FEDERAL RESERVE BANK of CLEVELAND

Even Keel and the Great Inflation

Owen F. Humpage Sanchita Mukherjee

> Workshop on Monetary and Financial History FRB-Atlanta & Emory University

24 June 2013

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U.S. Inflation: 1955-1980



1954 1957 1960 1964 1967 1970 1973 1976 1979

Source: Bureau of Labor Statistics



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Key Findings:

• The Fed stabilized interest rates during period of Treasury debt funding.

- Even Keel did not directly contribute to the Great Inflation.
- Indirectly contributed to the Great Inflation?
- U.S. monetary policy did not respond to gold losses.

FEDERAL RESERVE BANK

of CLEVELAND

U.S. Treasury Yields



Source: Banking and Monetary Statistics (1914-1941) Tables 122 and 128/Banking and Monetary Statistics (1941-1970) Tables 12.2 and 12.7 *of* CLEVELAND

Federal Reserve System Holdings of Government Securities



Source: Banking and Monetary Statistics, 1941-1970, Table 9.5(a) f CLEVELAND

Even-Keel Statements:

"...throughout this period the Treasury would be in the market with large and complex new cash and refinancing operations. This circumstance suggested the desirability of a steady money market." (FOMC 12 September 1961)

"In view of impending U.S. Treasury financing,....the Committee concluded that...it would be desirable to maintain approximately the same degree of ease as had prevailed recently, resolving any doubt on the side of ease and clearly avoiding any lessening of the availability of reserves." (FOMC 6 June 1961)

Even-Keel Operations: 1960-1975

Year	Jan.	Feb.	Mar.	Apr.	Мау	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total Even Keels
1960		1		1				1	1	1	1		6
1961						1			1	1			3
1962	1	2		1							1		5
1963	1	2	1	2				1	1		1		9
1964	1	1		2	1	1	1	1		1	1		10
1965	1			1	1		1	1		2	1	1	9
1966	1	1		1	1			1		1	1		7
1967	1	1			1	1	1	1		1	1		8
1968					1		1			1	1		4
1969	1	1					1		1				4
1970	1	1		1	1			1		1			6
1971	1			1	1			1		1	1		6
1972	1			2		2	1			1		1	8
1973	1			1			1		1	1			5
1974		1	1	1			1			1			5
1975	1			1			1						3
Total	12	11	2	15	7	5	9	8	5	13	9	2	98

Month

FEDERAL RESERVE BANK *of* CLEVELAND

Source: Federal Reserve Board

U.S. Gold Reserves and Liabilities to Foreign Official Institutions



1960 1962 1964 1966 1968 1970 1972 1974 1976

Source: IMF International Financial Statistics/Banking and MonetaryFEDERAL RESERVE BANKStatistics (1941-1970)/Annual Statistical Digestof CLEVELAND

We follow:

Clarida, R. Gali, J. & Gertler, M. 1998. Monetary Policy Rules and Macroeconomic Stability: Evidence and Some Theory, *QJE* 115(1): 147 – 180.

Orphanides, A. 2001. Monetary Policy Rules on Real Time. *AE*R 91(4): 964 – 985.

Orphanides, A. 2002. Monetary Policy Rules and the Great Inflation. *AER,P&P* 92(2): 115 – 120.

Federal Funds Target (1):

$$\overline{i}_t = \beta_{\pi} (E_t \pi_{t+1} - \pi^*) + \beta_u (u_t - u^*) + \beta_g (D_{bw} \cdot \Delta g_t)$$

$$+ \beta_{nek} (1 - D_{ek}) + \varepsilon_{t}$$



Federal Funds Rate (2):

$\dot{i}_{t} = \rho_{ek} (D_{ek} \cdot \dot{i}_{t-1}) + (1 - D_{ek}) [\rho \cdot \dot{i}_{t-1} + (1 - \rho) \bar{i}_{t}] + \omega_{t}$

$$\begin{split} \mathbf{i}_{t} &= \rho_{ek}(D_{ek} \cdot \mathbf{i}_{t-1}) + \rho \left[(1 - D_{ek}) \cdot \mathbf{i}_{t-1} \right] \\ &+ (1 - \rho) \beta_{\pi} \left[(1 - D_{ek}) \cdot (\mathbf{E}_{t} \pi_{t+1} - \pi^{*}) \right] & \text{excess inflation} \\ &+ (1 - \rho) \beta_{u} \left[(1 - D_{ek}) \cdot (u_{t} - u^{*}) \right] & \text{employment gap} \\ &+ (1 - \rho) \beta_{g} \left[(1 - D_{ek}) \cdot D_{bw} \cdot \Delta g_{t} \right] & \text{gold losses} \\ &+ (1 - \rho) \beta_{nek} (1 - D_{ek})^{2} + \vartheta_{t} \right] & \text{additional reserves} \end{split}$$

 $\mathbf{i}_{\mathsf{t}} = \rho_{ek} \cdot \mathbf{i}_{\mathsf{t}-1}$

Even-keel response

$$D_{ek} = 1$$

 $i_{t} = \rho \cdot i_{t-1}$ No even-keel, no Bretton Woods response $+ (1 - \rho) \beta_{\pi} (E_{t} \pi_{t+1} - \pi^{*})$ $D_{ek} = 0$ $+ (1 - \rho) \beta_{u} (u_{t} - u^{*})$ $D_{bw} = 0$ $+ (1 - \rho) \beta_{nek} + \vartheta_{t}$

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Coefficient	Estimates (Robust Std. Err.)	Estimates (Robust Std. Err.)	
	(1)	(11)	
$ ho_{ek}$	1.007*** (0.0131)	1.006*** (0.0130)	
ρ	0.764*** (0.089)	0.747*** (0.088)	
eta_π	0.970*** (0.298)	0.800** (0.343)	
β_u	-0.708*** (0.251)	-0.820*** (0.231)	
β_{nek}	0.042*** (0.016)	0.0476*** (0.0145)	
$oldsymbol{eta}_g$		-2.54e-07 (2.82e-07)	
$N R^{2}$ χ^{2} p-value for I-test χ^{2} p-value for Hansesn J-test	251 0.98 0.24 0.19	251 0.98 0.24 0.19	

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Inflation and Interest Rates, 1955-1980



1954 1957 1960 1964 1967 1970 1973 1976 1979

Source: Federal Reserve Board/Bureau of Labor Statistics/ Authors' calculations

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Even Keel Events by Policy Environment

Events per year



1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975

Source: Board of Governors Annual Reports 1961-1976

Federal Funds Rate

Percent



Source: Board of Governors Annual Reports 1961-1976



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