“Making Monetary Policy by Committee”

by Alan Blinder

Discussion by

Francisco J. Ruge-Murcia

University of Montréal

Motivation

- Most central banks use a committee structure to formulate policy (79 out of 88 central banks in Fry *et al.*, 2000)

- Understanding how committees work is crucial to understand monetary policy making

Outline of the Paper

- Discusses experimental evidence that committees are superior to individuals

- Carefully documents institutional heterogeneity in monetary policy committees

Heterogeneity

- Monetary policy committees differ in
  1) Degree of consensus
  2) Role of the chairman
  3) Voting procedures
  4) Size
  5) Composition
  6) Appointment procedure

- From the normative perspective, this observation begs the question of what is the optimal committee design

- For example, recent research by Erhart and Vasquez-Paz (2007) and Beger and Nitsch (2008) estimate the optimal committee size

Committees vs. Individual Decision Making

- Experiments by Blinder and Morgan (2005 and 2007) and Lombardelli, Proudman and Talbot (2005) present evidence that committees outperform individual decision makers

- In this discussion, I will argue that committee decision making also explains data on policy decisions much better (I will draw on Riboni and Ruge-Murcia, 2007)

The Economy

- Private sector is described by

$$\pi_{t+1} = \pi_t + \alpha_1 y_t + \varepsilon_{t+1}$$
$$y_{t+1} = \beta_1 y_t - \beta_2 (i_t - \pi_t) + \eta_{t+1}$$

where

$$\varepsilon_t = \gamma u_{t-1} + u_t$$
$$\eta_t = \varsigma v_{t-1} + v_t$$

- Innovations are Normal white noises

Case 1: A Single Central Banker

- Selects nominal interest rate

- Utility function is

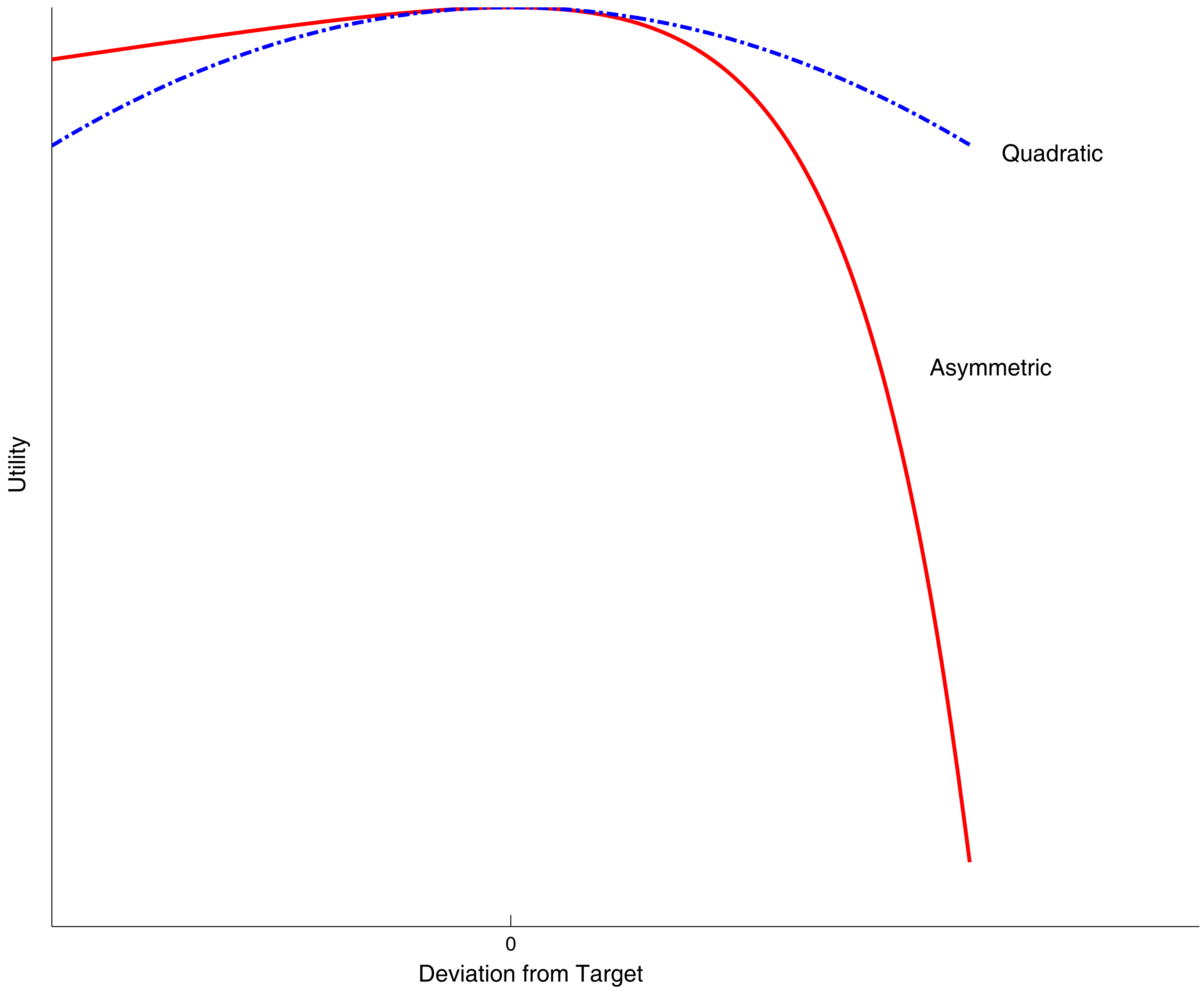
$$E_\tau\left(\sum_{t=\tau}^{\infty}\delta^{\tau-t}L(\pi_t)\right)$$

