate. Note that, at that very early stage, the de-leveraging cycle had hardly started. For instance, in the nine months after Lehman total assets of the euro area banking system fell by around one percentage point.[8] So, banks needed an outsized volume of liquidity at hand in order to be able to refinance a balance sheet that had remained more or less constant at around its pre-crisis size.

The early steps of the outside-inside liquidity cycle – the phase in which banks’ demand for outside liquidity surges – were effectively cushioned. Successive rate cuts since the onset of the crisis have brought our main policy rates to historical lows. Our standard liquidity facilities have been expanded in maturity and used to channel unlimited liquidity at a certain price to provide funding reassurance to euro area banks. For example, in a bold step, the maturity of our lending operations was extended to three years. In two long-term refinancing operations which we launched at the end of 2011 and early 2012 banks absorbed a net volume of EUR 500 billion in additional liquidity. The replacement of central bank liquidity for failing market credit has averted devastating prospects of a fully-fledged financial depression. Our measures were instrumental in cushioning the value-destroying deleveraging forces that could have developed into a deflationary spiral.

But, with a certain lag, the de-leveraging cycle started at some point to run its own course. Banks began shedding assets – either because those illiquid, unprofitable exposures had run off in the meantime, or because they had been written down, or because other, more profitable, assets had been sold at a profit, to make up for losses. Or simply because

banks had realised that their old business model was unsustainable and the size of their activities had to be reduced discretely.

Whatever the reason behind a down-sizing of banks' balance sheets, when they embarked on large scale deleveraging, their liquidity needs declined. So, they started shedding central bank liquidity as well. The liquidity surge is being gradually unwound, bringing the outside-inside liquidity cycle to a mature stage. One manifestation of this unwinding of exceptional liquidity demand is the early repayment of the ECB's three-year refinancing operations that have amounted to more than €280bn to date.

The voluntary reimbursement of liquidity can be interpreted as a good sign, as it largely reflects normalisation in banks' funding conditions. When we explore the determinants of reimbursements, we see that it comes together with a measurable return of retail lending to banks that had long suffered loss of funding, and, for some of them, even a timid resurgence of wholesale borrowing activity. So, the shrinking of liquidity demand has a positive connotation. But the potentially difficult aspect of this process for a central bank is that the demand for central bank liquidity and the underlying de-leveraging process are not synchronised. In fact, the demand for central bank liquidity (and the sensitivity of private sector lending decisions to policy signals) may drop just when the de-leveraging cycle starts producing its effects on the economy.

This intersection between the two cycles can be risky for the economy. Asset shedding can be as extreme and divorced from fundamentals as the build-up of debt that had preceded – and largely caused – the crisis. So, as I said at the start, the central bank may have to be vigilant that the pace of asset reduction by banks is commensurate with an evolution of income, activity and employment that does not create downside risks to price stability. But this policy strategy may be difficult to pursue in a situation in which banks' propensity to absorb central bank liquidity is muted.

## 2. The short-term crisis response

Does this mean that, in the dark-grey zone of intersection between the two cycles, policy is left impotent?

The answer is: absolutely no. But the complexities and risks that I tried to describe require a well-designed, multidimensional and consistent policy response.

First and foremost, what's needed is a thorough and transparent identification of risks on bank balance sheets and a robust reconstruction of equity. This is not limited to banks – households' and firms' own capital should be reinforced too, if they are to withstand future shocks and restart planning growth. But it *particularly* applies to banks.

This call for balance sheet repair may sound like the *ceterum censeo* of anyone commenting on the financial sector these days. But we should not forget the successful practical precedents to underpin these calls.

For example, the Nordic banking crisis in the 1990s provides a case study of how decisive and well-targeted crisis management can mitigate and shorten the damaging effects of deleveraging stress.[9] With an external crisis constraining the room for manoeuvre for monetary policy and fiscal policy alike, the authorities addressed balance sheet repair head-on. They first forced a comprehensive recognition of losses on their domestic banking systems. Then, they recapitalised institutions subject to stringent stress tests, sorting institutions based on viability, and dealing with bad assets through disposal. And, finally, they ensured a reduction in excess capacity in the financial system.

