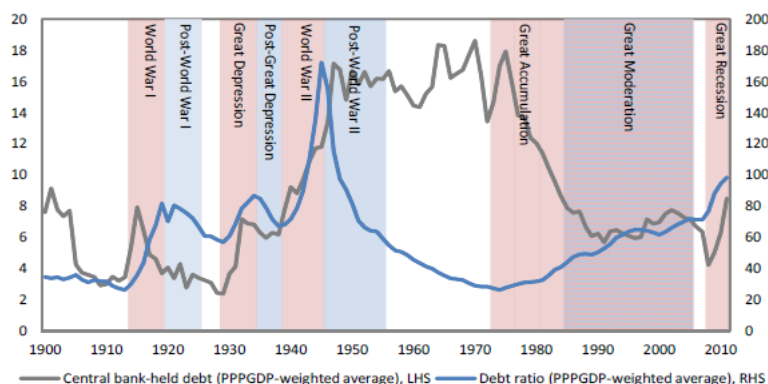




Helicopters 101: your guide to monetary financing

- As the developed world "turns Japanese" and Abenomics turns full circle, investors are questioning the limits of monetary policy. In this report we assess the likelihood and impact of the ultimate monetary policy tool: central bank monetary financing.
- Little has been written on the practical implementation of "helicopter money". We focus on the historical experience, the legal constraints and potential market impact in the US, Europe, Japan and the UK.
- We categorize money financing into four different policy options – central bank purchases of government bonds with fiscal expansion (similar to QE), cash transfers to the government, write-downs of central bank holdings of government debt, and direct money transfers to the public.
- We investigate the historical backdrop and institutional constraints behind the different policy options. The constraints are lower than is commonly assumed, even for the ECB. The Fed and Bank of England have the greatest precedent and flexibility in monetary financing, though since the 1990s the BoE has been subject to the EU monetary financing prohibition.
- We argue that "helicopter money" could be far more impactful than QE or fiscal policy, subject to the conversion of private and public liabilities into a perpetuity and central bank tolerance for infinite losses.
- The potential market impact of "helicopter money" can be substantial, although highly dependent on inflation expectations. A "successful" policy should lead to higher yields, higher equities, and a weaker currency.
- We conclude that monetary financing may be more likely than commonly assumed. With Japan fast approaching the limits of its existing reflation project, it is a canary in the coalmine for the next global policy innovation.

Helicopter Money is Not So Unconventional



Source: IMF, WP/14/162 "Sovereign Debt Composition in Advanced Economies: A Historical Perspective", Figure 5



Introduction

Japan, or Nippon, roughly translates as “origin of the sun”.

In modern economic times, Japan has been the origin of the developed world’s liquidity trap, innovator of many stratagems of varying success, and possibly first to use the ultimate policy tool at the start of the 21st century: monetary financing. It’s interesting that Bernanke suggested this solution to Japan’s deflation in 2003 but never deployed it during his own tenure as Fed chairman. Japan led the way during the Great Depression and may do so again.

In this piece, we first examine the practical policy options behind central bank monetary financing, followed by the institutional constraints to pursuing such policies in the US, UK, Europe and Japan. We then discuss the theoretical effectiveness as well as the market impact. We conclude that if the policy option pursued is aggressive enough, central bank financing has the potential to have a material economic and market impact.

What is monetary financing?

Monetary financing, colloquially known as central bank “helicopter money”, is a frequently used term but a rarely defined policy option. Simply put, it consists of the central bank’s ability to literally print money, whether in the form of bank notes or by crediting money balances to banks, governments or individuals.

There is a lack of practical analysis of monetary financing largely because it has been perceived to be outside the mandate of modern central banking. Blyth and Lonerger (2014) observe that, by tradition:

“...central banks were not designed to manage spending. The first central banks, many of which were founded in the late nineteenth century, were designed to carry out a few basic functions: issue currency, provide liquidity to the government bond market, and mitigate banking panics. They mainly engaged in so-called open-market operations -- essentially, the purchase and sale of government bonds -- which provided banks with liquidity and determined the rate of interest in money markets. Quantitative easing, the latest variant of that bond-buying function, proved capable of stabilizing money markets in 2009, but at too high a cost considering what little growth it achieved.

A second factor explaining the persistence of the old way of doing business involves central banks’ balance sheets. Conventional accounting treats money -- bank notes and reserves -- as a liability. So if one of these banks were to issue cash transfers in excess of its assets, it could technically have a negative net worth. Yet it makes no sense to worry about the solvency of central banks: after all, they can always print more money.”¹

It is the adoption of modern accounting standards for central banks that perhaps best summarizes the tension between a central bank’s actual abilities and the institutional limits placed by modern practice. Unlike any corporate, government or household, a central bank has no reason to be bound by its balance sheet or income statement. It can simply create money out of thin air (a liability) and buy an asset or give the liability (money) out for free. It can run perpetual losses (negative equity) because it can fund these by printing more money.

Taking this fundamental principle on board leaves us with the following menu of policy options, in ascending order of unorthodoxy. We accompany each option with a discussion on the implications for the CB balance sheet.²

¹ Blyth and Lonerger (2014). “Print less but transfer more.” Foreign Affairs: Septmber/October 2014. Available at <https://www.foreignaffairs.com/articles/united-states/2014-08-11/print-less-transfer-more>

² Turner, Adair. “The Case for Monetary Finance – An Essentially Political Issue”. Washington: Institute for New Economic Thinking, 16th IMF Jacques Polak Annual Research Conference, November 5-6, 2015.



