

“CENTRAL BANKING CREDIBILITY: A HISTORICAL AND QUANTITATIVE EXPLORATION.”

NBER Working Paper No. 20824

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Outline

- Introduction
- Credibility and Reputation Through the Age
- Quantifying Credibility
- The Data
- The Estimations and Empirical Evidence
- Conclusion

INTRODUCTION

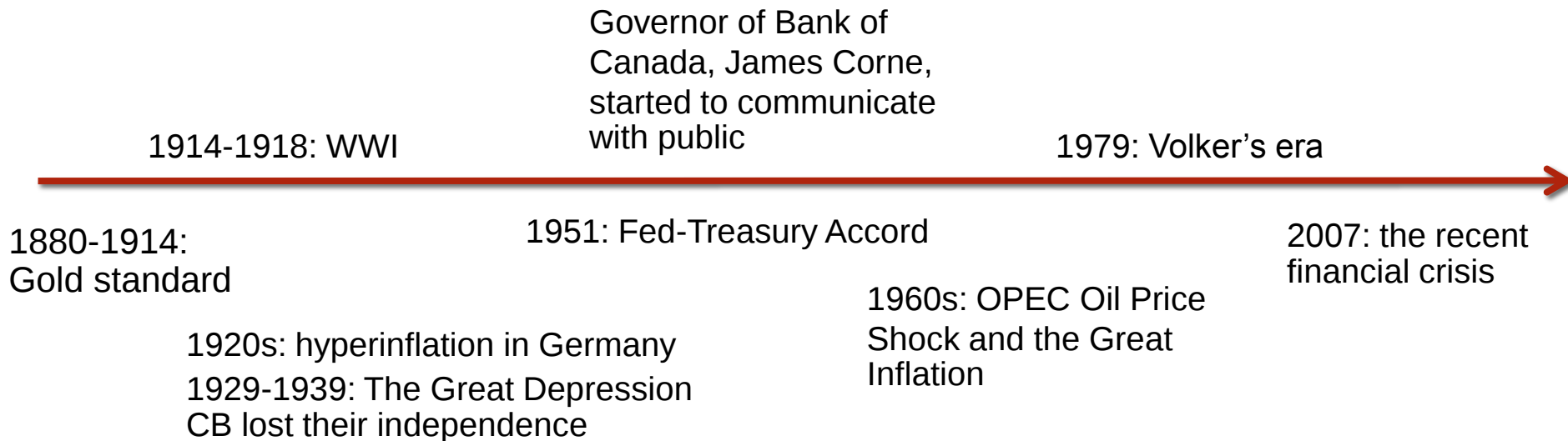
Introduction

- Central Bank credibility
 - Commitment to follow well articulated and transparent rules and policy goals
 - “...that your pronounce are believed – even though you are bound by no rule and may have incentive to renege...it is built up by a history of matching deeds to word.” – Blinder (1999)
- Quantified as Inflation performance
 - Sensitive to choices of parameters
 - Cross-checking with narrative evidence suggested
- Characteristics
 - ‘flow’ i.e. changes across time
 - Evolves in a non-linear manner
- Is credibility vulnerable to financial crises? Is credibility affected by the growth of private credits or particular monetary policy regime? Does credibility behave asymmetrically over time?

CREDIBILITY AND REPUTATION THROUGH THE AGE

Credibility and Reputation Through the Age

- ‘History of central bank credibility is tied up with history of policy regimes’.



QUANTIFYING CREDIBILITY

Quantifying Credibility

$$i_t = \bar{\rho} + \bar{\pi} + \alpha_2 \tilde{\pi}_t + \alpha_3 \tilde{y}_t + \varepsilon_{i,t} \quad (1.1)$$

$$i_t = \gamma_{1,t} + \gamma_{2,t} E_t \pi_{t+1} + \gamma_{3,t} (E_t y_{t+1} - y_t^*) + \gamma_{4,t} \Delta y_t + \gamma_{5,t} \Delta i_{t-1} + \gamma_{6,t} (i_{t-1} - \bar{\rho}_t) + \bar{\rho}_t + \eta_t \quad (1.2)$$

