Financial crises and exchange rate policy

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Paper Summary

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Abstract

This paper studies exchange rate policy in a small open economy model featuring an occasionally binding collateral constraint and Fisherian deflation. The goal is to evaluate the performance of alternative exchange rate policies in sudden stop-prone economies. The key element of the analysis is a pecuniary externality arising from frictions in the international credit markets, which creates a trade-off between price and financial stability. The main result is that depreciating the exchange rate during a financial crisis has a positive impact on welfare, because the stimulus provided by a depreciation sustains asset prices, value of collateral, and access to the international credit markets.

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1 Introduction

Financials crises are characterized by sudden arrest of international capital inflows and sharp drops in output, consumption and asset prices. These are known as sudden stop.

Luca Fornaro ask himself if countries should let their exchange rate float or anchor it to a foreign currency, and what is the role of monetary policy, grant price stability or financial stability?
To answer these questions, he focus on a pecuniary externailty originating from frictions on the international credit markets. There is a trade-off between price and financial stability that rise from financial and nominal rigidities.

1.1 Objective

Compare the performance of three alternative monetary rules: A Fixed Exchange Rate, a Strict Wage Inflation Targeting and a Financial Stability Regime.

1.2 Main Results

A narrow focus on offsetting nominal rigidities can lead to a sub-optimal monetary policy in economies that have repetitive sudden stops.

It is optimal to devalue the exchange rate during financial crises to sustain the value of collateral (in this model is land K) and access to international credit markets.

If collateral constraint is replaced by a fixed borrowing limit, so Fisher's debt deflation channel is not preset, wage inflation targeting gives the higher welfare. On the other hand, if Fisherian deflation mechanism is present and collateral exists, the financial stability regime welfare dominates the wage inflation targeting welfare. This is because under financial stability, the exchange rate policy reduce the fall in the price of land (collateral) and in capital inflows during crises.

Finally, peg is always welfare is always dominated by the other two rules. This occurs because during peaceful times the peg does not remove the distortions due to wage stickiness, while during crises, fixing the exchange rate amplifies the fall in the price of collateral and in capital inflows compare to the other regimes. It stimulate precautionary savings to hedge against the probability of that collateral constraint binds. Moreover, peg is the regime with the strongest impact during crises.

2 Model

- Small Open Economy.
- Infinite-horizon. Time is discrete and indexed by t
- Households consume a single tradable good, engage in financial transactions with foreign investors and provide labor.
- Competitive firms produce the consumption good using labor and land.
- Central bank sets the nominal exchange rate as its policy instrument

2.1 Firms and Production

2.1.1 Production Function

Firms are competitive, therefore take prices as given, produce the consumption good and are owned by households. The production function is:

$$Y_t = z_t F(L_t, K_t) \tag{1}$$

where Y_t is output, z_t is a total factor productivity (TFP) shock and $F(.)$ is a decreasing returns-to-scale production function:

$$F(L_t, K_t) = L_t^{\alpha_L} K_t^{\alpha_K}$$

where $\alpha_L \geq 0$, $\alpha_K \geq 0$ and $\alpha_L + \alpha_K < 1$, L_t is labor, K_t is land and both are purchased or rented from domestic households.

L_t is a CES aggregate of the differentiated labor services:

$$L_t = \left[\int_0^1 L_t^{i\frac{\sigma-1}{\sigma}} di \right]^{\frac{\sigma}{\sigma-1}}$$

where L_t^i denotes the labor input purchased from household i and $\sigma > 1$.

The purchasing power parity holds so

$$P_t = S_t P_t^*$$

where P_t is the domestic prices, P_t^* are the foreign prices and S_t is the nominal exchange rate. We assume P_t^* is constant and normalize it to 1, so the domestic currency price of the consumption good is equal to the nominal exchange rate $P_t = S_t$.

2.1.2 Firms Profit Maximization

Firms maximizes profits in every period:

$$\Pi_t = S_t Y_t - \int_0^1 W_t^i L_t^i di - R_t^K K_t \tag{2}$$

where W_t^i is the wage for household i.