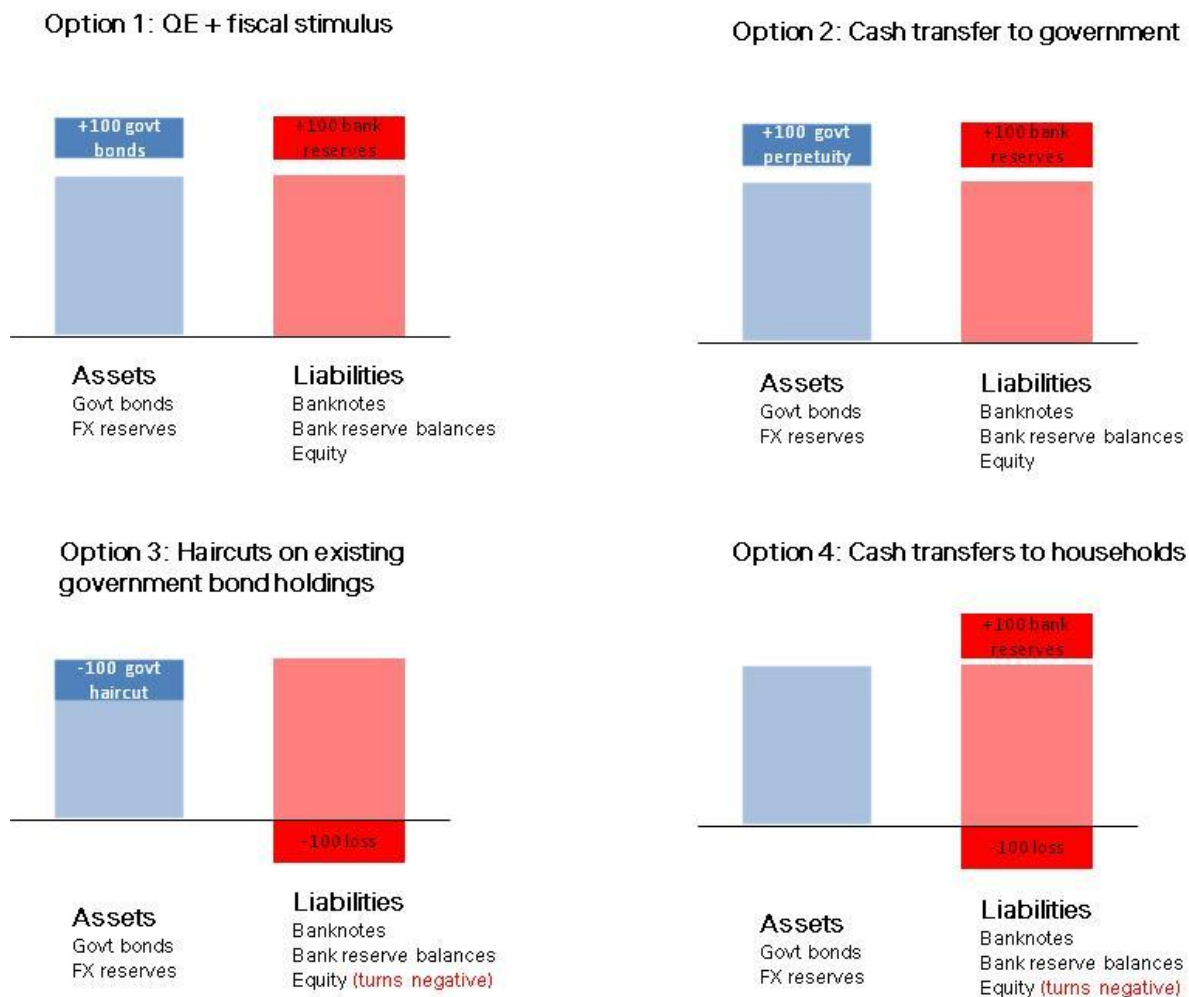
Four types of monetary financing

1. Quantitative easing combined with fiscal policy expansion: This is the least “unconventional” option and is already happening, albeit with a lack of explicit co-ordination. Central banks purchase interest-bearing government debt with a temporary increase in the monetary base. This is accompanied by increased fiscal spending (or tax cuts), enacted by the Treasury in reaction to implicit central bank support for bond markets. The Treasury has more room to increase the deficit and the outstanding term of its maturing government bonds, because financing costs are made lower by central banks, but this support can be withdrawn at any time. In this case, the central bank’s assets and liabilities rise in parallel: the rise in central bank government bond holdings shows up as an increase in assets, while the increase in private-sector cash holdings shows up as a rise in central bank liabilities.
2. Cash transfers to governments: Same as option (2) except the government debt is non-redeemable, and hence the increase in the monetary base is permanent. Money can be credited directly to the Treasury account at the central bank, which would keep government debt/GDP ratios stable. The central bank can purchase 0% coupon perpetuities from the Treasury, which because they have no value, should amount to the same thing.³ The precise impact on the balance sheet here will depend on the nature of the transaction with the government. In the case where cash is swapped for a zero-coupon perpetuity, assets and liabilities would rise correspondingly, but the central bank would make a loss because it would not receive a coupon on government debt while eventually having to pay interest on bank reserve balances if interest rates rise.
3. Haircuts on existing CB-held debt: The central bank can unilaterally restructure and/or forgive its government debt holdings, improving government debt sustainability and allowing the Treasury room for future deficit spending. This can happen in a one-off fashion, or according to some graduated rule. For instance, the central bank could commit to write off 5% of government debt holdings until some target is achieved. The Greek OSI and PSI experience offers a precedent for distinguishing between privately and publicly held government bond holdings thus potentially avoiding CDS triggers. Note that central bank purchases of negative-yielding instruments are a form of notional haircuts as the government pays back to the central bank less than it issued. The resulting balance sheet change here is also straightforward: the central bank’s assets would be reduced by the corresponding size of the haircut, and this would be registered as a loss on the central bank’s liability ledger.
4. Cash transfers to households: The most radical option has central banks create and transfer money to individuals directly (through cheques, bank transfers or state pension contribution credits), cutting out the role of the Treasury entirely. In this case, the central bank’s liabilities would rise, as the public’s cash holdings against the central bank would show up as a rising liability. If no asset is purchased by the central bank, the rise in the liability would have to be offset by a corresponding loss on the balance sheet in the form of negative equity.

³ In theory these perpetuities can have a small positive coupon, which in any case would be remitted back to the Treasury as seigniorage revenue. But if these perpetuities were purchased by private investors at auction they might weaken debt sustainability and defeat the purpose.

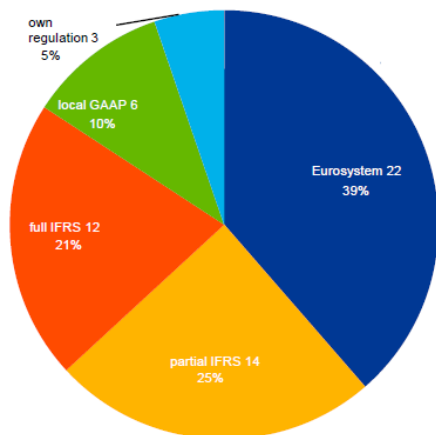


Figure 1: Monetary financing can mean many different things



Source: Deutsche Bank,

Figure 2: Accounting frameworks of modern central banks – most use conventional standards even if balance sheets are highly unconventional



Source: Deutsche Bank; ECB occasional paper No. 169



Historical experience – less unconventional than you think

The starting point of any discussion on the institutional constraints of monetary financing should be that in contrast to negative rates, it has been widely used in the past.

Monetary financing has been used in the **developed world**. During the two world wars governments harnessed their central banks in funding their military expenses. Once peace had been restored, most economies struggled to re-impose monetary-fiscal discipline. Inflation ensued in many instances, most notoriously in the case of Germany's hyperinflation of the early 1920s. Even in the US, where the Treasury-Fed Accord of 1951 eventually prohibited monetary financing, post-war policy-makers clashed vehemently over the costs and benefits of continuing wartime policy.

Monetization has also been widely used in **developing economies** but often conjures up images of hyperinflation brought about by populist leaders in developing countries. In modern times both Zimbabwe and Venezuela have used the printing press to finance unsustainable populist programs and suffered hyperinflation as a result. Latin America endured a bout of deficit-induced hyperinflation following the commodities collapse in the early 1990s. Experiences in inter-bellum and post-war Europe (Germany and Hungary) along with both sides in the U.S. Civil War reinforce the perception that monetary financing, even in the developed world, invariably leads to monetary collapse.