Quantifying Credibility

$$\bar{\pi}_t = \frac{-\gamma_{1,t}}{(\gamma_{2,t} + \gamma_{6,t} - 1)} \quad (1.3)$$

$$\bar{\pi}_t = \Delta \bar{m}_t - \Delta \bar{y}_t + \Delta \bar{v}_t \quad (1.4)$$

$$\lambda i_t + (1 - \lambda) e_t = \bar{\rho}_t + \bar{\pi}_t + \tilde{\alpha}_2 \tilde{\pi}_t + \tilde{\alpha}_3 \tilde{y}_t + \tilde{\varepsilon}_{i,t} \quad (1.5)$$

$$\bar{\pi}_t = \frac{-\gamma_{1,t}}{(\gamma_{2,t} + \gamma_{6,t} - \gamma_{7,t} - 1)} \quad (1.6)$$

Quantifying Credibility

$$(\pi_{it} - \bar{\pi}_{it})^2 = \theta \mathbf{Z}_{it} + \varphi_i (\pi_{i,t-1} - \bar{\pi}_{i,t-1})^2 + \mathbf{u}_{it} \quad (1.7)$$

$$\mathbf{Z}_{it} = [\textit{Gold}_{it}, \dot{M}_{it}, \textit{loans}_{it}, \textit{debt}_{it}, \textit{OIL}_{it}, \textit{CRISIS}_{it}, \textit{CBI}_{it}, \textit{ERR}_{it}]$$

where $\mathbf{Z}_{it}$ = vector of institutional determinants

- ▶ $\textit{Gold}_{it}$ = dummy variable that if country i employed the Gold standard regime
- ▶ $\dot{M}_{it}$ = growth rate of a broad monetary aggregate
- ▶ $\textit{Loans}_{it}$ = ratio of bank credit to GDP
- ▶ $\textit{Debt}_{it}$ = ratio of sovereign debt to GDP
- ▶ $\textit{OIL}_{it}$ = dummy variable for the oil price shock in 1970s
- ▶ $\textit{CRISIS}_{it}$ = dummy variable to capture various financial crises
- ▶ $\textit{CBI}_{it}$ = index of central bank independence
- ▶ $\textit{ERR}_{it}$ = dummy variable that identifies country i was on the exchange rate targeting regime

THE DATA

Table 1 The Origins of Ten Central Banks

Year	Country	Name	Motivation
1668	Sweden	Bank of the Estates of the Realm. Forerunner of the Riksbank	Finance war
1694	UK	Bank of England	Finance war
1800	France	Banque de France	Manage public debt, generate seignorage
1816	Norway	Bank of Norway	Economic crisis in Denmark prompts monetary reform
1876	Germany	Reichsbank. Forerunner of Bundesbank	Consolidation of previous note issuing authorities following unification
1882	Japan	Bank of Japan	Part of modernization of Meiji regime
1893	Italy	Banca d'Italia	Consolidation of previous note issuing authorities following unification
1907	Switzerland	Swiss National Bank	Elimination of note issuing competition
1913	USA	Federal Reserve System	Creation of lender of last resort and other banking related functions
1934	Canada	Bank of Canada	Lender of last resort

Sources: Siklos (2002) and updated from individual central bank websites accessible through the BIS's Central bank hub, <http://www.bis.org/cbanks.htm>.

