

# The Case for Implementing Effective Negative Interest Rate Policy

Andrew Lilley and Kenneth Rogoff, Harvard University

**ECB Conference on Monetary Policy: bridging science and practice**

**Frankfurt, October 8, 2019**

This paper\* explores the case for gradually instituting the changes necessary to implement unconstrained negative interest rate policy in deep recessions

- **To be fully effective, requires legal, regulatory and tax changes**
  - These cannot be implemented the central bank alone
- **Dealing with wholesale cash hoarding the most difficult problem**
  - No country has done this yet, but there is a straightforward solutions that do not involve any restrictions on the use of currency: “Layering” reserves as in Switzerland, Japan and Europe is not nearly sufficient.
  - Nevertheless, looking forward, the policies need to implement EFFECTIVE implement negative rate policy should become much easier over time as cash is increasingly marginalized in high and medium value transactions
  - Precluding wholesale cash hoarding is the biggest step towards the bank profitability problem
  - Small depositors (say up to several thousand dollars) can easily be excluded (Rogoff, 2016), Bordo and Levin (2019).
- **Being able to implement *effective* negative rate policy is far more urgent in Europe and Japan than in the US.**
- **But studies such as Kiley and Roberts (2017), Eberly, Stock and Wright (2019)**
- **suggest that even for the US is problem is likely to be an important one over the next decade, and extremely important in another financial crisis**

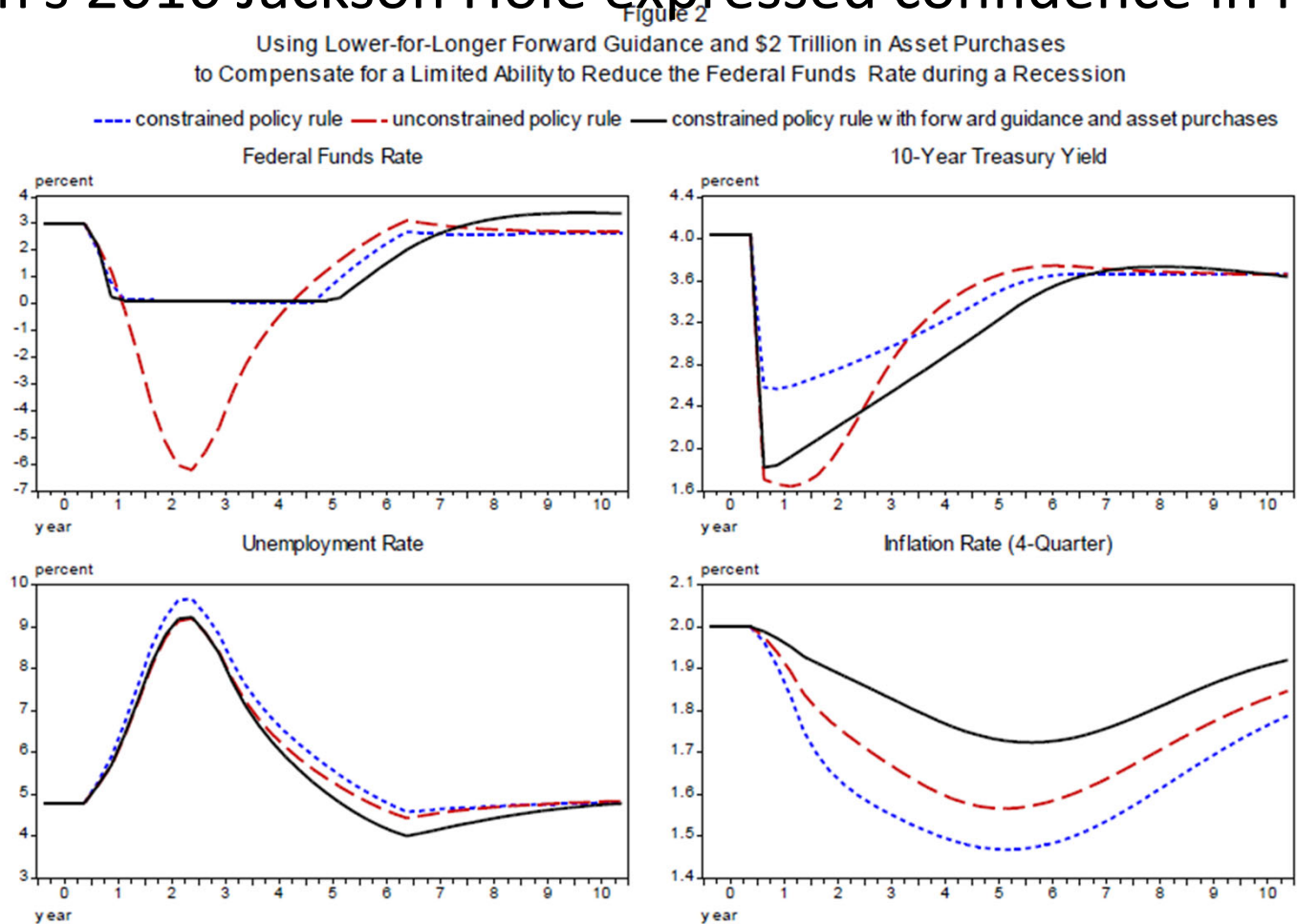
These slides also draw on “The Curse of Cash,” by Kenneth Rogoff (Princeton University Press) 2016,