The minimum cost of a unit of aggregate labor L_t (which can be taken as the aggregate wage) is given by:

$$W_t = \left[\int_0^1 W_t^{i1-\sigma} di \right]$$

Therefore, from first order conditions we get:

$$W_t = S_t z_t F_L(L_t, K_t) \tag{3}$$

$$R_t^K = S_t z_t F_K(L_t, K_t) \tag{4}$$

And the cost minimization gives the demand for household's i labor:

$$L_t^i = \left(\frac{W_t}{W_t^i} \right)^{\sigma} L_t \tag{5}$$

2.2 Households

2.2.1 Utility Function

Derives utility from C_t^i, however, to be able to consume, they give labor effort L_t^i that lower the utility. The lifetime generic utility function of a household i is:

$$E_0 \left[\sum_{t=0}^{\infty} \beta^t U(C_t^i, L_t^i) \right] \tag{6}$$

where β is the subjective discount factor.

For this research, the author assumed GHH (Greenwood–Hercowitz–Huffman) preferences because this eliminate the wealth effect on labor supply. Therefore, the period utility function is given by:

$$U(C_t, L_t) = \frac{(C_t - \frac{L_t^{\omega}}{\omega})^{1-\gamma} - 1}{1-\gamma}$$

with $\omega \geq 1$ and $\gamma \geq 1$.

Households can trade domestic and foreign bonds, denominated in foreign currency, in one period. Foreign bonds are traded with foreign investors and pays an exogenous interest rate R^*.

2.2.2 Budget Constraint

Therefore, the budget constraint of household i in terms of domestic currency is:

$$\underbrace{S_t(C_t^i + B_{t+1}^{*^i} + B_{t+1}^i) + Q_t(K_{t+1}^i - K_t^i)}_{\text{Household's Expenditure}} = \underbrace{W_t^i L_t^i + R_t^K K_t^i + S_t(R^* B_t^{*^i} + R_{t-1} B_t^i) + \Pi_t}_{\text{Household's Income}} \tag{7}$$

where $S_t C_t^i$ is the sum of consumption expenditure, $S_t B_{t+1}^{*^i}$ is the investment in foreign bonds, $S_t B_{t+1}^i$ is the investment in domestic bonds, Q_t is the price of the land, K_t^i is the holding of land and $Q_t(K_{t+1}^i - K_t^i)$ is the net purchase of land. $W_t^i L_t^i$ is the labor income, $R_t^K K_t^i$ is the income from renting land to firms, $S_t R^* B_t^{*^i}$ and $S_t R_{t-1} B_t^i$ are the gross return on investment in foreign and domestic bonds. Π_t are profits received from firms.

2.2.3 Collateral Constraint

Foreign debt taken at t can not exceed a fraction κ of the household's land holding in foreign currency.

$$-B_{t+1}^{*^i} \leq \kappa \frac{Q_t}{S_t} K_{t+1}^i \tag{8}$$

This constraint captures the frictions between domestic and foreign agents. Domestic bonds are not subject to this constraint.

2.2.4 Nominal Rigidities

Each household set its nominal wage W_t^i at the start of the period. The optimal wage satisfies:

$$\underbrace{-E_{t-1}\left[U_L(C_t^i, L_t^i) L_t^i\right]}_{\text{Expected disutility from an increase in labor effort}} = \underbrace{\frac{\sigma - 1}{\sigma} W_t^i E_{t-1}\left[\frac{U_C(C_t^i, L_t^i)}{S_t} L_t^i\right]}_{\text{Expected utility from higher revenue}} \tag{9}$$

Households will provide labor as long as the real wage is equal or higher to the marginal rate of substitution between consumption and leisure:

$$\frac{W_t^i}{S_t} \geq -\frac{U_L}{U_C} \tag{10}$$

2.2.5 Optimal Choice

Each period, households choose C_t^i, $B_{t+1}^{*^i}$, B_{t+1}^i and K_{t+1}^i to maximaze (6) subject to (7) and (8).

The optimal condition for B_{t+1}^i is:

$$U_C(C_t^i, L_t^i) = \beta R_t E_t[U_C(C_{t+1}^i, L_{t+1}^i)] \tag{11}$$

The marginal utility from period t consumption is equal to the expected marginal utility from investing one unite of foreign currency in domestic bonds and consuming the return in period $t+1$.