Figure 1 The Anatomy of Inflation in 10 Countries

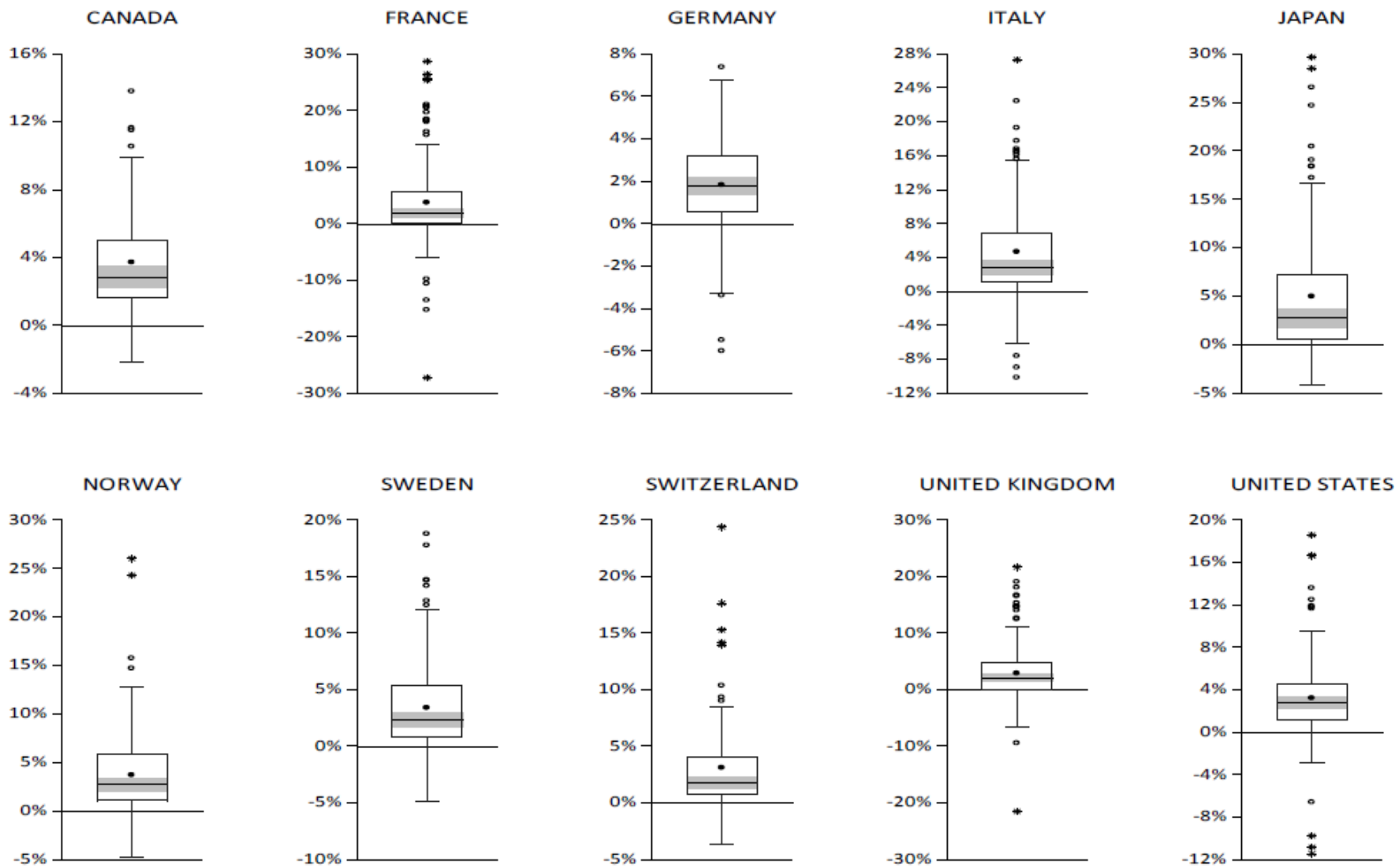
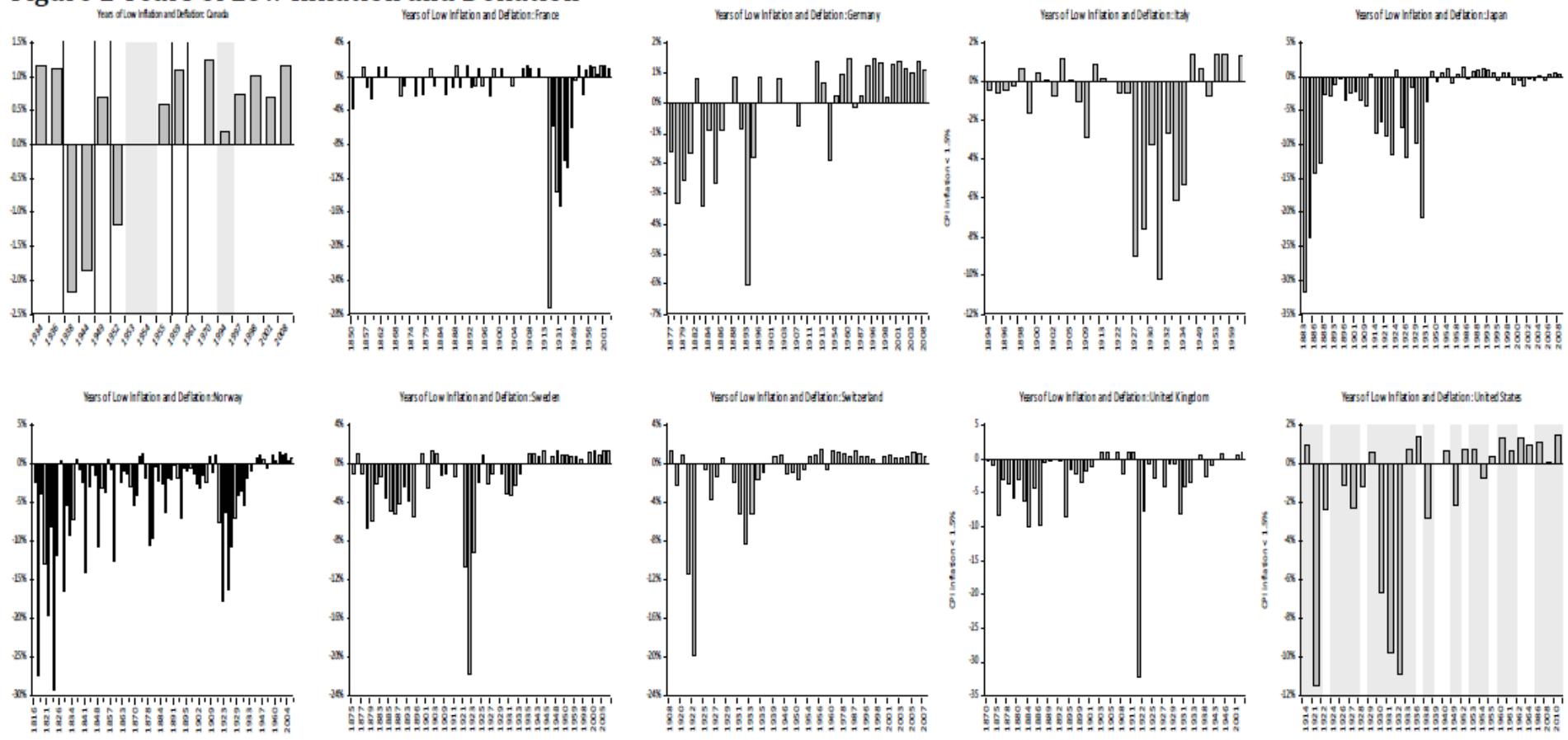