More recently, we saw important financial reform put into practice in some euro area countries. Most notably, one year ago, the Spanish banking system was ostracised in the inter-bank market and deserted by capital investors and depositors. Adverse selection was in full display: uncertainty about the location and extent of exposures to the real estate sector was heavily weighing on the stability and viability of the Spanish banks. The authorities, within the new European Stability Mechanism framework for financial stability assistance, took an approach in many respects similar to that followed 15 years before by Sweden. First, they embarked on a serious mapping of the problem through a detailed, state-of-the-art stress testing exercise. Second came a surgical separation and removal of assets of dubious quality for those banks which had detected capital shortfalls and proved most vulnerable to future shocks. Third, loss recognition and recapitalisation took place by activating the European Stability Mechanism. Fourth, they put in place a comprehensive and innovative regulatory reform which empowers authorities to take timely and decisive action for bank recovery and resolution.

It is too early to declare victory. And many challenges still loom ahead. But today, many of the banks that had suffered from a generalised loss of confidence have returned to the market and see their funding gaps decline rapidly. In fact, in a sign of normalisation, some of them have participated *en force* in the early repayment of the long-term refinancing that they had requested 18 months ago in very tense liquidity conditions.

Obviously many of the measures involved in these policy efforts go well beyond the tasks and powers of the ECB as a monetary policy-maker. In fact, many of the necessary steps will need to be taken in other policy domains.

But the ECB can flank and support some of these steps, in particular, by forcefully responding to price stability risks. To that effect, monetary policy will continue employing its existing instruments and if necessary to expand its instrument set within the safeguards established by its strategy.

## 3. The long-term ECB strategy

To be successful in delivering on its mandate in troubled waters, the ECB's strategy has to combine two main attributes: it must be sufficiently *flexible* to adjust its policy conduct to the specific challenges at hand. And it must be sufficiently *binding* to anchor expectations and build central bank credibility with market participants and the general public.

The flexibility of the ECB's monetary policy framework derives from three features:

The first is a definition of price stability, which is formulated in terms of a *range*, with an explicit *focal point* for policy identified within that range. The *range* is defined as comprising rates of inflation which do not distort economic decisions: positive inflation rates of no more than two per cent. Within that range the ECB's Governing Council aims at attaining a level of inflation over the medium term – the focal point of policy – which is "*close to*" the upper ceiling of two per cent. The buffer interval between our focal point and the floor of the range serves as a safeguard against deflation risks for the euro area as a whole. It also allows monetary policy to account for inflation differentials across individual euro area countries. In the presence of large and persistent dispersion in inflation rates across countries, an inflation objective too close to zero would imply that countries with below average inflation have to systematically operate under deflation – even if average inflation rates for the euro area were in positive territory.

The second element is that our definition of price stability applies over the *medium-term*. In other words, the policy-relevant horizon is a choice variable. But the choice of the extension of the horizon is conditional on the nature of the shocks shaping the inflation and economic outlook.

Let me explain how that flexibility guides our policy response to different shocks in practice.

If the shock that moves inflation at a certain point in time comes from demand forces, our strategy postulates a monetary policy response that brings inflation back, within the range of values that define price stability, to its focal point over a relatively short horizon. “Short” means here: in line with the minimum time period that monetary policy actions typically take to transmit their impulse to the real economy. This way, inflation expectations are kept anchored and a stable path of the economy toward the new equilibrium is ensured.

If the underlying shocks are on the supply side, there might not be an immediate cause for action. The medium term in this case may be stretched beyond the canonical minimum transmission lag and thus provides for an in-built mechanism to see through temporary supply shocks. Crucially, this applies only to the extent that you are reassured that long-term inflation expectations remain well anchored. Therefore, once it transpires that the supply shock is likely to be of a permanent nature because it is passed through to price and wage setting behaviour, the ECB would act.[10] But the flexibility in the policy-relevant time horizon grants it sufficient time to identify whether the shock is transitory or permanent before changing course. This, in turn, allows for a steady-hand approach to our monetary policy that avoids undue policy-induced economic fluctuations.

Third, adding to the flexibility deriving from the price stability definition and the variable policy horizon, the ECB has large scope in adopting further tailored measures to address specific market impairments. In this context, deliberations on enhancing the provision of credit in the economy take particular prominence in our current strategy process.

So, let me move to the issue of credibility.

The attribute of credibility is even more important than flexibility. In fact, credibility is a precondition for a central bank to be able to act flexibly without unhinging market expectations. The extent and success of central bank intervention to stabilise the economy hinges on the credibility of their monetary policy framework. Higher-order constraints – an institutional discipline – make the conduct of policy – a lower-order activity – both more flexible and effective.

This is due to the following reasons.