The optimal condition for $B_{t+1}^{*^i}$ is:

$$U_C(C_t^i, L_t^i) = \beta R_t^* E_t[U_C(C_{t+1}^i, L_{t+1}^i)] + \mu_t^i \tag{12}$$

μ_t^i is the Lagrange Multiplier on the collateral constraint, and by the complementary slackness condition:

$$\mu_t^i \left(\kappa \frac{Q_t}{S_t} K_{t+1}^i + B_{t+1}^{*^i}\right) = 0 \tag{13}$$

The left side of (12) is the marginal utility from spending one unit of foreign currency in period t consumption that is equated to the expected utility from investing one unit of foreign currency in foreign bonds and consuming the return in period $t+1$ if μ_t^i (the collateral constraint) does not bind. If $\mu_t^i > 0$, $B_{t+1}^{*^i}$ is determined by the collateral that households can offer.

Combining (11) and (12)

$$R_t = \frac{R^*}{1 - \frac{\mu_t^i}{U_C(C_t^i, L_t^i)}},$$

when $\mu_t^i = 0$, $R_t = R_t^*$. When $\mu_t^i > 0$, $R_t > R_t^*$ and exist a spread because borrowing for domestic market does not requires collateral. The spread can be interpreted as a measure of the cost derived from limited access to international credit markets.

The optimal condition for land K_{t+1}^i is:

$$\frac{Q_t}{S_t} U_C(C_t^i, L_t^i) = \beta E_t \left[U_C(C_{t+1}^i, L_{t+1}^i) \frac{R_{t+1}^K + Q_{t+1}}{S_{t+1}} \right] + \frac{Q_t}{S_t} \kappa \mu_t^i \tag{14}$$

where the left is the marginal cost measured in utility of an extra unit of land investment and the right side is the marginal benefit from increasing the household's land holdings.

2.3 Equilibrium

As domestic bonds are traded domestically, its net supply must equal zero, so $B_t^i = 0$ for every t

$$C_t = \int_0^1 C_t^i di = C_t^i \tag{15}$$

$$B_t^* = B_t^{*^i} \tag{16}$$

$$W_t = W_t^i \tag{17}$$

$$\underbrace{C_t + B_{t+1}^* = Y_t + R^* B_t^*}_{\text{Aggregate Resource Constraint of the Economy}} \tag{18}$$

$$L_t = L_t^i \tag{19}$$

$$K_t = K_t^i = K \tag{20}$$

We can define a rational expectations equilibrium as a set of stochastic processes $\{C_t^i, C_t, B_{t+1}^i, B_{t+1}^{*^i}, L_t^i, K_{t+1}^i, K_{t+1}, Y_t, W_t^i, W_t, R_t^K, Q_t, \mu_t^i, S_t\}_{t=0}^{\infty}$ satisfying (1), (3)-(4), (9)-(20), given an exogenous process $\{z_t\}_{t=0}^{\infty}$, the central bank's policy $\{S_t\}_{t=0}^{\infty}$ and initial conditions B_0^* and z_{-1}.

2.4 Central Bank and Exchange Rate Policy

Uses the nominal exchange rate as monetary policy instrument. Three policy rules: Flexible Wage Equilibrium, Financial Stability Regime and Perfectly Credible Currency Peg.

2.4.1 Flexible Wage Equilibrium

Offsets all distortions from nominal rigidities and captures the price stability objective of Central Bank. Could be implementing setting the exchange rate as:

$$S_t = \overline{S} z_t^{\xi_z}, \qquad \text{with} \quad \xi_z = \frac{1-\omega}{\omega - \alpha_L}$$

Therefore, the exchange rate depreciate responding to a low realization of the TFP shock. This implies zero nominal wage inflation, so $W_t = W_{t+1}$. This will called *Strict Wage Inflation*

2.4.2 Financial Stability Regime

Central Bank is allowed to respond to developments on the financial markets. The exchange rate responds to TFP shocks and to the spread between domestic and foreign bonds.

$$S_t = \overline{S} z_t^{\xi_z} \left(\frac{R_t}{R^*} \right)^{\xi_R}$$

Hence there is flexible wage allocation when the collateral constraint does not bind for any realization of the TFP shock, and during periods in which the collateral constraint might bind, the central bank can deviate from flexible wage allocation.

