

# Corruption, central bank (in)dependence and optimal monetary policy in a simple model

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## Abstract

Using a simple macroeconomic model, this paper examines the interaction between corruption and central bank independence in the construction of an optimal monetary policy rule where the instrument of policy is the real interest rate. As such, we are especially interested in how the policy instrument reacts to key macroeconomic variables in the face of possible corruption (modelled here as tax leakage) and possible dependence by the central bank on the fiscal policy process. We analyse this issue by deriving optimal rules for a strict inflation targeting and a real exchange rate target regime. We find that, firstly, the existence of corruption imposes an inflationary bias on the optimal rule – even when the central bank is independent. We find, furthermore, that a central bank that exhibits some dependence exacerbates this effect.

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## 1. Introduction

This paper examines the issue of central bank independence (CBI) and corruption (modelled here as a tax leakage) in explaining how each may shape the implementation of optimal monetary policy. This is not without precedent – there has been some empirical work on this relationship – particularly in assessing the determinants of CBI (see [D'Amato, Pistoreshi, & Salsano,](#)

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2007; Favaquae, 2002 and references cited within) and on the relationship between different manifestations of CBI (see Ahsan, Skully, & Wickramanayake, 2006; Crowe & Meade, 2008).

Using this empirical work as motivation, we present some simple analytics using a small open economy macroeconomic model. We extend the work by Huang and Wei (2006) and Wu (2008)<sup>1</sup> on the effect of corruption on monetary policy choice combining with the framework of Ismihan and Ozkan (2004), Eijffinger and Hoerberichts (2008) and Krause and Méndez (2008) on the effect of CBI on monetary policy choice. A loss of central bank independence, defined here as a full or partial inability to manipulate its chosen policy instrument, can be viewed in many respects as an institutional weakness. As such, an objective of this paper is to assess whether such weaknesses have the effect of actually magnifying the extent to which the central bank's policy activities are compromised.

In contrast to the analytical work to date on these issues, we present monetary policies in the form of an optimal monetary policy rule (MPR) where the instrument of policy is the real interest rate (see Ball, 1999; Cavoli, 2008, 2009). This allows us to examine how the policy instrument reacts to key economic information – including the extent of CBI and the existence of corruption. As with other contributions to this literature, the particular monetary policy regime will be determined by a central bank loss function. We focus our attention on a strict inflation targeting regime and a (real) exchange rate targeting regime. Rather than focusing on the outcomes of monetary policy (particularly inflation) as is the case with many papers in this literature (see, for instance Hefekar, 2010), we will focus on how the central bank's instrument of policy moves in reaction to the key variables relating to CBI and corruption. This offers us a more direct view of the monetary policy stance taken by authorities under conditions of central bank dependence and possible corruption.

The paper is structured as follows: Section 2 presents the model and the optimisation method adopted to derive the optimal MPR. There is also some discussion around the measurement of CBI and corruption within it. Section 3 presents the optimal MPRs for strict inflation targeting and an exchange rate target and Section 4 discusses how CBI and corruption influence the MPRs for each policy type. Section 5 presents some concluding remarks and policy implications.

## 2. Model and the optimal rule

The model is a simple, static AD/AS model of a small, open economy and is presented as follows<sup>2</sup>:

$$\pi = \alpha y + \eta \quad (1)$$

$$y = -\beta e + \psi g + \omega \phi \tau + \varepsilon \quad (2)$$

$$e = \theta r + v \quad (3)$$

$$g = (1 - \phi)\tau - e \quad (4)$$

where  $\pi$  is the rate of inflation,  $y$  is the output,  $e$  is the real exchange rate (increase = appreciation of domestic currency),  $g$  represents government expenditure,  $r$  is the real interest rate,  $\tau$  is tax

<sup>1</sup> See also Bohn (2013) for a very good recent contribution.

<sup>2</sup> It is commonplace in this literature to employ dynamic, forward looking macroeconomic models with representative consumers, firms, governments and central banks. In modelling and analysing the mechanics of optimal MPRs with one agent – the central bank – we believe our model is quite sufficient in providing rich results and policy implications.

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