“Dealing with Monetary Paralysis at the Zero Bound,” by Kenneth Rogoff, *Journal of Economic Perspectives*, Summer 2017.

Kenneth Rogoff Harvard University

“Before the Federal Reserve gave up the pegging of the bond price, we heard all over the lot that a free market in bonds was going to be chaotic, that the interest rate might go heaven-high or down, there might be capital losses, savings institutions might well be wiped out by their capital losses, and that we needed some basic peg price on which the market could form its anticipation. We abandoned the pegged price. None of these things happened...” Milton Friedman in (Friedman and Roosa, 1967, p. 173)

# Chair Yellen's 2016 Jackson Hole expressed confidence in Fed tools



Source: David Reifschneider (2016), "Gauging the Ability of the FOMC to Respond to Future Recessions," Finance and Economics Discussion Series 2016-068 (Washington: Board of Governors of the Federal Reserve System, August), [www.federalreserve.gov/econresdata/feds/2016/files/2016068pap.pdf](http://www.federalreserve.gov/econresdata/feds/2016/files/2016068pap.pdf)

Kenneth Rogoff Harvard University

Federal Reserve Chair Janet Yellen remarks to Jackson Hole Symposium, Aug 26 2016

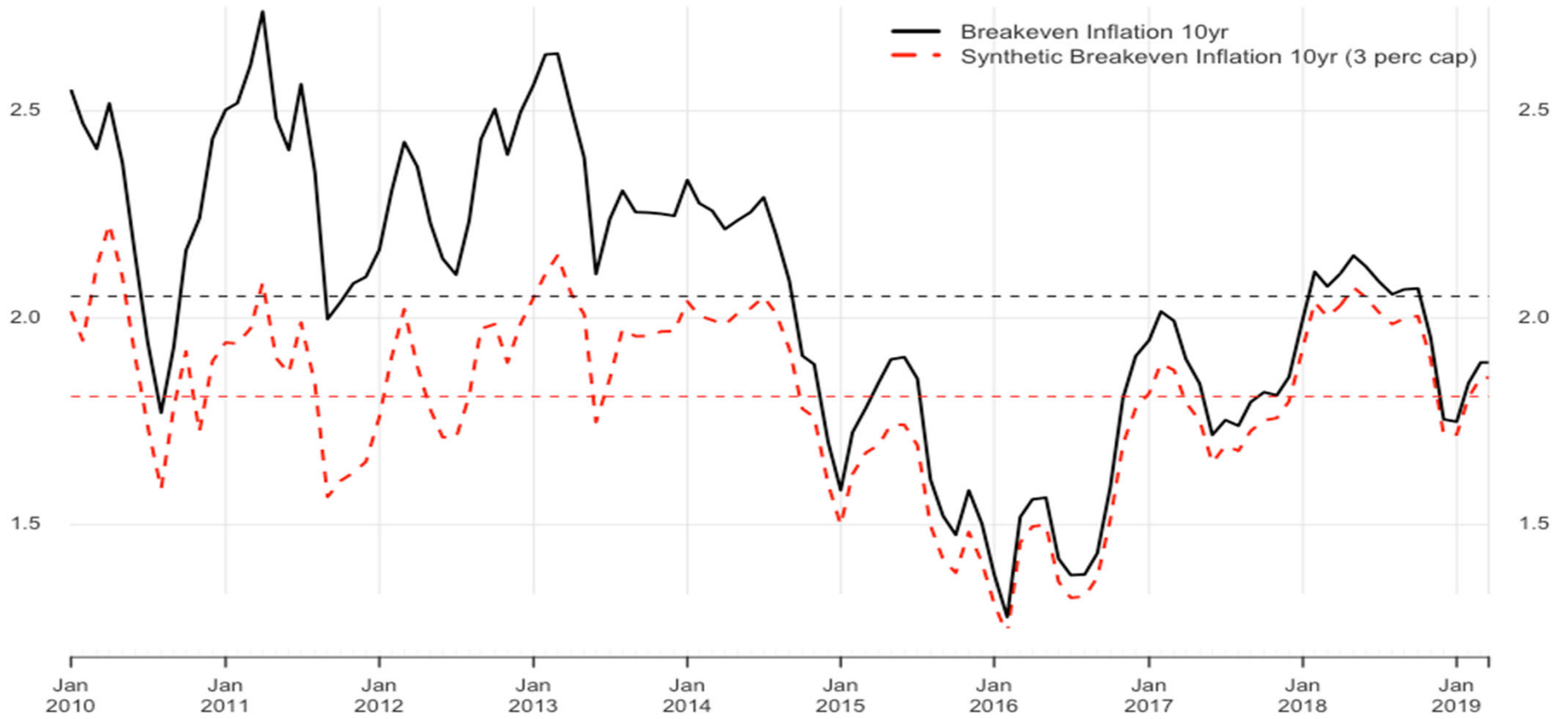
But downward drift in market inflation expectations arguably not so benign

