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Money Field Exam, Part 1, 2016

1. (channels of monetary transmission). Consider the following general structural representation of an economy (30 points)

(1) \( X_t = B_0X_t + B_tX_{t-1} + C_0P_t + C_tP_{t-1} + u_t \)
(2) \( P_t = D_0X_t + D_tX_{t-1} + G_tP_{t-1} + v_t \)

where \( X \) is a vector of nonpolicy variables, \( P \) is a vector of policy variables, and \( u \) and \( v \) are orthogonal disturbances.

a) List and discuss the advantages of at least two candidate variables for both the \( X \) and \( P \) vectors that might be useful in examining the credit channel of monetary transmission.

b) Describe two alternate identifying assumptions which might isolate the credit channel. Starting with 1-2 above, derive the reduced form for actual estimation under each assumption.

c) Suggest and justify on theoretical grounds an appropriate placement for elements of \( P \) under each identification scheme, and describe a method for determining the magnitude of the policy variable effects on the non-policy variables.

d) Discuss in some detail evidence from research over the past decade that suggests that the credit channel is overstressed.

2. (central bank independence). The importance of an independent central bank in forming and exercising consistent monetary policy has often been cited by policy makers as a necessary condition for economic recovery in countries that have experienced hyperinflations and other losses of monetary control. Despite this widely-held view, evidence on the role of central bank independence on macroeconomic outcomes is mixed. (20 points)

a) Summarize the current evidence regarding the role of central bank independence on both inflation and output growth using three literature references. Describe at least two of the methodologies for examining these relationships in some detail.

b) Discuss the simultaneity problems associated with recent cross-sectional studies and offer at least two possible solutions.

c) Discuss the key elements that a theoretical model of central bank independence should contain.
Money and Finance Field Exam

Part II
Problem 1. (30 points in total) Consider the financial accelerator model of Bernanke, Gerlter and Gilchrist (1999). Optimal contract can be described by the state-contingent cutoff value of idiosyncratic shock $\tilde{\omega}^j$ and loan rate $Z_{t+1}^j$ such that:

$$\tilde{\omega}^j R^k_{t+1} Q_t K^j_{t+1} = Z_{t+1}^j B_{t+1}^j$$

for each realization of $R^k_{t+1}$.

1.1. (10 points) How many equilibria are there in this model?

1.2. (10 points) Show that in the equilibrium discussed in class entrepreneurs’ aggregate demand for capital is a linear function of their aggregate net-worth.

1.3. (10 points) Express the external finance premium as a function of the leverage ratio.

Problem 2. (20 points in total) Consider the financial friction and financial shock model of Jermann and Quardini (2012). Now modify this set-up to treat working capital loan in a somewhat more conventional way in that wage bills and purchases of investment goods must be paid at the beginning of each period, before production takes place and revenues are realized, whereas dividend and bond payments can be settled at the end of the period, after the realization of revenues.

2.1. (10 points) Derive the loosest form of enforcement constraint under which no-default arises as an equilibrium outcome.

2.2. (10 points) Explain how the tightness of this enforcement constraint is affected by the capital stock and the general financial market conditions.