Figure 2 Years of Low Inflation and Deflation



THE ESTIMATION AND EMPIRICAL EVIDENCE

$$(\pi_{it} - \bar{\pi}_{it})^2 = \boldsymbol{\theta} \mathbf{Z}_{it} + \varphi_i (\pi_{i,t-1} - \bar{\pi}_{i,t-1})^2 + \mathbf{u}_{it} \quad (1.7)$$

Table 2 Panel Regression Estimates of the Determinants of Credibility

A. Interest Rate Instrument

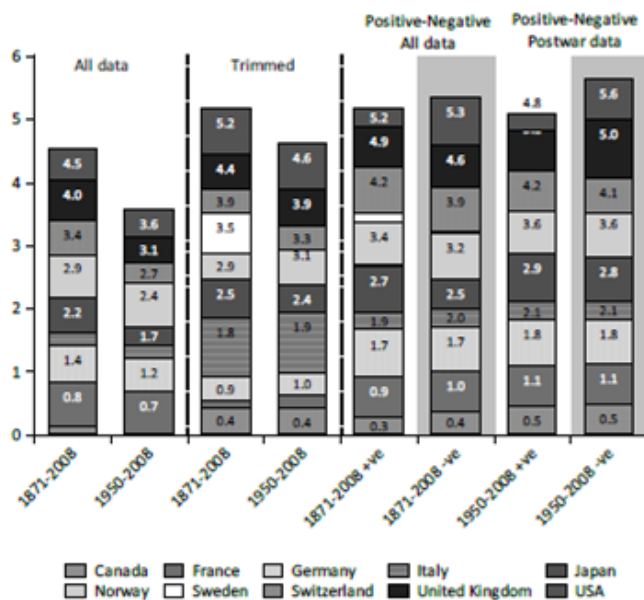
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B. Money Supply Growth Instrument