2.4.3 Perfectly Credible Currency Peg

It corresponds to the case of dollarized countries or of countries belonging to a monetary union.

$$S_t = \overline{S}$$

2.5 Exchange Rate Policy and Fisherian Deflation

This section is a partial equilibrium analysis to get insights of how central bank can affect the value of collateral and the access to international credit markets.

2.5.1 Impact of an Exchange Rate Depreciation (i.e. a rise in S)

Wages are set, and equilibrium labor is determined by firms' labor demand (3):

$$L_t = (\alpha_L K^{\alpha_K} z_t \frac{S_t}{W_t})^{\frac{1}{1-\alpha_K}}$$

a depreciation has positive impact on employment and output, it decreases the cost of labor, so firms increase employment and hence, production.

Impact on the value of land and on the collateral. We combine (14) and (12) and we obtain the real price of land equilibrium:

$$\frac{Q_t}{S_t} = \frac{\beta E_t \left[U_C(C_{t+1}, L_{t+1}) \frac{R^K_{t+1} + Q_{t+1}}{S_{t+1}} \right]}{(1-\kappa) U_C(C_t, L_t) + \kappa \beta R^*_t E_t [U_C(C_{t+1}, L_{t+1})]} \tag{21}$$

There is a positive relationship between the real price of land and current consumption, this is due to households want to smooth consumption, so the rate at which future returns from land holdings are discounted is decreasing in current consumption. Combining (18) and (8) we see another positive relationship between consumption and land price

$$C_t = z_t F(L_t, K - t) + R^* B_t + \kappa \frac{Q_t}{S_t} K \tag{22}$$

The intuition is that an increase in the price of land means an increase in the value of collateral, so the collateral constrain is relaxed and can borrow more from international markets to finance current consumption

(21) and (22) forms the Fisherian Deflation Mechanism. If the collateral constraint binds, households discount at a high rate future returns from land, depressing land price and the value of collateral, creating a vicious cycle. Because of this amplification mechanism, the economy falls into a crisis when collateral constraint binds.

A depreciation could counteract the Fisherian Deflation. When the collateral constraint binds, the increase in output generated by depreciation leads to a rise in consumption, this induces households to reduce the discount rate of future returns from land, driving up the land price. Hence, when the collateral constraint binds, a depreciation not only increases employment and production, but also sustains land price and the value of collateral.

3 Parameterization and Results

3.1 Parameterization

Table 1
Parameters.

	Value	Source/target
Risk aversion	$\gamma = 2$	Standard value
Frisch elasticity of labor supply	$1/(\omega - 1) = 1$	Kimball and Shapiro (2008)
World interest rate	$R^* = 1.028$	Standard value
Discount factor	$\beta = 0.96$	Standard value
Labor share in output	$\alpha_L = 0.64$	Labor share in GDP = 64%
Land share in output	$\alpha_K = 0.05$	Bianchi and Mendoza (2010)
Elasticity of demand for labor	$\sigma = 3$	Smets and Wouters (2003)
Stock of land	$K = 1$	Normalization
TFP process	$\sigma_z = 0.0173, \rho = 0.87$	Std. dev. and autoc. of GDP
Credit coefficient	$\kappa = 0.36$	Frequency of crises = 5.5%
Exchange rate target	$\bar{S} = 1$	Normalization
Exchange rate response to spread	$\xi_R = 0.2$	Max. welfare