Less cited are the curative powers of monetary financing in Great Depression Era Japan and Canada. Finance minister Takahashi Korekiyo is often referred to as "Japan's Keynes" for his monetary and fiscal innovations during the 1930s. While he is best known for leaving the gold standard and devaluing the yen, his monetary financing policy also helped Japan escape the Great Depression with minimal economic damage compared to Western peers.

Opinions differ on the channels through which monetary and fiscal spending aided the 1930s Japanese economy. Lee (2013) argues that both the Gold Standard departure and deficit spending had an indirect effect on output through the private sector.⁴ Yuji Kurokuma (2009) notes that wholesale prices returned to pre-Depression levels and stabilized in 1932 following additional fiscal spending equal to 10% of GDP and government bond issuance equal to 8% of GDP.⁵ Myung Soo Cha (2003) uses structural vector auto-regression analysis to demonstrate the "pivotal role of Takahashi's debt-financed fiscal expansion."⁶ Regardless of the causality, 1930s Japan is a clear counterpoint to the argument that monetary financing is always associated with destructive macroeconomic outcomes.

Figure 3: Takahashi's Footprint

Dec. 1931	Takahashi assumed Minister of Finance. re-prohibited gold exports
Jan. 1932	Left the Gold Standard formally
Mar.	Announced the plan to underwrite government bond by the Bank of Japan Cut the discount rate of commercial bills from 6.57% to 5.84% per annum "Law of government securities issuance to finance Manchurian Incident" came into force
May.	5.15 Incident
June.	Cut the discount rate to 5.11%
July.	"Law preventing capital flight" came into force
Aug.	Cut the discount rate to 4.38%
Nov.	Started to issue long-term government bonds underwritten by the BoJ
May. 1933	"Foreign exchange control law" came into force
July	Cut the discount rate to 3.65%
July. 1934	Announced plans of restoring budgetary balance, reducing government bond issuance, etc.
June. 1935	Announced the plan to reduce government bond issuance on budget project of fiscal year 1936
Feb. 1936	2.26 Incident, Takahashi was killed
Mar.	Hirota Cabinet started and reversed the existing plans to reduce government bond issuance, etc.
July. 1937	The Marco Polo Bridge Incident erupted and plunged into the China-Japanese War

Source: Kikuo Iwata, ed., *Studies on the Showa Depression, Bank of Japan, Hundred-Year Statistics of the Japanese Economy*. Table taken from Yuji Kurokuma (2009), "Showa Depression: a Prescription for 'Once in a Century Crisis'", Japan Center for Economic Research, p.3.

⁴ Lee, C. (2013). "The Role of the Private Sector in Japan's Recovery from the Great Depression." Tokyo Institute of Technology: Department of Social Engineering, Discussion Paper No. 2013-11.

⁵ Yuji Kurokuma (2009), "Showa Depression: a Prescription for 'Once in a Century Crisis'", Japan Center for Economic Research, p.3.

⁶ Myung Soo Cha (2003). "Did Takahashi Korekiyo Rescue Japan from the Great Depression?" *The Journal of Economic History*, Vol. 63, No. 1, p.127.

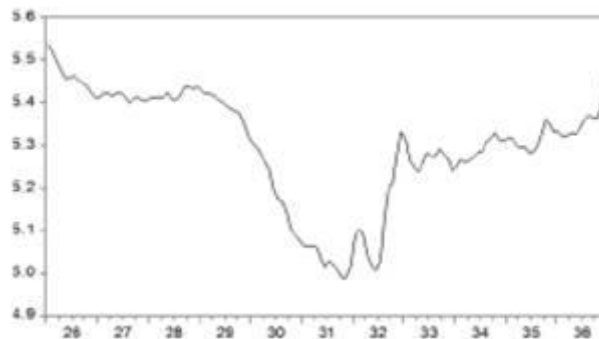


Figure 4: Industrial Production Indices, G5, 1926-37.



Source: League of Nations, *International Statistical Yearbook*. Taken from Myung Soo Cha (2003). "Did Takahashi Korekiyo Rescue Japan from the Great Depression?" *The Journal of Economic History*, Vol. 63, No. 1, p129.

Figure 5: Log of wholesale prices, Japan, 1928-36



Source: Lee, C. (2013). "The Role of the Private Sector in Japan's Recovery from the Great Depression." *Tokyo Institute of Technology: Department of Social Engineering, Discussion Paper No. 2013-11*, p18.

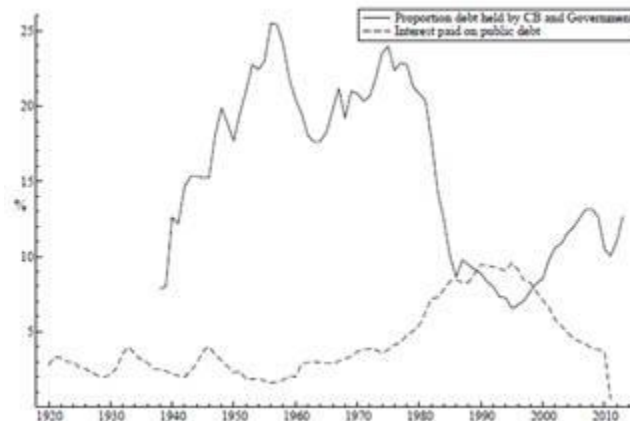
Ryan-Collins (2015) argues the Bank of Canada, "from its inception in 1935 to the early 1970s...used monetary financing...to support industrial development, debt management, and macroeconomic goals that go significantly beyond financial stability and price stability."^[4] He notes that the Bank of Canada was born out of political pressure following the deflationary episode during the Great Depression associated with private fractional reserve banking. Initial expansion was achieved through direct advances to the state. Later on both direct and indirect monetary financing occurred through BOC government securities purchases, cash reserve injections into chartered banks and the development of 'deposit certificates' that "enabled the government to raise short-term finance directly from the chartered banks."^[5]

Figure 6: Monetary financing and inflation in Canada, 1958-2012



Source: Ryan-Collins, Josh (2015). "Is Monetary Financing Inflationary? A Case Study of the Canadian Economy, 1935-75." *The Levy Economics Institute Working Paper No. 848*, p16. Original data from Bank of Canada, Statistics Canada.

Figure 7: Proportion of public debt held by the central bank and government and interest paid on public debt-to-GDP ratio in Canada, 1920-2012 (annual %)



Source: Ryan-Collins, Josh (2015). "Is Monetary Financing Inflationary? A Case Study of the Canadian Economy, 1935-75." *The Levy Economics Institute Working Paper No. 848*, p29. Original data from IMF, Bank of Canada, Statistics Canada.

[4] Ryan-Collins, Josh (2015). "Is Monetary Financing Inflationary? A Case Study of the Canadian Economy, 1935-75." *The Levy Economics Institute Working Paper No. 848*, p15.

[5] Ascah, R.L. (1999). *Politics and public debt: the Dominion, the banks and Alberta's Social Credit*, Alberta: University of Alberta, pp 108-11. Quoted in Ryan-Collins (2015), p19.