TABLE 1: Inflation expectations derived from indexed bonds

Country	2005-2007	2016-2019	2005-2007	2016-2019
	Market Inflation Expectation (Average 10yr)		Market Inflation Expectation (Average 10yr, starting in 10yrs)	
<b>Table 1</b> United States	2.51%	1.82%	2.87%	1.92%
Europe	2.35%	1.43%	2.51%	2.02%
Japan	0.54%	0.39%	0.58%	0.58%

### US CPI 10yr Vanilla Breakeven (%) and Synthetic 3% Cap Breakeven (%)

2010-01-29 / 2019-04-17



# Lots of skepticism from economists

- Top journals are replete with articles about how highly distortionary second and third-best policies can be effective at the zero bound.
- ***Curse of Cash*** (part II) summarizes and synthesizes the debate
  - “Pure QE” (buying government bonds) is essentially nothing more than maturity transformation, can be implemented by the Treasury without the Fed.
  - “Fiscal QE” (buying private debt) picks winners and losers can also be implemented by the Treasury
- Woodford Jackson Hole (2012) expresses skepticism on QE
- Greenlaw, Hamilton, Harris and West, 2018.
- Chung et al (2019), Federal Reserve: skeptical empirical assessment of QE
- Problems internationally are even more acute than in the US: Holston, Laubach and Williams (2017).



Some Argue that the Usual Advice -- Crises are the Best Time to do Structural Reforms -- has it Backwards at Zero Bound

Eggertsson, Ferrero, and Raffo. 2014. “Can Structural Reforms Help Europe?”

Eggertsson, Mehrotra, Singh and Summers. 2016. “A Contagious Malady? Open Economy Dimensions of Secular Stagnation”

Other papers argue that raising monopoly power and increasing tariffs may be pro-growth policies at the zero bound by raising inflation and thereby lowering real interest rates

Apolitical and Completely Credible Fiscal Policy Zero Bound

Lawrence Christiano, Martin Eichenbaum, Sergio Rebelo, “When Is the Government Spending Multiplier Large?,” ***Journal of Political Economy*** Feb 2011,

[Karel R. S. M. Mertens](#), [Morten O. Ravn](#) “[Fiscal Policy in an Expectations-Driven Liquidity Trap](#)” ***The Review of Economic Studies***, October 2014,

[Gauti B. Eggertsson](#), [Paul Krugman](#) “Debt, Deleveraging, and the Liquidity Trap: A Fisher-Minsky-Koo Approach” ***The Quarterly Journal of Economics***, 2012

Side note: Literature seems unconcerned with inconsistency between assumptions about monetary policy credibility and fiscal policy credibility

- The zero bound would not be an issue if monetary policy could credibly commit
- But it is typically assumed that the government can credibly commit to the entire future (state contingent) path of fiscal policy while in office.