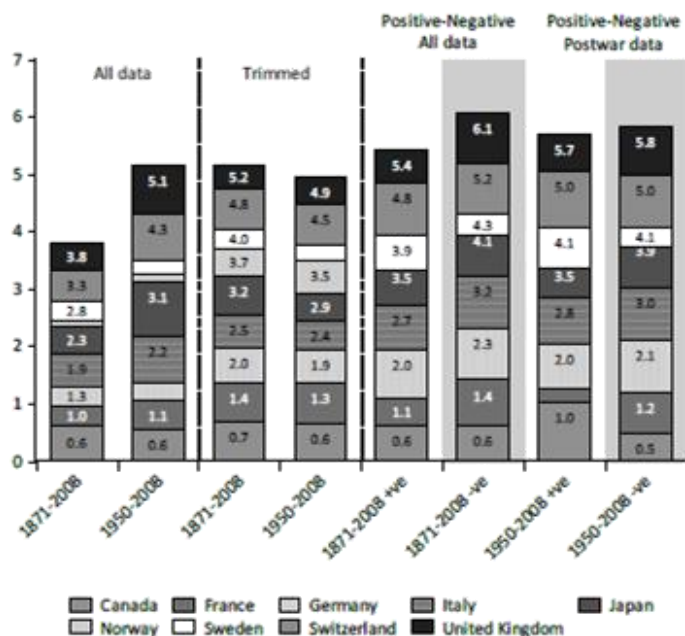
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Figure 3 The Persistence of Credibility

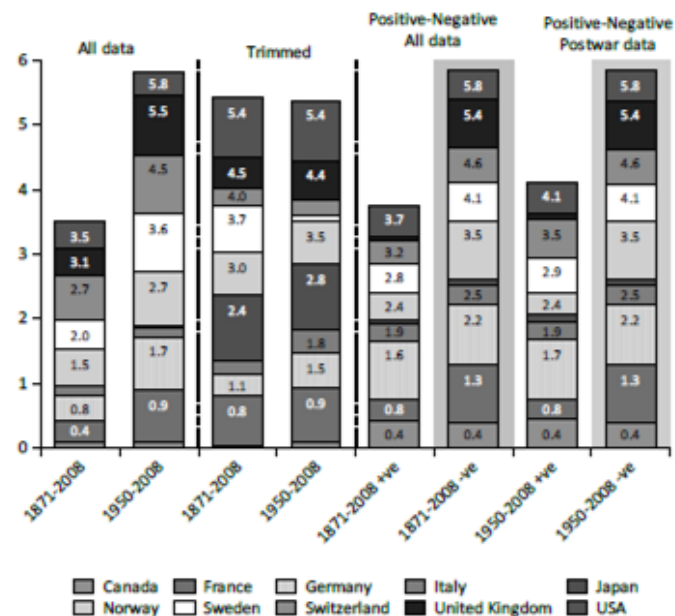
A. Interest Rate Instrument



C. Exchange Rate Instrument



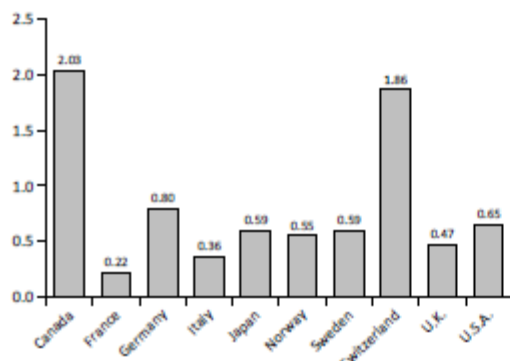
B. Money Growth Instrument



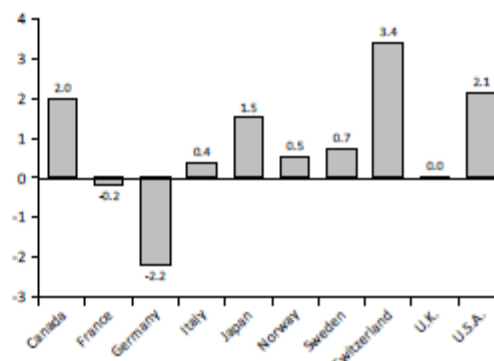
$$(\pi_{it} - \bar{\pi}_{it})^2 = \theta \mathbf{z}_{it} + \phi_i (\pi_{i,t-1} - \bar{\pi}_{i,t-1})^2 + \mathbf{u}_{it}$$