where

$$L(\pi_t) = \frac{-\exp(\mu(\pi_t - \pi^*)) + \mu(\pi_t - \pi^*) + 1}{\mu^2}$$

- See Figure 1

Figure 1: Instantaneous Utility Function



Policy Outcome

Utility maximization subject to AD and Phillips curves delivers a Taylor rule

$$i_t = a + b\pi_t + cy_t + \zeta_t$$

where

$$a = -\left(\frac{1}{\alpha_1\beta_2}\right)\pi^* + \left(\frac{\mu}{2\alpha_1\beta_2}\right)\sigma_\pi^2$$

$$b = 1 + \frac{1}{\alpha_1\beta_2}, \quad c = \frac{1+\beta_1}{\beta_2}$$

$$\zeta_t = \left(\frac{1}{\alpha_1\beta_2}\right)(\gamma u_t + \varsigma v_t)$$

Implications

- Linear relation between interest rates and fundamentals

- No endogenous interest rate autocorrelation

- No status quo bias and lots of policy changes

Estimation

- Since

$$i_t = a + b\pi_t + cy_t + \zeta_t,$$

it follows that

$$Pr(i_t | i_{t-1}, \pi_t, y_t) = \frac{1}{\sigma}\phi\left(\frac{i_t - a - b\pi_t - cy_t}{\sigma}\right),$$

- Then, the log likelihood function is

$$L(\boldsymbol{\varphi}) = -T\sigma + \sum_{\forall i_t} \log\phi\left(\frac{i_t - a - b\pi_t - cy_t}{\sigma}\right),$$

where $\boldsymbol{\varphi} = \{a,\ b,\ c,\ \sigma\}$

Case 2: A Monetary Policy Committee

- Selects nominal interest rate in every meeting

- N members indexed by $j = 1, \ldots N,$ where N is an odd integer

- The utility function of member j is

$$E_\tau \left(\sum_{t=\tau}^{\infty} \delta^{\tau - t} L_j(\pi_t) \right)$$

where

$$L_j(\pi_t) = \frac{-\exp(\mu_j(\pi_t - \pi^*)) + \mu_j(\pi_t - \pi^*) + 1}{\mu_j^2}$$

Policy Preferred by Member j

- Member j's preferred policy is

$$i^*_{j,t} = a_j + b\pi_t + cy_t + \zeta_t$$

where

$$a_j = -\left(\frac{1}{\alpha_1\beta_2}\right)\pi^* + \left(\frac{\mu_j}{2\alpha_1\beta_2}\right)\sigma^2_\pi$$

$$b = 1 + \frac{1}{\alpha_1\beta_2}, \quad c = \frac{1+\beta_1}{\beta_2}$$

$$\zeta_t = \left(\frac{1}{\alpha_1\beta_2}\right)(\gamma u_t + \varsigma v_t)$$

- Only the intercept is member-specific

How Members Resolve Difference of Opinion?