3.2 Policy Functions

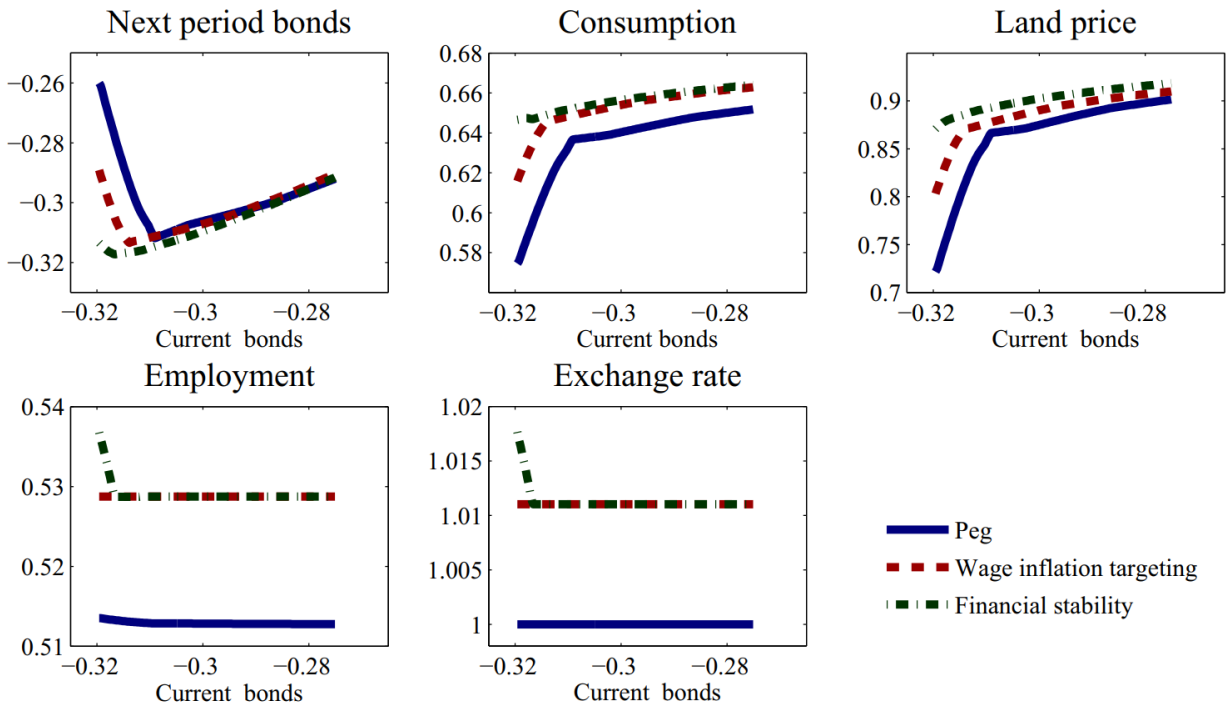

Figure 1: Policy functions

Due to the Fisherian Deflation Mechanism, the policy function for next period foreign bonds are V-shaped.

Among the three regimes, the financial stability is the one under which high levels of external debt can be supported without large drops in consumption and land price. This is because under this regime, the

central bank depreciate the exchange rate when the collateral constraint binds, which sustains employment, consumption and land price.

3.3 Crisis Event Analysis

The author wants explore how the exchange rate regime affects the behavior of the economy during crises. Initially the economy is on a steady state, the collateral constraint is not binding, the spread between bonds is zero and the net foreign assets re constant. In t, economy suffers a negative TFP shock.