Figure 4 Inflation Shocks and Credibility

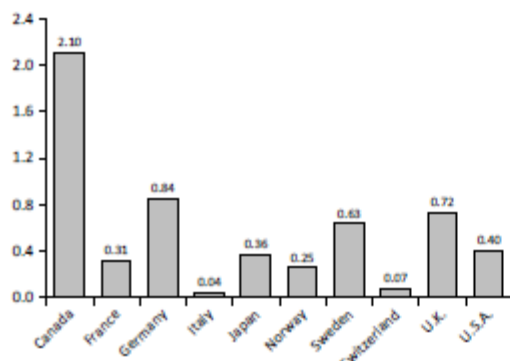
Full sample: interest rate instrument



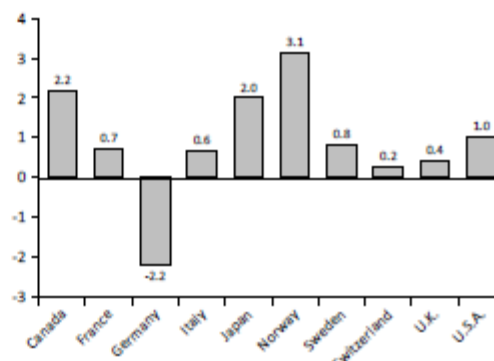
Post WWII: interest rate instrument



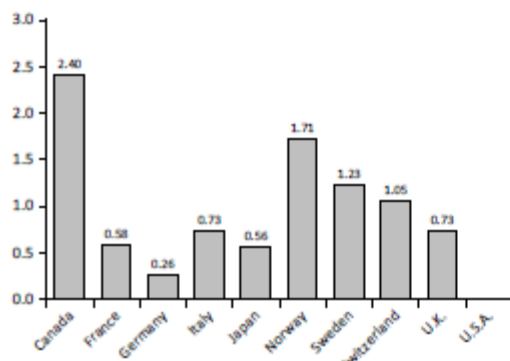
Full sample: money growth instrument



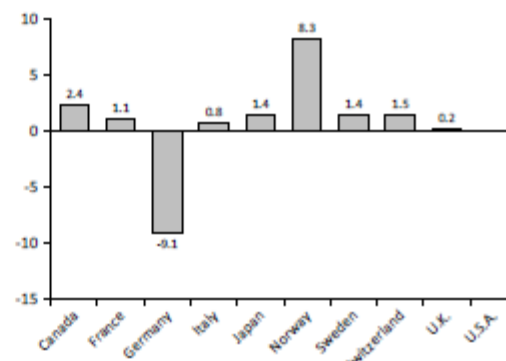
Post WWII: money growth instrument



Full sample: exchange rate instrument



Post WWII: exchange rate instrument



The case of US Federal Reserves

Figure 5A Inflation and Expected Inflation in the U.S. Since the Fed's Creation