Ryan-Collins' empirical work suggests monetary financing, in addition to mitigating the worst effects of the Great Depression during the late-30s, did not have adverse inflationary effects during the post-war era (Figures 6 and 7). He argues that monetary financing was a standard part of the central bank toolkit until the 1970s monetarists revolution and that "the 1935-70 period saw the Canadian economy recover quickly from the Great Depression, weather the Second World War, make a rapid transition from war to peace, and then enjoy a 25-year period of relatively stable and high growth with rapid industrialization."^[6]

The modern-day constraints

As demonstrated above, historical experiences with monetary financing vary and continue to be reflected in today's institutions. While helicopter money is considered to be at the frontier of the "unconventional", historical perspective shows it has been far more prevalent than recent central bank innovations such as negative rates. Given the four options discussed above, what are the practical institutional constraints to monetary financing in modern central banking?

European Central Bank

The ECB at face value faces the strictest legal obstacle to monetary financing, not least due to the historical inflation traumas experienced by many member states. Article 123 of the Lisbon Treaty prohibits the ECB from funding national governments, further detailed in Article 21 of the ECB statute. This prohibits purchases of government bonds by the central bank in the primary market, as well as prohibiting "overdrafts or any other type of credit facility in favour of Union institutions, bodies, offices or agencies, central governments, regional, local or other public authorities."

The ECJ judgment on OMT is the most recent "test case" of the limits of ECB policy where it was made clear that the central bank has considerable leeway in pursuing its monetary policy objectives provided the policy is (a) considered monetary policy; (b) proportionate to the nature of the problem and (c) complies with the prohibition of monetary financing. In this context OMT was deemed acceptable provided government bond purchases were made in the secondary market, and "ensur[ing] that there is a real opportunity... for a market price to form in respect of the government bonds concerned, in such a way that there continues to be a real difference between a purchase of bonds on the primary market and their purchase on the secondary market."⁷ This criterion in particular would seem to rule out the potential for "off market" transactions in the form of zero-coupon perpetuals discussed above.

These restrictions notwithstanding, the Treaties leave considerable more leeway than first meets the eye.

First, Article 20 of the ECB statute gives wide-ranging leeway for the central to decide on "such other operational methods of monetary control as it sees fit" subject to Article 123 of the Lisbon Treaty. Interestingly the ECB's objectives go beyond the primary objective of price stability "to support the general economic policies in the Union". In this respect, a view can be taken that the monetary policy prohibition does not cover pure monetary stimulus taking the form of 'helicopter drops' directly to households and corporates bypassing governments. It is notable that in the March 2016 ECB press conference President Draghi referred to helicopter money as a "very interesting concept" while a week later ECB chief economist Praet was asked whether the central

^[6] Ryan-Collins (2015), p37.

⁷ Paragraph 225, Opinion of ECJ advocate general
<http://curia.europa.eu/juris/document/document.jsf?docid=161370&doclang=en>



bank could send cheques directly to people replying: “Yes, all central banks can do it. You can issue currency and distribute it to people”, without commenting on the legality.⁸

Second, the ECJ OMT decision makes clear that ECB policy action potentially has a wide scope of action provided it is proportional and serves its statutory objectives. A unilateral ECB restructuring of debt for a specific country would almost certainly be perceived to be in violation of Article 123, but there exists little case law on how a proportionate Euro-area wide restructuring of ECB-held government debt for monetary policy purposes would be treated.

Third, the ECB monetary financing prohibition does not apply to “publicly owned credit institutions” such as the EIB. In theory the ECB could buy ultra-long-dated bonds issued by the AAA-rated European Investment Bank at close to 0%. The proceeds could be used to finance public infrastructure spending, possibly selected from the pool of projects identified under the Juncker Investment Plan. Contrary to standard EIB procedures, the 50% co-financing requirement could be waived. Politically any such scheme would likely be controversial in Germany in particular. In any case, this back-door approach would only be viable for more palatable long-term infrastructure projects, rather than tax cuts or other form of front-loaded ‘helicopter drop’.

Finally, it is worth noting that while off-market transactions cannot take place, ECB QE is already encouraging governments to issue longer-dated debt, which in the extreme could come in the form of consols absorbed through the APP.

To sum up, the ECB somewhat ironically has greater potential to pursue the most unconventional forms of “helicopter drops” in the form of direct transfers to households, while the more conservative options of transfer to governments or unilateral restructuring appear more restricted.

Bank of England

The Bank of England has the closest institutional relationship with the Treasury compared to other G4 central banks. Importantly, as elaborated below, no prohibition on monetary financing is codified at the national level, and the Bank has hitherto pointed to Article 123 of the Lisbon Treaty when confronted with proposals such as Corbyn’s “people’s money”. The monetary financing prohibition of the Lisbon Treaty applies to the central banks of all EU member states and therefore currently covers the Bank of England as well as the Riksbank, NBP and NBH. There are at least two other forms of monetary financing to which the Bank could potentially have recourse.

First, all efforts to safeguard the Bank’s independence over the past two decades have not legally filled a loophole for light forms of monetary financing. Ever since William Pitt the Younger in 1793 abolished the Bank of England’s prohibition from lending directly to the Treasury, the Bank for centuries provided direct financing through the inconspicuously named ‘ways and means advances’ account.⁹ Significant war costs were generally financed through consols (see below), but also at times through this overdraft account with the Bank. Indeed, the United Kingdom government’s short-term financing needs were met by varying the size of the ‘ways and means advance’ from the Bank of England until April 2000. The government’s cash position was thus managed as a component of the Bank of England’s overall management of system liquidity through its open market operations.¹⁰ The balance had been volatile but often ‘short-term’ debt had been held by the Bank for extended periods of time and sometimes only paid back at the government’s will.¹¹

⁸ <http://uk.reuters.com/article/uk-ecb-praet-idUKKCNOWK0LM>

⁹ <http://jpkoning.blogspot.co.uk/2013/06/from-intimate-to-distant-relationship.html>

¹⁰ <http://www.bankofengland.co.uk/markets/Documents/money/stermm3.pdf> page 6, paragraph 7

¹¹ Sayers (1976), “The Bank of England”.