- And whereas new approaches to monetary policy (including negative rates and higher inflation targets) are criticized as “too political”
- The literature takes fiscal policy as technocratic
- Alesina and Tabellini (1989) and Persson and Svensson (1991) make the point that the party in power has an incentive to spend out of future revenues if they can control current direction of government resources more reliably than future direction. (E.g., Democrats are willing to allow larger deficits by raising spending, Republicans are willing to run higher deficits by cutting taxes.)

# Direct Solution II: Helicopter Money

- Bernanke (Brookings Blog 2016)
- Buiter, Willem, *The Simple Analytics of Helicopter Money: Why it Works – Always*, NBER 2014
- Adair Turner *Between Debt and Devil*, Princeton University Press 2015
- But helicopter money involves intensively political decisions, central banks are “unelected power,” (Tucker, 2018) Either no effect, or effect by having investors doubt central bank independence, with unpredictable and chaotic effects

# Unconventional Fiscal Policy to Create Inflation

Correia, Isabel, Emmanuel Farhi, Juan Pablo Nicolini, and Pedro Teles, 2013. "Unconventional Fiscal Policy at the Zero Bound." ***American Economic Review***.

Feldstein, Martin. 2002. "The Role for Discretionary Fiscal Policy in a Low Interest Rate Environment."

Issues: A large fraction of sales taxes are on durable goods. More importantly, highly political, difficult to make credible. Interesting but at best a patchwork solution.

## Raising the Inflation Target from 2% to 4%

Issue first noted by Summers (1991) and Fisher (1996). **First academic paper to explore raising the inflation target to 4% was Fuhrer and Madigan (1994), published in ReStud (1997).** Famously advocated by Krugman (1998) and Blanchard (2010)

Olivier Coibion, Yuriy Gorodnichenko, Johannes Wieland, 2012 “The Optimal Inflation Rate in New Keynesian Models: Should Central Banks Raise Their Inflation Targets in Light of the Zero Lower Bound? *The Review of Economic Studies*, Volume 79, October 2012, Armenter, Roc, 2017, “The Perils of Nominal Targets,” *The Review of Economic Studies* (2017) 0, pp.1–37

# Raising inflation target an important idea but complex

- Higher inflation might make it easier for firms to change relative price (Akerlof, Dickens and Perry, 1996) but also generates greater relative price distortions under staggered contracting (Woodford, also Ascari and Sbordone (unless contracts adjust more frequently, Nakamura and Steinsson, 2017)
- If contracts adjust more frequently as inflation rises, then monetary policy has less effect ALL THE TIME. It is even possible that extra 2% of bullets might be needed just to achieve the same effect.
- All results VERY model specific, essentially unknown.
- In the financial crisis, extra two percent not nearly enough according to central bank estimates.
- Does not really solve credibility problems and creates potential new ones
- People value stable prices (Fischer)
- Desirable to institute conditions for effective negative rate policy regardless of what inflation target is chosen.



Zero bound exacerbates safe asset shortages

Cabellero, Ricardo and Emmanuel Farhi. 2017. “The Safety Trap, *The Review of Economic Studies*,

Farhi, Emmanuel, and Matteo Maggiori. 2018. “A Model of the International Monetary System.” *Quarterly Journal of Economics*.

Negative Rates are by far the most elegant long-run solution to maintaining independent and effective monetary policy at the zero bound

## LARGE LITERATURE ON EUROPEAN EXPERIMENTS WITH MILD NEGATIVE RATES

- Basten and Mariathan, 2017. “How banks respond to negative interest rates: evidence from the swiss exemption threshold”
- Demiralp (Koc University), J. Eisenschmidt (ECB) and T. Vlassopoulos, 2017. Negative interest rates, excess liquidity and bank business models: Banks’ reaction to unconventional monetary policy in the euro area
- Roman Horvath, Jana Kotlebova and Maria Siranova, 2018. “Interest rate pass-through in the euro area: Financial fragmentation, balance sheet policies and negative rates.”
- Florian Heider, Farzad Saidi, and Glenn Schepens, 2017. Life Below Zero: Bank Lending Under Negative Policy Rates.
- Thomas Jordan, 2016. “Monetary policy using negative interest rates: a status report.”
- Andreas (Andy) Jobst and Huidan Lin, 2016. “Negative Interest Rate Policy (NIRP): Implications for Monetary Transmission and Bank Profitability in the Euro Area.”
- Christophe Madaschi, Irene Pablos Nuevo, 2017. “The profitability of banks in a context of negative monetary policy rates: the cases of Sweden and Denmark.”