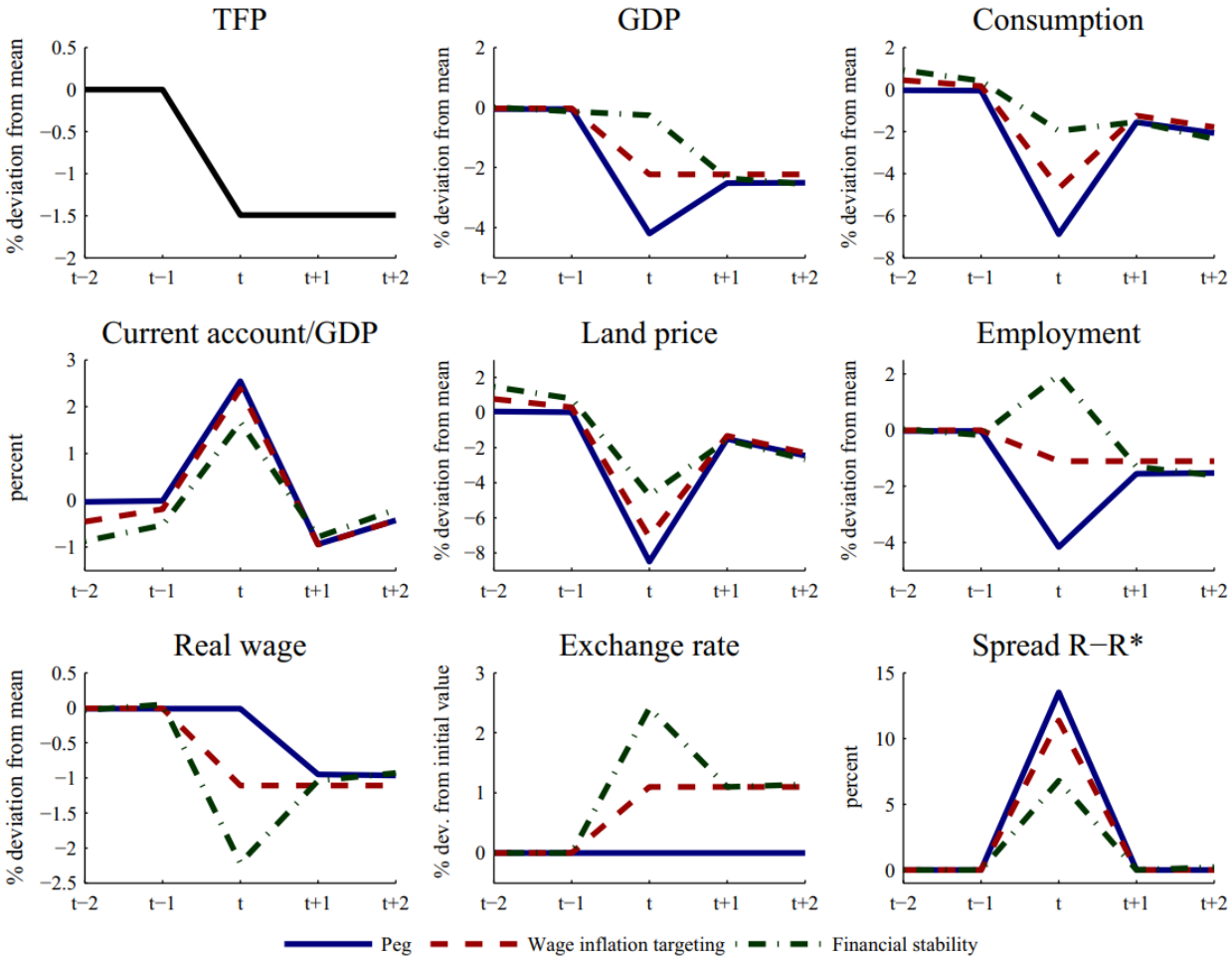

Figure 2: Crisis event analysis

Under currency peg the collateral constraint becomes binding, as signaled by the rise in the spread, and the economy enters a crisis. GDP drops because of two effects, first the negative TFP shock that brings a fall in output, and the second effect is the combination of nominal wage rigidities and fixed exchange rate that prevents real wages of adjusting downward, so the labor becomes more expensive and it falls. Consumption decreases more than the GDP because the binding collateral constraint forces households to reduce their debt. Finally, the Fisherian Deflation Mechanism generates a fall in the value of lands. After a period, output and consumption recovers (below trend level) because the TFP is persistent and households change their expectations about future labor demand, second, as there is a decrease in foreign debt, it relaxes the collateral constraint, so it stop binding.

Under strict wage inflation targeting, central bank let exchange rate to depreciate. The results are similar to currency peg but smaller and less volatile. This policy let real wage to adjust quickly, so the cost of labor

is reduced and firms increased the demand for it. There is a rise in employment and hence production. This allow households to consume more, and this increment sustain the demand for land and its price and relaxes the collateral constraint; the depreciation interacts with the financial amplification mechanism and produces a virtuous cycle of increases in consumption, land price and capital flows.