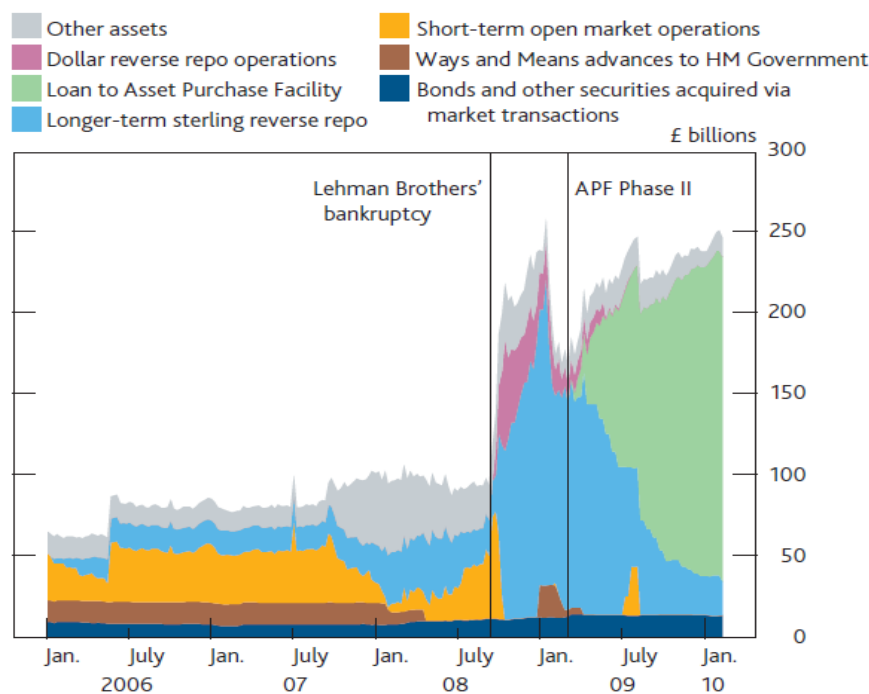


By the time the Treasury decided to stop using the overdraft facility and, in 2000, to pay off its debt, the balance stood at around £13 billion, more than half the Bank's coins and notes outstanding. The main reason this overdraft facility was effectively discontinued is that it militated against the Maastricht Treaty's monetary financing prohibition to which the UK became a signatory.

Lately, the incentive to preserve the optionality has diminished, and indeed the overdraft facility has been used sporadically. The "ways and means" account soared from a few hundred million pounds to £20bn in December 2008 amid the Treasury's bank bail-outs. Hence, short-term overdrafts could be revived as a viable, if extreme, policy tool during acute liquidity traps. To the extent that repayment of short-term 'ways and means advances' was not enforced, this would amount to a covert form of monetary financing.

Second, the treasury has a long history of issuing consol bonds, or perpetuities, to fund extraordinary expenses incurred during, for instance, the South Sea Bubble crisis, the Napoleonic and Crimean wars, or the Irish potato famine.¹² The most significant and well-known consol issue in 1927 re-financed National War Bonds, and the last of these were retired as recently as last year.¹³ Given their nominal coupon, which the Treasury could theoretically default on, consols are not helicopter money in the truest sense. But a consol bond with coupons at 0% or near-0% would be almost worthless in value, and therefore any payment made by the central bank for them would function effectively as a cash transfer.

Figure 8: Bank of England "ways and means advances" were used in 2008 financial crisis



Source: Deutsche Bank, Bank of England Quarterly Bulletin 2010 Q1

¹² These bonds were callable and available (indeed, marketed) to the public. Since they have no scheduled redemption date they share as much in common with preference shares as they do debt.

¹³ The decision to retire consols with interest rates as low as 2.5% gives an interesting signal about what the Treasury expects interest rates will be in the long term. After all, the price of a non-callable consol is the coupon divided by expected long-term rates, so if expected long-term rates were above 2.5%, a non-callable would trade below par.



It is worth noting that the pure form of helicopter drops to households has been recently introduced into the UK political narrative as well. The Labour party's version of the Bank freely crediting a National Investment Bank to fund infrastructure with high social returns—not so different from the above mentioned ECB-EIB scheme—has taken the political debate into the realm of money-driven fiscal stimulus.

US Federal Reserve

In the US, the Fed in 1942 committed to maintaining Treasury bill yields at 0.375% to help the Treasury finance the war. Long-term government bond yields were capped at 2.5%. As the Treasury swamped the market with bonds over the course of the war, the Fed was forced to absorb most of this supply, leading to a rapid expansion of the money supply. Effectively, it had ceded monetary policy to the Treasury and was monetizing the debt. Unsurprisingly, postwar inflation soared to a peak of 21% in 1951, at which point the arrangement became untenable for the Fed. The Truman administration pressed to maintain the low interest-rate peg, especially after the outbreak of the Korean War, and a brief but vicious conflict ensued. In the end, the FOMC prevailed, and the resulting Treasury-Fed Accord of 1951 cemented the separation between central bank and the executive branch.¹⁴

Yet despite the Accord plenty of flexibility remains. For one, the Accord is merely a statement of understanding between the Treasury and Federal Reserve rather than a legally binding text. The text itself is vague, with the effects of the agreement only becoming apparent in retrospect and through its implementation by successive Fed governors.¹⁵

More importantly, and unlike Europe, there is no explicit prohibition of Federal Reserve monetary financing in congressional legislation or the US Constitution. The Federal Reserve Act 1935 section 14 (2)(b) states that “any bond, notes or other obligations which are direct obligations of the United States may be bought and sold without regard to maturities but only in the open market” but this was subsequently amended in 1942 to allow for the implementation of the interest rate caps discussed above. Indeed, while the interest-rate peg was removed in 1951, for three decades the Treasury would intermittently sell short-term paper directly to the Fed through its ‘direct-purchase authority’. It was only in 1981 that Congress allowed this overdraft facility to expire.¹⁶ Since then, the Treasury has been barred from receiving direct funding from the Fed, but the precedent exists.

Historical precedent, as well as the absence of constitutional restrictions, means that the bar for monetary financing in the US is quite low. Indeed, as Ben Bernanke suggested in a blog posting earlier this week, Congress could by statute create a special Treasury account at the Fed which the latter could credit whenever it “assessed that a [fiscal stimulus] of a certain size was needed to achieve the Fed’s employment and inflation goals”.¹⁷ In the extreme, the Fed could credibly signal that it would not enforce repayment of such credits, turning them into outright monetary financing.

What about debt restructuring? Could the Federal Reserve write down its holdings of government debt and operate under negative equity? The Federal Reserve System specifies that it remits the entire net profit surplus to the US Treasury, after payment of dividends to its shareholders, and after the surplus fund has reached the maximum limit, which is the same as the paid-up capital. If the net surplus is zero, there is no payment to the Treasury. In the case of a

¹⁴ <http://www.federalreservehistory.org/Events/DetailView/30>

¹⁵ https://www.richmondfed.org/-/media/richmondfedorg/publications/research/economic_quarterly/2001/winter/pdf/leach.pdf

¹⁶ https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr684.pdf

¹⁷ <http://www.brookings.edu/blogs/ben-bernanke/posts/2016/04/11-helicopter-money>



net loss, no remittance is made until future earnings are sufficient to cover that loss.¹⁸ So the Federal Reserve has no limits to operate under negative equity.

It is finally worth noting that through a unique quirk in the US Constitution, the Treasury may have money-printing powers itself. Article I, Section 8, Clause 5 of the US Constitution says Congress has the power “to coin money, regulate the value thereof, and of foreign Coin, and fix the standard of weights and Measures.” So in theory the US Treasury can mint a trillion dollar coin and deposit at the Fed, eliminating the need for the Fed to print the money. While the idea first emerged during the 2012 debt-limit crisis, it equally applies to monetary financing.