A few papers suggest recent negative rate policy may be counterproductive, due to impact on bank profits

Markus K. Brunnermeier and Yann Koby, 2017. The “Reversal Interest Rate”: An Effective Lower Bound on Monetary Policy, Princeton University, July.

Gauti B. Eggertsson, Ragnar E. Juelsrud, Ella Getz Wold, 2017. “Are Negative Nominal Interest Rates Expansionary?” NBER Working Paper, November.

Eggertsson, Juelsrod, Summers and Wold, January 2019 “Negative Nominal Interest Rates and The Bank Lending Channel, NBER Working Paper 25416.

But overall, recent literature finds benign effects of mild negative rates on bank profitability

- Even under current institutional constraints
- Lopez, Jose A. & Rose, Andrew K. & Spiegel, Mark M., 2018. "[Why Have Negative Nominal Interest Rates Had Such a Small Effect on Bank Performance? Cross Country Evidence](#)," [Working Paper Series](#) 2018-7, Federal Reserve Bank of San Francisco.
  - Data set includes annual observations on 5,100 European and Japanese Banks between 2010 and 2016
  - “When we compare negative nominal interest rates with low positive rates, banks experience losses in interest income that are almost exactly offset by savings on deposit expenses and gains in non-interest income, including capital gains on securities and fees.”

International Monetary Fund, August 2017. *Negative Interest Rate Policies—Initial Experiences and Assessments*, Staff Report, August 2017 Giovanni Dell'Ariccia, Vikram Haksar, and Tommaso Mancini-Griffoli.

World Bank, August 2016, Negative interest rate policies : sources and implications, Ayhan Kose et. Al

**BOTH STUDIES FIND THAT NEGATIVE RATE POLICY (even though nothing was done to deal with cash hoarding) was similarly effective to other unconventional monetary policies, and did not produce greater risks**

# Won't negative rates unfairly punish savers?

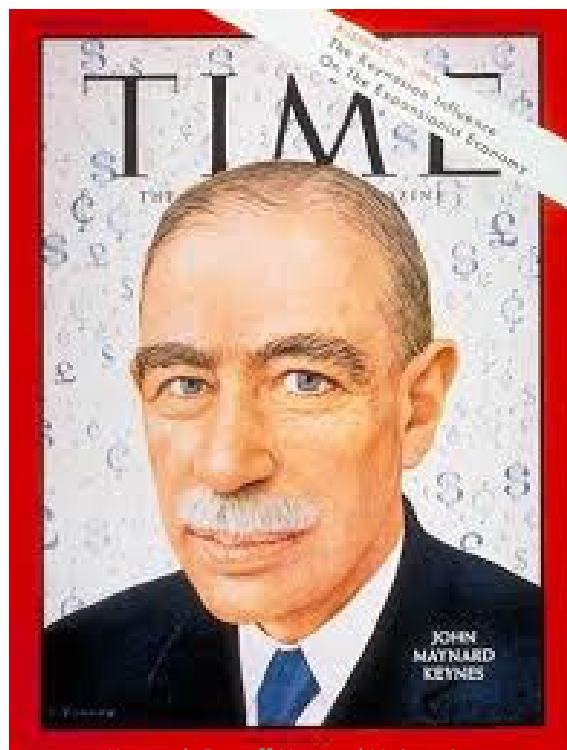
- Few larger savers hold all their assets in short term bank deposits
  - Small savers can be exempted.
- Effective negative rate policy would RAISE value of many other forms of savings such as housing prices and stock prices, which tend to collapse in a financial crisis.
  - Savers as a class will likely benefit significantly
- Long-term interest rates might actually RISE if growth and inflation are expected to come back more quickly
- Jobs would come back more quickly
- Governments could taper off counter-cyclical deficit spending faster
- ALL policies carry risks in a deep financial crisis

# Four options for dealing with the zero bound

1. Find ways to pay negative interest rates on paper currency
  - *Not practical*
2. Eliminate paper currency
  - *Not advisable: Curse of Cash argues for “less cash society” not cashless*
3. Create a crawling peg exchange rate between electronic and paper currency
  - *Brilliant though with some drawbacks*
4. Eliminate large-denomination notes (and if necessary charging discount for redepositing large amounts of cash)
  1. As cash becomes to become marginalized in legal, tax compliant transactions, the policies needed for effective negative rate policy (which likely involve taxing large-scale redeposits into the central bank) will become easier and easier to implement politically



John Maynard Keynes, in his 1936 GENERAL THEORY, spends much time praising Gessell, but ultimately dismisses his idea as thoroughly impractical. Central to his overall logic.