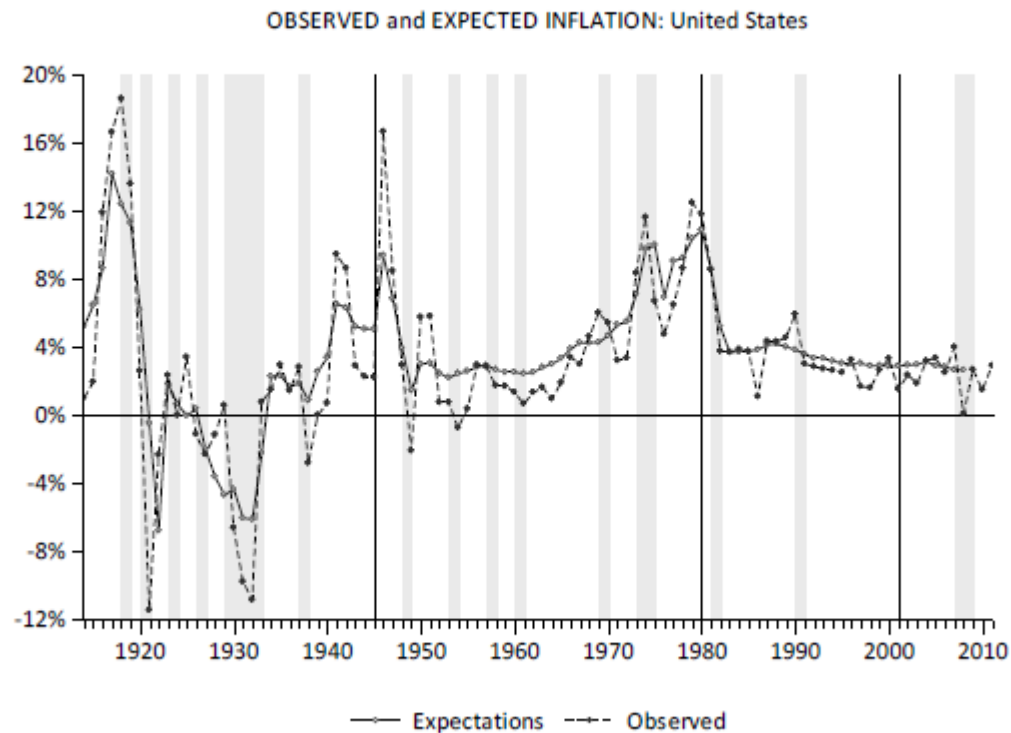
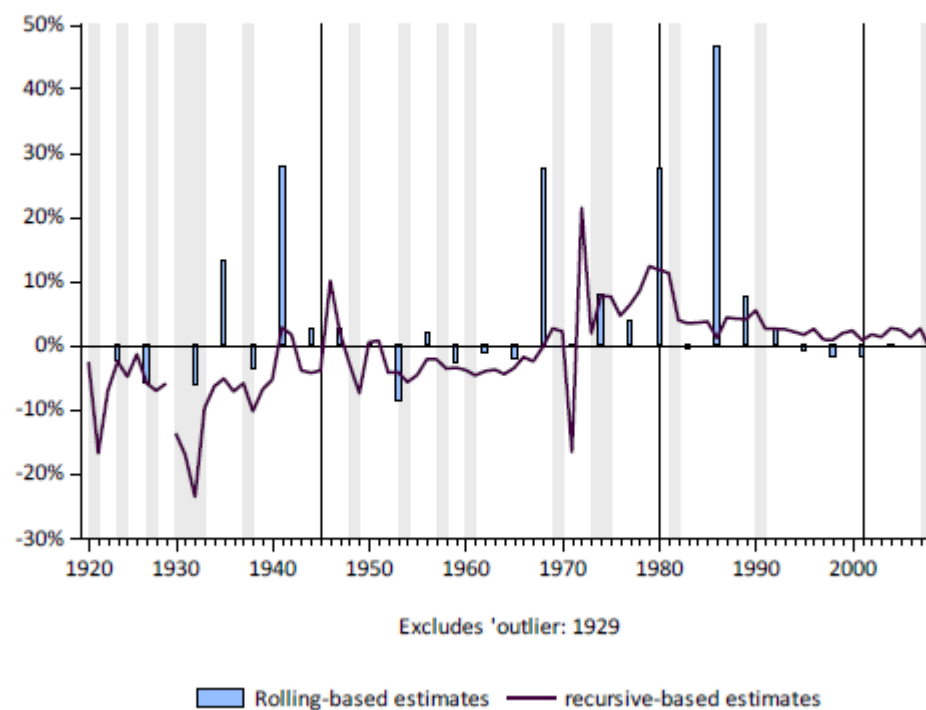


Figure 7A The Fed's Credibility Over Time: Recursive and Rolling Estimates

Estimates of Federal Reserve Credibility: Interest Rate Instrument



CONCLUSION

- Credibility changes over time are frequent and can be sizeable.
- Central Bank credibility depends on several factors such as level of autonomy, different financial crises, institutional factors and types of monetary policy regime in place.