Bank of Japan

Japan probably had the most successful experiment with monetary financing in the 1930s. Led by Takahashi Korekiyo, the government not only abandoned the Gold Standard and devalued the currency but also injected extensive public funds. Although Japan escaped from the Great Depression faster than most other countries, Takahashi’s monetary financing policy was later credited with the eventual loss of fiscal discipline.¹⁹ Central bank financing of fiscal stimulus has been forbidden since the war and is legally prohibited under Article 5 of Japan’s Public Finance Law. The prohibition is broader than in the US, going beyond primary market bond purchases to include direct advances to the government as well. In this respect, the prohibition is more similar to Europe. In other respects, the legislation offers more leeway than meets the eye.

First, there is an explicit allowance for exceptions, where “[if] there exists some special reason therefor, an exception shall be made ...within the limits of the amount sanctioned as the result of a decision reached in the Diet.” Article 34 of the Bank of Japan Act also permits uncollateralized loans to the government within the scope of Article 5 providing additional leeway.

Second, the monetary financing prohibition is not enshrined in the constitution providing additional leeway for change. It is worth noting that unlike the Federal Reserve and ECB, Japan’s monetary financing prohibition sits in Japan’s Public Finance Law rather than the Bank of Japan Act, which under Article 43 provides substantial leeway to the BoJ governor to “conduct business...where such business is necessary to achieve the Bank’s purpose specified by this Act and the Bank has obtained authorization from the Minister of Finance and the Prime Minister.” Hence, similarly to other central banks, a restructuring of central bank debt or direct transfers of cash to the public do not seem to be explicitly ruled out.

Indeed, in the wake of the earthquakes of 2011, many politicians in Abe’s then-opposition LDP party publicly demanded that the BoJ finance fast-track fiscal measures. Kozo Yamamoto advocated a ¥20trn reconstruction program funded by the BoJ and was publicly backed by Abe.²⁰ While there was no explicit proposal that the monetary expansion be permanent, a key component of monetary financing, direct BoJ government debt purchases technically violates Article 5. In the end the BoJ extended zero-interest loans to banks in the affected regions. The episode suggests that Abe’s reflationists have never categorically ruled out monetary policy innovation under dire circumstances.

¹⁸ Page 14, <https://www.ecb.europa.eu/pub/pdf/scpops/ecbop169.en.pdf>

¹⁹ https://www.boj.or.jp/en/research/wps_rev/rev_2009/data/rev09e02.pdf. Whether his fiscal exuberance contributed to Takahashi’s assassination in the military coup of 1936 is less certain, considering that he had eventually tried to cut back on military spending.

²⁰ <http://www.bloomberg.com/news/articles/2013-02-21/japan-reflation-inspired-by-new-braintrust-created-by-shinzo-abe> . <http://blogs.wsj.com/japanrealtime/2012/11/19/abes-boj-marching-orders-a-step-too-far-2/?mg=id-wsj>



Bringing it all together: politics, not institutions

In the final analysis, central banks would be inclined to different variants of monetary financing depending on their institutional constraints and legal interpretations. For instance, while there is reasonable clarity on the legality of primary market purchases, the legality of restructuring central bank holdings of government debt or of direct cash handouts to the public remains very vague: simply put, the legislator did not envisage the prospect when drafting the legislation.

We summarize the issues in the table below. But taking it all together, we conclude that historical experience and institutional flexibility provides plenty of flexibility for monetary financing. Ultimately, it is a question of political desirability rather than technical or legal constraints.

Figure 8: Institutional constraints to helicopter money

	Fed	ECB	BoE	BoJ
Relevant Legislation	Federal Reserve Act of 1935	Article 123 of Lisbon Treaty and ECB Statute	Article 123 of Lisbon Treaty; Bank of England Act 1998	Article 5 of the Public Finance Law and Bank of Japan Act 1998
Purchasing of government bonds in secondary market combined with fiscal stimulus	Legal	Legal	Legal	Legal
Directly financing of government via primary purchases or overdraft facilities	Prohibited under Federal Reserve Act but Congress can and has suspended in the past	Prohibited under Article 123 of Lisbon Treaty; politically sacrosanct	No legal prohibition at national level; subject to EU treaties remaining binding	Prohibited under Article 5 of Public Finance Law; but Diet can allow exceptions
Restructuring debt holdings (one-off haircut, perpetuation or according to some rule)	Unclear, subject to interpretation of whether constitutes purchase in primary market	Unclear, subject to interpretation of whether constitutes purchase in primary market	Unclear, subject to interpretation of whether constitutes purchase in primary market	Unclear, subject to interpretation of whether constitutes purchase in primary market
Handing cash directly to public	No explicit prohibition, legality actively debated, even by Fed	No explicit prohibition, ECB statute gives wide mandate on "operational methods"	No explicit prohibition	No explicit prohibition, authorization from Prime Minister may be required
Negative Equity	Can be perpetually carried over	Can be perpetually carried over	Can be perpetually carried over	Can be perpetually carried over

Source: Deutsche Bank



Will helicopter drops work?

Money financing is a respectable name for more sinister terms like *debt monetization* and *helicopter money*. The latter moniker is often falsely attributed to “Helicopter Ben” Bernanke’s 2003 Fed speech, “Some thoughts on monetary policy in Japan.”²¹ In fact, “helicopter money” was coined by Milton Friedman (1948) as he described an escape from a Keynesian *liquidity trap* in the context of the Hicks-Hanson *IS-LM model* of the Great Depression.²²

Keynes presciently described a liquidity trap in these words²³:

There is the possibility ... that, after the rate of interest has fallen to a certain level, liquidity-preference may become virtually absolute in the sense that almost everyone prefers cash to holding a debt which yields so low a rate of interest. In this event the monetary authority would have lost effective control over the rate of interest. But whilst this limiting case might become practically important in future, I know of no example of it hitherto.

The modern Japanese economy is well described by this liquidity trap definition. Cash hoarding is still more discussed than acted upon, but the Bank of Japan has recently lost control of the yield curve, as evidenced by the adverse reaction of JGBs and USD/JPY to negative rates. Indeed the yen was the last effective instrument the BOJ possessed to influence output and inflation through monetary policy alone because of the liquidity trap.

Figures 9 and 10 illustrate the effects of fiscal and monetary policy using a standard IS-LM model in a normal and ZIRP economy. In a normal economy, fiscal expansion pushes the investment-savings curve to the right, increasing both output and interest rates. The *fiscal multiplier*, or effect on GDP of fiscal expansion, is normally less than 1-for-1 due to *crowding out*; e.g. government debt adds to the supply of total debt, raising interest rates for all debt and resulting in less private lending. Monetary policy works in a similar way, with the central bank swapping bonds for cash (“normal” QE or rate cuts), pushing interest rates down and stimulating spending.

In a normal economy money demand increases with national income (output); therefore, higher interest rates are required when output is high to equate money demand with money supply. But in a liquidity trap, the risk-averse public hoards cash, perhaps because they anticipate consumer goods deflation, recession and/or a debt-deflation spiral. At certain low levels of output the public is willing to hold any amount of money the central bank is willing to supply regardless of the real interest rate. The nominal interest rate reaches the so-called *zero lower bound* in a liquidity trap, and as it turns out, can even sustain negative levels. In a liquidity trap, any increase in the money supply, as evidenced by a rightward LM shift to LM’ in Figure 10, is pointless as the public considers bonds and cash to be equivalent. “Traditional” monetary policy loses its power.