Kenneth Rogoff Harvard University

# Modern Economists have tried to find a practical implementation of Gessell

**Fed Official Marvin Goodfriend proposed inserting a magnetic stripe in currency**



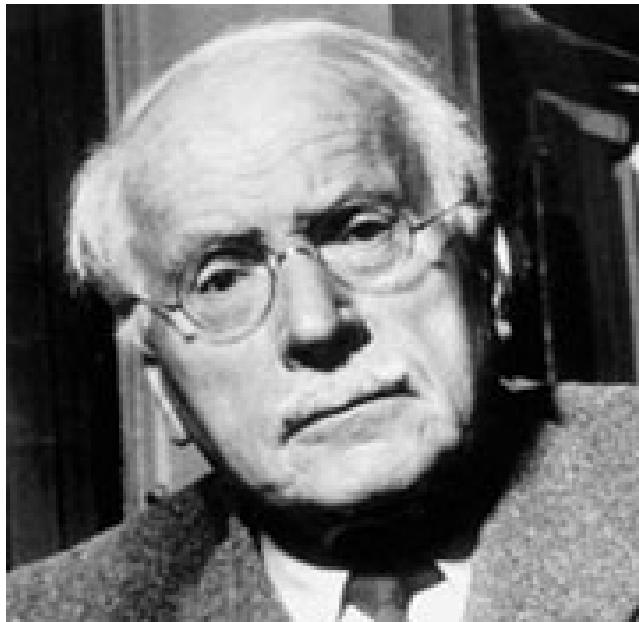
**Harvard Professor Greg Mankiw proposed (illustratively) a lottery system for paying negative rates.**



But Keynes apparently did not know about a much better way to implement negative rates due to outsider Robert Eisler (and traces back to Kublai Khan)

# Originators of a Dual Currency System

**Robert Eisler** **STABLE MONEY**, 1932  
(Historian, Religious Studies)



**Kublai Khan**, Grandson of Genghis Khan, created wedge between currency inside and outside treasury



Actor Benedict Wong  
From TV series *Marco Polo*

# Modern Scholars on Dual Currency System

**Willem Buiter reintroduced Eisler idea with modern macro model, also Stephen Davies**



**Miles Kimball has exposted and promoted the Eisler approach**



Key idea is that central bank stops trading paper currency and electronic currency at one to one

Instead the central bank announces an *exchange rate path* between paper and electronic bank reserves

Central Bank Sets Interest Rates overnight deposits at -4% per year, and prevents arbitrage by setting rate of depreciation on paper dollars (in terms of electronic dollars) also at -4% per year.