Under financial stability regime, the exchange rate depreciates more than under strict wage inflation targeting because of the endogenous response of the exchange rate to the rise of the spread. Therefore, the fall in the cost of labor is so large that employment rises above trend during the crisis, and the output barely falls. This regimes exhibits the smallest drops in consumption and land price, and bench better than the other two regimes when stabilizing consumption and the price of land during sudden stops is the objective.

3.4 Debt Accumulation, Leverage and Crisis Probability

There is a low level of foreign debt under the currency peg regime, this is because a higher level of foreign debt increases the chances of a negative shocks that makes the collateral constraint bind, and because this sudden stops are stronger under this regime, households wants to reduce the risk of entering a crisis. The economy with the financial stability rule, has the higher foreign debt. So it also has the higher leverage ratio defined as the foreign debt-to-land value ratio.

Another point to take into account is that the exchange rate regime influences the debt decision, and through this decision, the probability that the economy enters a crisis is impacted. The financial stability regime has the highest crisis probability compared to the other two regimes, being the currency peg the lowest one.

3.5 Long run moments

Table 3
Long run moments.

	Standard deviation			Correlation with GDP			Autocorrelation		
	WIT	FS	PEG	WIT	FS	PEG	WIT	FS	PEG
GDP	2.43	2.29	3.11	1.00	1.00	1.00	0.87	0.87	0.65
Consumption	2.86	2.34	3.54	0.91	0.93	0.94	0.58	0.83	0.48
Trade balance/GDP	0.95	0.65	0.96	−0.13	0.14	−0.19	−0.19	−0.25	−0.20
Employment	1.22	1.49	2.51	1.00	0.78	0.95	0.87	0.36	0.34
Leverage	2.27	1.56	3.09	−0.41	−0.54	−0.70	0.37	0.47	0.46
Land price	4.01	3.36	4.28	0.86	0.79	0.89	0.49	0.65	0.48
Exchange rate	1.22	1.54	0.00	−1.00	−0.78	–	0.87	0.67	–

Note: WIT stands for the economy with strict wage inflation targeting, FS stands for the financial stability regime and PEG stands for the currency peg. Autocorrelation refers to the first-order autocorrelation. Leverage is defined as $-S_t B^*_{t+1}/Q_t K$.

The economy with the currency peg has the highest business cycle variability in GDP, labor and consumption. This exhibit the role of the flexible exchange rate as shock absorber.

The financial stability regimes shows a lower volatility in GDP and consumption compared with the other two rules, but has a high employment volatility, pointing out the existence of a trade off between employment and consumption smoothing. This means, financial stability regime stabilizes consumption during financial crisis by stimulating employment. This rule has the highest exchange rate volatility.

3.6 Welfare

The author compare the welfare gains of moving from the policy regime r to regimes s. The welfare gain η at state $\{B_0, z_{-1}, z_0\}$ is defined as:

$$E_0\left[\sum_{t=0}^{\infty}\beta^t U(C_t^r(1+\eta(B_0,z_{-1},z_0)),L_t^r)\right] = E_0\left[\sum_{t=0}^{\infty}\beta^t U(C_t^s,L_t^s)\right]$$

this welfare measure takes into account the impact on welfare of the transition to the steady state implied by the new policy.

If there is not Fisherian deflation mechanism, wage inflation targeting delivers higher welfare compared to the financial stability regime. If the Fisherian deflation is present, then financial stability regimes welfare-dominates wage inflation targeting. Under financial stability, central bank depreciates the exchange rate in states in which the collateral constraint binds, sustaining the value of land and partly correcting for the pecuniary externality, that is why this regime delivers more welfare.

On the other hand, currency peg is welfare dominated by the other two regimes, and in two cases (with or without Fisherian deflation). It does a poor job durin normal business cycle fluctuations and crisis events. This regime amplifies the fall in the price of land and worsens household's access to international credit during crisis.

4 Sensitivity Analysis and Extenions

Table 5
Sensitivity analysis.