- Following a (consensus) protocol

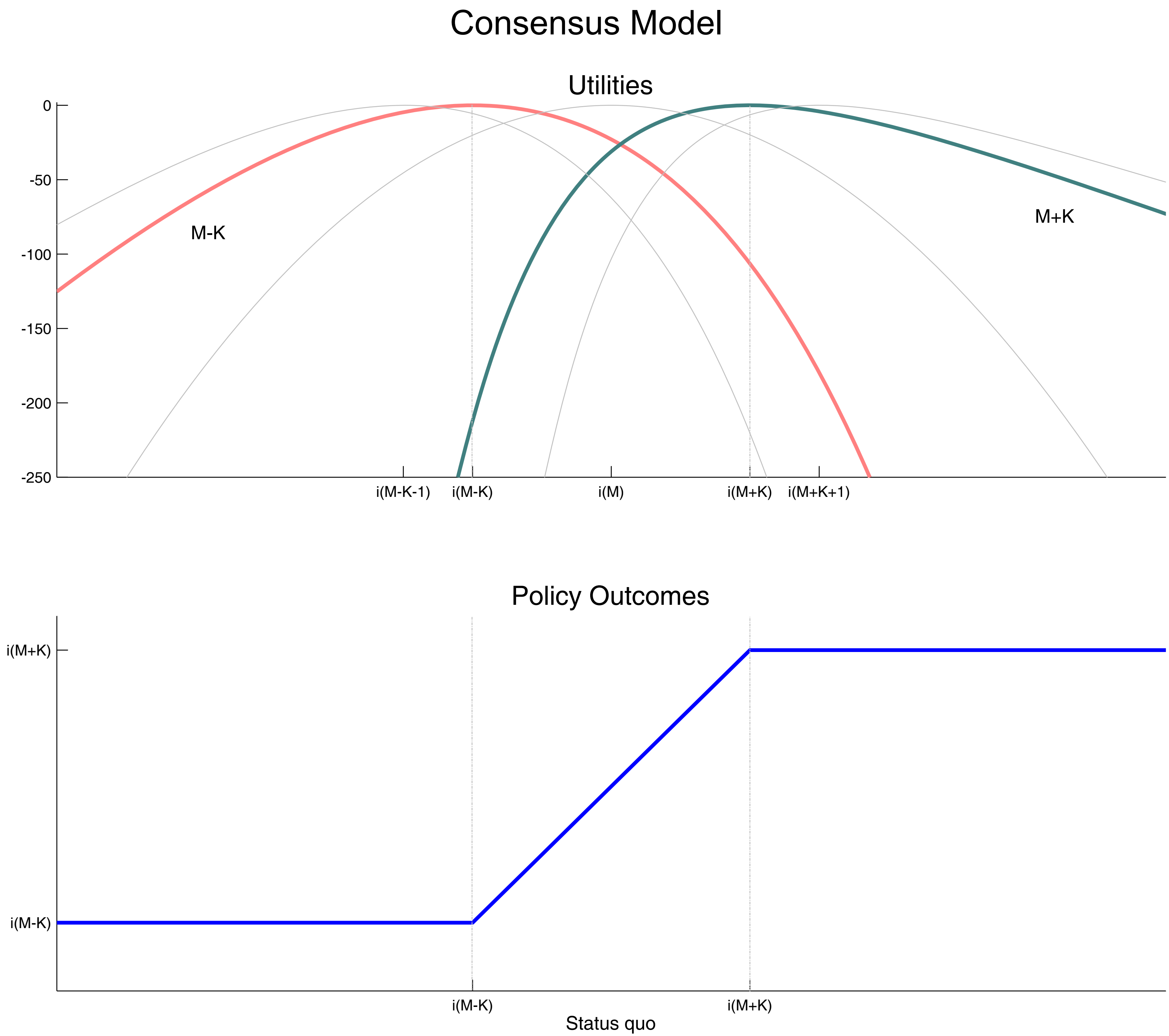
First stage

Members vote by simple majority rule whether to increase or a decrease the interest rate with respect to the status quo

Second stage

Members vote by super majority rule on successive ϵ increases (or decreases) until a proposal is defeated and the interest rate in the latest proposal is adopted