If market participants are confident that the central bank – in line with its mandate – is determined to offset price pressures, they will immediately factor this into their economic decisions. Hence, the mere prospects of future central bank accommodation will induce consumers and firms to shift consumption and investment decisions across time. For instance, in a slump consumers and firms anticipate additional accommodation in the future, thus frontloading consumption and investment. Vice versa, in an overheating phase, consumers and firms restrain current spending to prepare for a more constrained monetary policy environment in the future.

In both cases, the reliable anticipation of the future central bank response mitigates the fluctuations. In other words, central bank credibility acts as an automatic stabiliser by inducing inter-temporal substitution in economic activity. All that’s needed is a clear and credible commitment by the central bank to a certain course of action.

But how can we establish such commitment? The answer is: through an institutional framework that makes the central bank predictable and that protects it from the temptation to leave the path prescribed by its objective.

This rationale lies at the heart of forceful safeguards to the ECB's monetary policy independence. These safeguards ensure that our decisions are not contaminated by considerations other than those deriving from our price stability objective.

This is the backdrop, against which I interpret the monetary financing prohibition, which bans central bank direct lending to fiscal authorities: engaging in such direct lending to governments jeopardises a central bank's capacity to act independently and with the sole focus on monetary policy objectives; the loss of independence and focus, in turn, jeopardises central bank credibility; and the loss of central bank credibility jeopardises macroeconomic performance as it contravenes automatic stabilisation induced by private sector expectations.

The monetary financing prohibition in the ECB's legal framework plays an essential role in fostering central bank instrument independence. It is not simply a constraint on what the ECB can do. It is also a safeguard that reinforces our action and protects our capability to act in pursuit of our objective, when such action becomes necessary.

It is a catalyst of credibility. And building on the credibility arising from independence, the ECB is therefore well-placed to forcefully and flexibly confront any risks to the economy without unanchoring expectations.

It is within the frame laid down by the Treaty that we can confidently say that the ECB will act decisively to preserve price stability and – subject to that condition – minimise wasteful fluctuations in activity.

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[1]I would like to thank Fédéric Holm-Hadulla and Massimo Rostagno for their contribution to preparing this speech.

[2]Drehmann M., C. Borio and K. Tsatsaronis (2012), "Characterising the financial cycle: don't loose sight of the medium-term!", BIS Working Paper No 380.

[3]Alessi, L. and C. Detken (2011), "Quasi real time early warning indicators for costly asset price boom/bust cycles: A role for global liquidity", European Journal of Political Economy, vol. 27(3), pp. 520-533.

[4]Claessens, S., M. A. Kose and M. E. Terrones (2011), "Financial cycles: What? How? When?", IMF Working Paper No. 76.

[5]Holló, D., M. Kremer and M. lo Duca (2012), "CISS - a composite indicator of systemic stress in the financial system", ECB Working Paper No. 1426.

[6]Jordà, O., M. H. P. Schularik and A. M. Taylor (2011), "When credit bites back: leverage, business cycles and crises", NBER Working Paper No 17621.

[7]Brunnermeier M. K. and L. H. Pedersen (2009), "Market liquidity and funding liquidity", Review of Financial Studies, vol. 22(6), pp. 2201-2238.

[8]A somewhat puzzling fact of relative crisis narratives across the Atlantic is that over the same period, and unlike banks in the euro area, US commercial banks *re-leveraged* rather than de-leveraged. See He, Z., I. G. Khang, and A. Krishnamurthy (2010), "Balance Sheet Adjustments during the 2008 Crisis", IMF Economic Review, 58: 118-156. The authors offer various explanations for this phenomenon, including FDIC and US Federal government guarantees on bank liabilities, which were unavailable to other financial intermediaries, such as shadow banks, which therefore had to shed assets quickly as a consequence. It remains to be seen why euro area banks reacted to the early post-Lehmann liquidity squeeze with a downscale of assets which, at least qualitatively, resembles more the non-bank response in the US. Overall, such comparisons are complicated by: (i) certain one-off factors over that period (such as the reclassification of remaining broker dealers to commercial banks in the US) that may give rise to a distorted interpretation of data on commercial bank assets and (ii) differences in accounting treatment across the Atlantic (e.g. as regarding the balance sheet implications of securitisation of loans).

[9]For an overview on the Swedish case, see Ingves, S. and G. Lind (1996), "The management of the bank crisis – in retrospect", Swedish Riksbank Quarterly Review No 1, pp. 5-18.

[10]When a sustained string of negative supply side shocks is allowed to pass through into inflation expectations, the shocks mutate into demand shocks. The reason is that the real interest rate would be allowed to fall, thus giving rise to inflation pressures that are typically associated with loose monetary policy conditions.