²¹ Bernanke (2003). *Some thoughts on Monetary Policy in Japan*. The Federal Reserve Board. Available at: <http://www.federalreserve.gov/BOARDDOCS/SPEECHES/2003/20030531/default.htm>

²² Auerbach, Alan J. and Maurice Obstfeld. “The Case For Open-Market Purchases In A Liquidity Trap,” *American Economic Review*, 2005, v95(1,Mar), 110-137.

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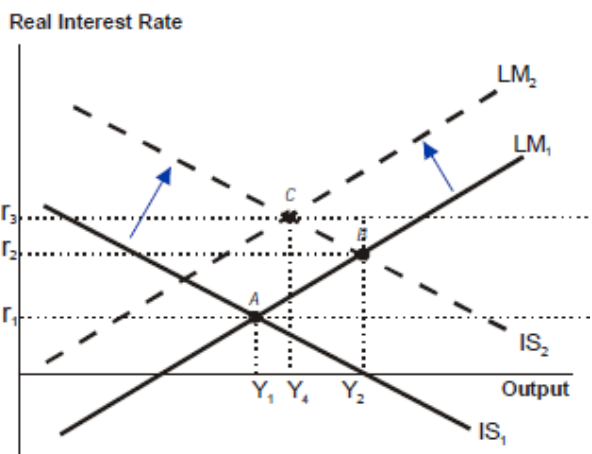
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²³ See for more discussion: <https://fixingtheeconomists.wordpress.com/2013/07/04/what-is-a-liquidity-trap/>

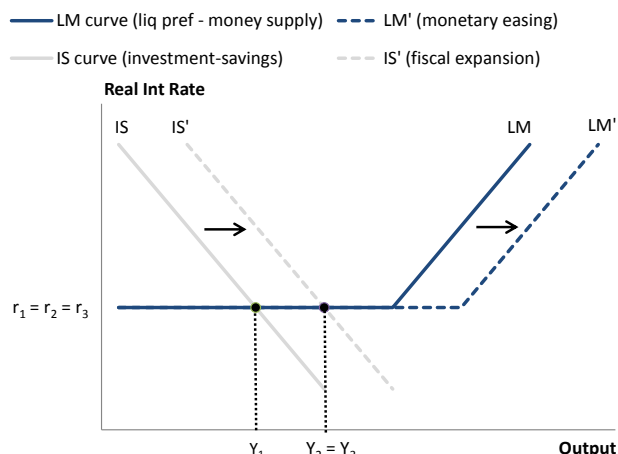


Figure 9: Fiscal expansions raise output and real interest rates in non-ZIRP world while monetary expansions raise output and lower interest rates



Source: Deutsche Bank, "The Deutsche Bank Guide to Exchange-Rate Determination", p102.

Figure 10: In a liquidity trap (e.g. perfectly elastic money demand) fiscal expansion raises output without raising interest rates while monetary policy has no effect at all



Source: Deutsche Bank.

So what can be done? Three critical points underpin the case for monetary financing:

1. **Only fiscal policy raises GDP in a liquidity trap.** Monetary expansions (ie QE, or swapping of bonds for cash) increase neither output nor real interest rates, because the public simply hoards the money. By contrast, fiscal expansion increases GDP 1-for-1 with government spending while leaving real interest rates unchanged as money demand is insensitive to real rates and *crowding out* does not occur. So why does financing of the fiscal deficit by central bank money even matter?
2. **Monetary financing is super-charged fiscal policy because Ricardian equivalence no longer holds.** Conventional deficit financing must be serviced (through interest payments) and either rolled over or paid back upon maturity. The private sector may adjust its own spending patterns based on government *debt sustainability* (measured by gross financing needs, debt/GDP levels and other metrics). Conventional debt-financed government spending is usually paid for by higher future taxes. Consumers adjust to some extent by reducing current consumption to smooth the shock of future austerity. This phenomenon is known as *Ricardian Equivalence* and is not accounted for by traditional IS-LM models. One has to look little beyond the current political narrative on fiscal rectitude across the world to conclude that debt sustainability considerations play a considerable part in medium-term fiscal planning.

But what if today's deficits never had to be repaid? In this case the government would not need to raise revenues to service and roll future debt obligations. Consumers would not reduce current consumption to save for future taxes and therefore aggregate demand would rise by at least the amount of additional government spending (and likely more through nominal wealth effects).²⁴

²⁴ Turner, Adair. "The Case for Monetary Finance – An Essentially Political Issue". Washington: Institute for New Economic Thinking, 16th IMF Jacques Polak Annual Research Conference, November 5-6, 2015.



3. **A central bank's ability and commitment to maintain balance sheet losses and negative equity is crucial.** Monetary financing results in a permanent increase in the monetary base, either one-off or repeated. To the extent this debt is effectively an unlimited liability on the central bank balance sheet (cash transfers to the public or zero coupon perpetual issued by the government), balance sheet servicing and rollover will not lead to default and Ricardian effects will fall. This is a necessary, but not a sufficient, condition for effective monetary financing, however. Some observers including former Federal Reserve governor Kocherlakota have highlighted that the need for central banks to pay interest on reserve balances (cash) created by the central banks limits the effects of central bank money creation.

In particular, it is argued, higher payments on central bank reserve balances created to fund government deficits would effectively reduce the corresponding profit remitted to the treasury having a net financial gain of zero.²⁵ At the extreme of persistent losses, a fiscal authority would have to recapitalize the central bank effectively leading to a contraction in fiscal policy and offsetting Ricardian effects in the future. The thought process is valid, but only in the instance where the central bank commits to running positive equity on its balance sheet. As we highlighted in earlier sections of this report, a central bank's uniqueness rests in its ability to run *infinite* losses as it controls its own unit of account. So long as the central bank commits to doing so until its inflation target is hit, helicopter drops should be far more effective than "traditional" fiscal policy.

²⁵ <http://www.bloombergvew.com/articles/2016-03-24/-helicopter-money-won-t-provide-much-extra-lift>



Market implications

Our analysis so far has concluded that helicopter money can be a powerful source of stimulus, and that there are both historical precedents and institutional avenues that allow this to take place. What about the asset class implications?