- See Figure 2


Consensus Model
Utilities
0
-50
-100
-150
-200
-250
M-K
M+K
i(M-K-1)
i(M-K)
i(M)
i(M+K)
i(M+K+1)
Policy Outcomes
i(M+K)
i(M-K)
i(M-K)
i(M+K)
Status quo

Policy Outcome

The policy outcome is

$$i_t = \begin{cases} i^*_{M+K,t}, & \text{if} \quad i_{t-1} > i^*_{M+K,t}, \\ i_{t-1}, & \text{if} \quad i^*_{M-K,t} \leqslant i_{t-1} \leqslant i^*_{M+K,t}, \\ i^*_{M-K,t}, & \text{if} \quad i_{t-1} < i^*_{M-K,t}. \end{cases}$$

where

$$i^*_{M+K,t} = a_{M+K} + b\pi_t + cy_t + \zeta_t$$

and

$$i^*_{M-K,t} = a_{M-K} + b\pi_t + cy_t + \zeta_t$$

are the preferred policies of members $M + K$ and $M - K$

Implications

- Nonlinear relation between interest rates and fundamentals

- Endogenous inaction region

- Endogenous autocorrelation of the nominal interest rate

- Source: Friction in decision making process

Estimation

- Three regimes (cuts, no changes and increases)

- Perfect sample separation

- Then, the log likelihood function is

$$L(\boldsymbol{\theta}) = -(T_1 + T_3)\sigma + \sum_{i_t \in \Xi_1} \log \phi\left(\frac{i_t - a_{M+K} - b\pi_t - cy_t}{\sigma}\right)$$

$$+ \sum_{i_t \in \Xi_2} \log(\Phi(z^*_{M-K,t}) - \Phi(z^*_{M+K,t})) + \sum_{i_t \in \Xi 3} \log \phi\left(\frac{i_t - a_{M-K} - b\pi_t - cy_t}{\sigma}\right)$$

where $\boldsymbol{\theta} = \{a_{M+K},\ a_{M-K},\ b,\ c,\ \sigma\}$

Table 1. Bank of Canada

	Monetary Committee	Single Banker	Data
	A. Model Selection Criteria		
AIC	127.53	133.64	
RMSE	0.506	0.850	
MAE	0.388	0.715	
	B. Quantitative Predictions		
Autocorrelation	0.546	0.014	0.873
Proportion of			
Cuts	0.204	0.486	0.280
Increases	0.253	0.513	0.300
No changes	0.544	0	0.420