	Welfare gains to FS from		Crisis probability			Mean impact effect of financial crises								
						GDP			Consumption			Land price		
	WIT	PEG	WIT	FS	PEG	WIT	FS	PEG	WIT	FS	PEG	WIT	FS	PEG
Benchmark	0.016	0.037	5.9	10.6	5.5	−2.8	0.2	−5.0	−6.9	−1.9	−9.2	−9.1	−4.4	−10.3
$\gamma = 1.9$	0.012	0.024	7.3	11.1	5.7	−2.3	0.1	−5.0	−5.8	−2.0	−9.3	−7.3	−4.1	−9.3
$\gamma = 2.1$	0.019	0.036	5.6	10.0	5.4	−2.8	0.4	−5.0	−7.2	−1.9	−9.2	−10.0	−4.8	−10.7
$1/(\omega - 1) = 0.9$	0.015	0.040	6.2	10.1	5.4	−2.6	0.3	−5.0	−6.6	−1.9	−9.4	−8.9	−4.8	−10.7
$1/(\omega - 1) = 1.1$	0.015	0.032	5.9	10.3	5.7	−2.8	0.3	−4.9	−7.0	−1.9	−9.0	−9.1	−4.3	−9.8
$\sigma_z = 0.015$	0.016	0.034	7.1	10.7	5.6	−2.0	0.5	−4.3	−5.4	−1.5	−8.4	−7.4	−3.9	−9.6
$\sigma_z = 0.02$	0.014	0.037	5.9	9.1	5.6	−3.3	0.0	−5.8	−7.6	−2.5	−9.8	−9.9	−5.4	−10.7
$\kappa = 0.34$	0.008	0.028	7.1	11.2	6.5	−2.4	0.1	−5.0	−5.7	−1.9	−8.4	−7.7	−4.3	−9.4
$\kappa = 0.38$	0.020	0.041	5.6	10.3	5.3	−2.8	0.4	−5.0	−7.3	−1.9	−9.5	−9.5	−4.4	−10.4
Financial shocks	0.004	0.015	5.4	6.3	5.4	−1.4	0.0	−2.0	−6.9	−5.0	−7.7	−9.5	−4.4	−10.0
Non-traded sector	1.6×10^{-4}	0.022	13.1	13.7	10.4	−1.7	−1.4	−4.5	−1.0	−0.6	−4.4	−0.9	−0.8	−1.9

Note: WIT stands for the economy with strict wage inflation targeting, FS stands for the financial stability regime and PEG stands for the currency peg. The other parameters are kept as in the benchmark, except for the model with financial shocks, under which $\xi_R = 0.03$, and for the model with non-traded sector, in which $\alpha_T = 0.5$, $\alpha_N = 0.75$, $\psi = 0.26$, $\xi = 0.44$ and $\xi_R = 0.1$. In the model with non-traded sector GDP refers to the foreign currency value of production.

Figure 3: Policy functions

4.1 Changes in the Exchange Rate Response to Spread

Investigate if the welfare domination of financial stability regime is robust to changes in ξ_R.

Results shows financial stability welfare keeps dominating over a whole range of values for ξ_R

4.2 Changes in Structural Parameters

The qualitative results are not affected by changes in the key parameters. Moreover, if the coefficient of relative risk aversion rises or if the fraction of land holdings increases, the gap between financial stability and wage inflation target welfare is incremented.

4.3 Financial Shocks (shocks to κ)

This generates volatility in the country's access to international financial markets.

Qualitatively, the results are not affected by the introduction of this financial shocks on κ. It seems to weaken the inefficiency due to the pecuniary externality.

4.4 Non-traded Sector

Version of the model in which part of the production has to be consumed domestically.

The nominal depreciation produces a rise in the ratio of consumption of non-trade-to-trade goods, which generates a real exchange rate depreciation. In spite of this, the price of land rises because of the positive

impact on consumption of the nominal exchange rate depreciation. Hence, financial stability behaves in the same way as before. We can conclude that the good crisis management proporties of this regimes are preserved in the model with a non-traded sector.

5 Conclusion

The main result is that the existence of pecuniary externailities in the credit markets creates a trade-off between price and financial stability, so central bank has an incentive to deviate from the objective of offsetting nominal rigidities, and to engineer an exchange rate depreciation to sustain the value of collateral and access to credit. This would aloud households to smooth consumption and be more welfare than with other regimes.