The starting point of understanding asset moves should be the type of policy response as well as its effectiveness. Here we assume an aggressive form of stimulus large enough to generate an increase in inflation and growth expectations – for instance, a one-off write-down of debt owned by the central bank as well as large-scale fiscal stimulus financed by the issuance of zero-coupon perpetual bonds bought by the central bank. We assume that the market perceives the policy as “successful”, namely that both growth and inflation expectations rise. Under this scenario, we would expect the following:

- **Bond yields should rise and the curve should bear-steepen.** Our colleagues in fixed income last year published a framework on understanding the drivers behind long-dated yields.²⁶ We list the components of the 10-year yield below and the anticipated impact:

10-yr yield =	effect on yield
<i>near-term monetary policy path</i>	UNCHANGED , assuming central bank engages in “verbal guidance” to keep near-term expectations depressed
<i>+ terminal real central bank rate</i>	HIGHER , assuming the market prices “success” and an eventual exit from unconventional policy
<i>+ inflation expectations</i>	HIGHER , assuming the market prices policy “success”
<i>+ central bank predictability</i>	HIGHER , because policy uncertainty will increase given new policy innovation
<i>+ credit risk</i>	LOWER , because medium-term payment capacity should increase on the back of lower outstanding debt, higher nominal GDP growth and
<i>+ demand/supply imbalance</i>	LOWER , because the outstanding supply of bonds will fall, while the perception of the central banks’ willingness to purchase more assets may increase. Demand for safe assets will likely depend on any regulatory changes constraining fixed income ownership

Taking all the factors above, the ultimate effect on yields is ambivalent, depending on the interaction between falling credit risk, rising demand-supply

²⁶ https://gm.db.com/global_markets/publications/fixed_income_special/sr_what29april15.pdf



imbalances (downward pressure on yields) versus higher growth and inflation expectations (upward pressure). At one extreme, if the market perceives the policy as a failure, credit risk and demand/supply imbalances are likely to dominate, putting even further downward pressure on yields. At the other extreme, if the policy is perceived as a loss of monetary discipline, inflation expectations would spike, leading to an aggressive re-pricing of yields higher.

On balance, under the assumption of policy “success” without fears of hyperinflation, we would conclude that bond yields rise, driven by the long end.

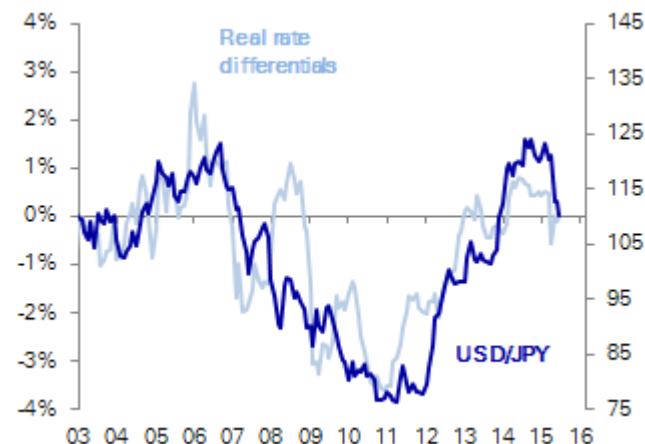
- **The currency should weaken, but may eventually strengthen.** Real yields have proven one of the most important drivers of currency moves in the post-crisis years, so the effect of helicopter money on FX will likely depend on their direction. The large depreciations in both the euro and yen over the last few years were driven by large downward shifts in real yields (charts). The effect of helicopter money on real yields is ambivalent, as outlined above. We assume that inflation expectations would dominate over growth, at least initially, with a central bank commitment to keep nominal rates low for long also helping. Eventually higher growth and tighter policy could lead to a stronger currency, however. Other frameworks suggest that currencies should at least initially weaken as well. The monetary approach to exchange rate determination concludes that the relative supply of money between two economies ultimately determines the exchange rate. An irreversible and permanent increase in the money stock (compared to the reversibility of QE flows via maturing bonds) should all else constant lead to a weaker currency.
- **Equities should rally.** The most straightforward equity valuation models suggest that a stock price is the sum of the net future earnings discounted by the appropriate nominal risk free rate. Higher nominal growth expectations would, all else constant, lead to higher future earnings, but higher yields would lower the value of these earnings via a higher discount factor. Ultimately, the effect on equities will depend on the interaction between nominal growth expectations and nominal yields. A helicopter drop that allows a moderate rise in yields combined with higher nominal growth expectations should lead to higher equity prices.

We conclude that a “successful” helicopter drop, defined as generating higher growth and inflation expectations but without a permanent overshoot of the inflation target, should lead to higher and steeper yield curves, a weaker currency (at least initially) and higher equity valuations.

This notwithstanding, it is important to emphasize that there are alternative equilibria too. At one extreme, if the policy is not perceived as sufficient in size and impact, then the supply/demand imbalances in fixed income may be exacerbated (less issuance and debt outstanding) without a corresponding move higher in inflation expectations. This would lead to a market reaction similar to the one that followed the BoJ cut to negative rates earlier this year: lower yields, weaker equities and a stronger currency. At the other extreme, if the long-term commitment to the inflation target is challenged and central bank credibility is lost, long-dated yields would spike higher, capital flight would ensue and risk assets would substantially underperform. A “successful” helicopter drop may therefore be easier said than done given the non-linearities involved: it needs to be big enough for nominal growth expectations to shift higher and small enough to prevent an irreversible dis-anchoring of inflation expectations above the central bank’s target. Either way, the behavior of the latter is the key defining variable both for the policy’s success as well as the asset market reaction.

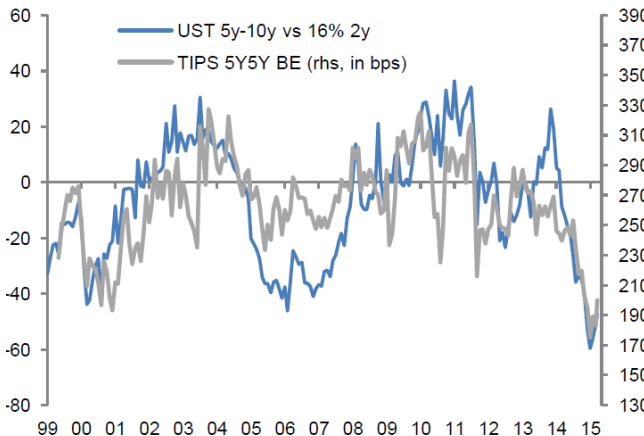


Figure 11: Higher inflation expectations should lead to lower real rates and currency weakness



Source: Deutsche Bank, "The Deutsche Bank Guide to Exchange-Rate Determination", p102.

Figure 12: Inflation expectations a big driver of the bond risk premium (blue line)



Source: Deutsche Bank.

Conclusion: Helicopters from the East

Global monetary policy is at a cross-roads. Japan's experience this year demonstrates the limits of central bank policy with the bank running out of government bonds to buy, negative rates reaching their limits and inflation expectations having almost completely unwound their Abenomics move higher.

This paper concludes that "helicopter money", the ultimate form of monetary policy has strong historical precedent, reasonable legislative flexibility and can prove substantially more powerful than traditional monetary or fiscal policy. One only has to consider the current political narrative around the world to draw the conclusion that persistent aversion to fiscal easing is dominated by medium-term sustainability concerns. These mostly seem political, rather than financial, given the current ultra-low level of yields. But by overcoming perceptions around these constraints and harnessing the infinite power of central bank balance sheets, money-financed fiscal policy has the potential to be a powerful tool for global monetary and fiscal easing. Maybe not today, but in the next recession.

Irrespectively, with Japan fast approaching the limits of its existing policy response to deflation, developments need to be followed closely for signs of the next global policy innovation.

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Appendix 1

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