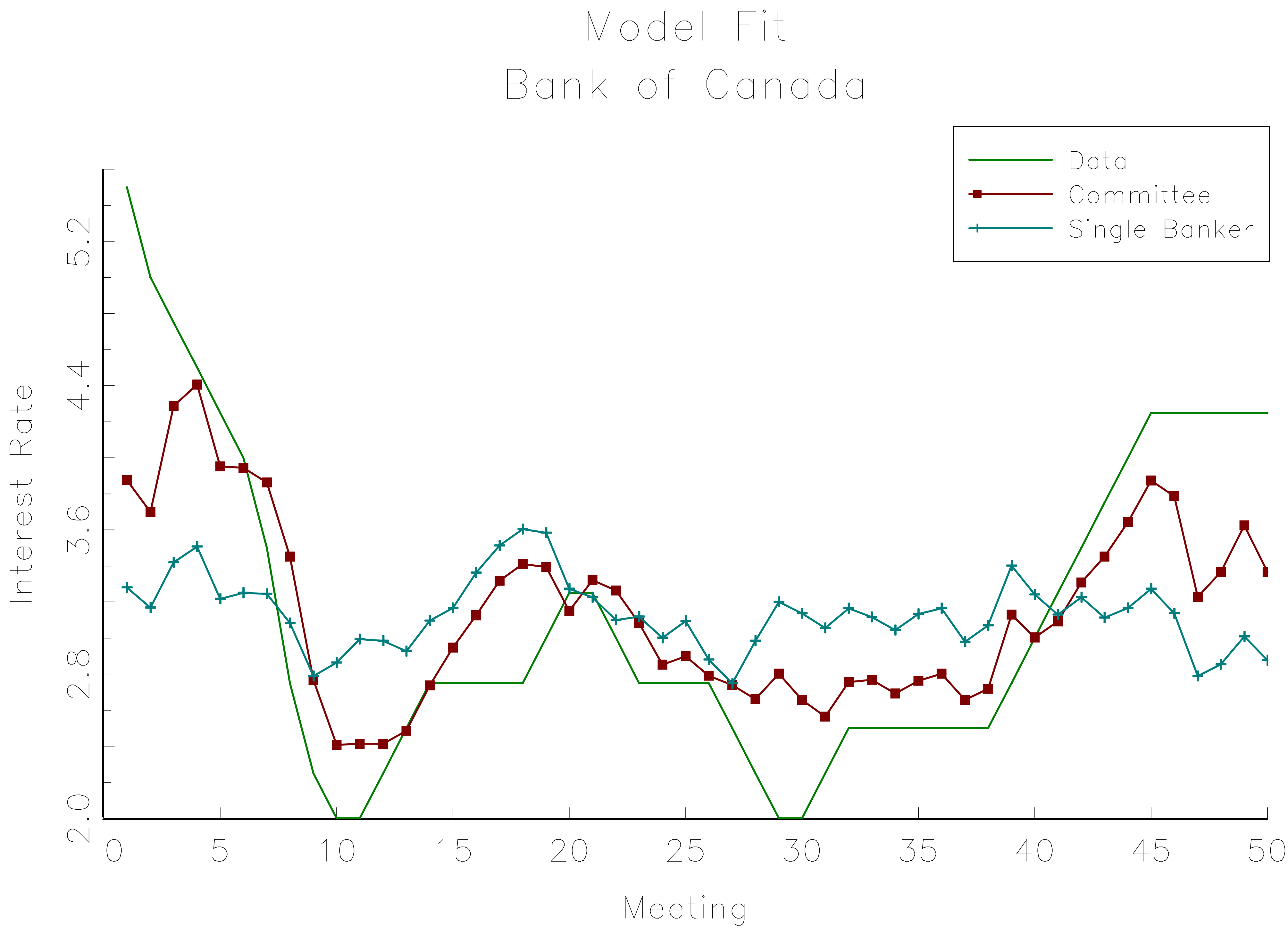

Model Fit
Bank of Canada
Data
Committee
Single Banker
Interest Rate
2.0
2.8
3.6
4.4
5.2
0
5
10
15
20
25
30
35
40
45
50
Meeting

Table 2. Bank of England

	Monetary Committee	Single Banker	Data
	A. Model Selection Criteria		
AIC	206.40	317.33	
RMSE	0.329	1.013	
MAE	0.251	0.885	
	B. Quantitative Predictions		
Autocorrelation	0.766	0.179	0.977
Proportion of			
Cuts	0.113	0.492	0.111
Increases	0.135	0.508	0.157
No changes	0.752	0	0.731

Table 3. European Central Bank

	Monetary Committee	Single Banker	Data
	A. Model Selection Criteria		
AIC	160.73	326.75	
RMSE	0.225	0.809	
MAE	0.138	0.678	
	B. Quantitative Predictions		
Autocorrelation	0.865	0.248	0.988
Proportion of			
Cuts	0.076	0.504	0.106
Increases	0.056	0.496	0.061
No changes	0.867	0	0.833

Table 4. Swedish Riksbank

	Monetary Committee	Single Banker	Data
	A. Model Selection Criteria		
AIC	136.48	149.60	
RMSE	0.255	0.593	
MAE	0.180	0.457	
	B. Quantitative Predictions		
Autocorrelation	0.821	0.369	0.972
Proportion of			
Cuts	0.155	0.502	0.177
Increases	0.148	0.498	0.139
No changes	0.697	0	0.684

Table 5. U.S. Federal Reserve

	Monetary Committee	Single Banker	Data
	A. Model Selection Criteria		
AIC	447.30	592.35	
RMSE	0.745	1.538	
MAE	0.547	1.291	
	B. Quantitative Predictions		
Autocorrelation	0.840	0.442	0.989
Proportion of			
Cuts	0.193	0.496	0.234
Increases	0.202	0.504	0.259
No changes	0.605	0	0.506

Model Fit

Bank of England
ECB
Riksbank
U.S. Fed
Data
Committee
Single Banker
Interest Rate
Meeting
3.0
4.0
5.0
6.0
7.0
1.8
2.2
2.6
3.0
3.4
3.8
4.2
4.6
5.0
1.4
0
1
2
3
4
5
6
7
8
9
10
20
40
60
80
100
120
140
160