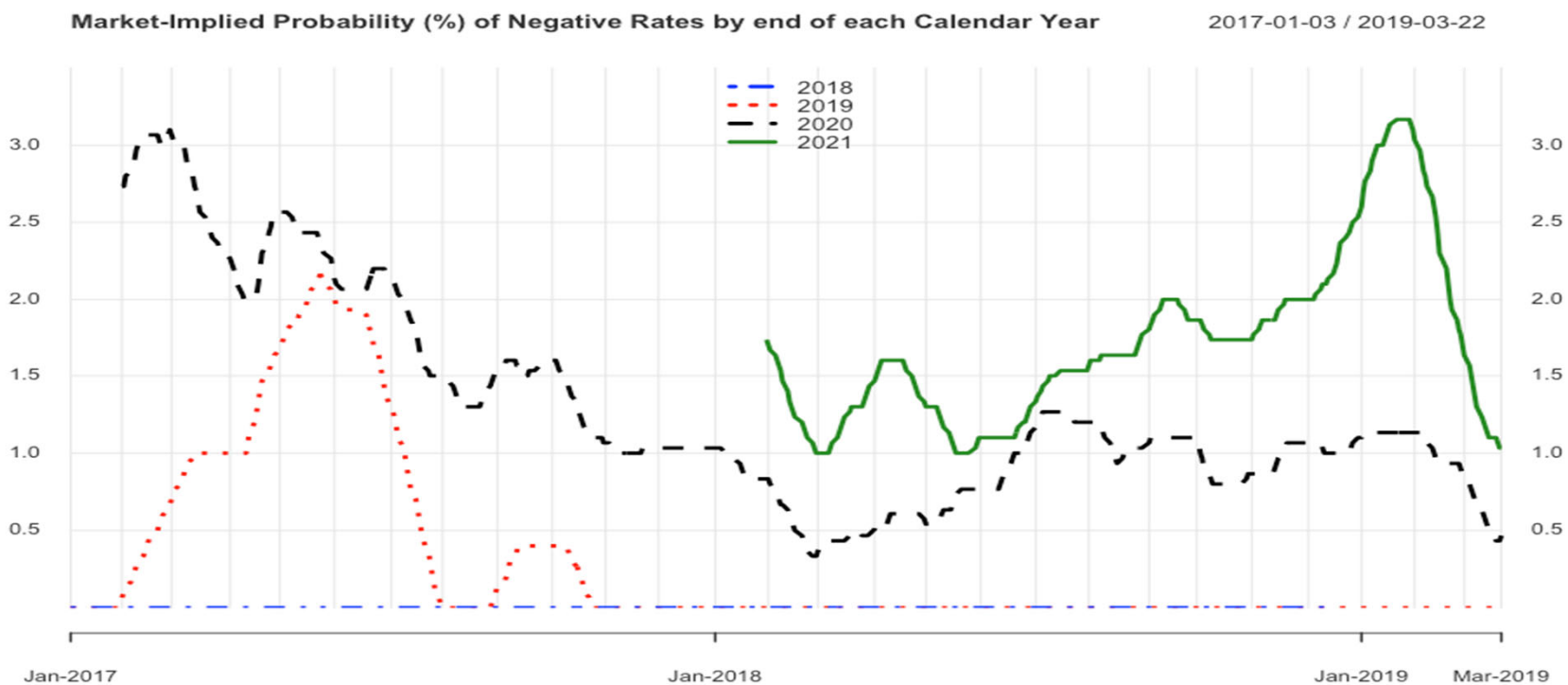
	<b>Initial Deposit</b>	<b>Value after one year</b>	<b>Value after two years</b>
Electronic dollar	1.00	.96	.92
Paper dollar in storage FACE VALUE	1.00	1.00	1.00
<b>Value of Paper Dollar Electronic Dollars</b>	<b>1.00</b>	<b>.96</b>	<b>.92</b>

# Important Caveats

- Paper money and electronic money are not quite perfect substitutes, so hard to tune policy quite so perfectly as in the example
- In normal times, it would be inconvenient to have a discount on paper currency, and the problem of getting back to “par” (one to one) is far from simple.
- Sounds complicated
- Might be politically MUCH easier to implement as importance of cash in medium to large legal transactions continues to fall, and would certainly be helped by phasing out large denomination notes



# Option-based probabilities of negative rates in US



## Important Caveat: Monetary Policy not a Panacea

- Monetary Policy cannot cure structurally inefficient economy
- Fiscal policy is particularly very useful in countries where it is possible to bring forward planned future infrastructure investments and where fiscal space permits significant temporary rise in transfers, though political economy and credibility issues surrounding fiscal policy should not be ignored any more than for monetary policy.

# Conclusions (1)

- The strong case for having a rule-based international monetary system (Taylor, 1993, 2016), implemented by independent central banks (Rogoff, 1985), is well established
- The quasi-fiscal tools presently available to monetary authorities at the zero bound make it difficult to conform to rules in part because they are of such limited and unpredictable effectiveness, and can just as easily be implemented – even reversed – by the fiscal authorities
  - Except in Europe, where there is no other central authority able to issue joint eurobills or eurobonds.
- Forward guidance on interest rates does fall within the realm of monetary policy, but during long zero-bound episodes are extremely difficult to make credible. Raising inflation targets has its own issues

## Conclusions (2)

- Central bank needs a “bazooka” at the zero bound that makes credible its commitment to achieving its policy rule, and raising inflation if required
- Negative interest rate policy precisely the requisite instrument, and can be achieved by making the legal, tax and regulatory changes needed to employ unconstrained negative interest rates to effectively fight a deep recession.
- Monetary policy design should be forward looking and not backward looking
- The biggest drawback to unconstrained negative rate policy is that it has not really been tried anywhere
- Most likely to be tried first in Europe or Japan where arguments are most compelling
- But if effective elsewhere likely to come eventually even to the United States

Paperback edition,  
July 2017  
With chapter added on  
India and other recent  
developments

