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PAPER

BEYOND GOODWIN: FINANCIALIZATION AS A STRUCTURAL CHANGE TO EXPLAIN THE NEW ARGENTINIAN CRISIS

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Chena, P. I., Panigo, D. T., & Zorba, G. (2020). Beyond Goodwin: Financialization as a structural change to explain the new Argentinian crisis. *Cuadernos de Economía, 39*(80), 523-540.

This paper aims to explain the causes of the 2018/2019 Argentinian crisis by means of a growth cycle model a la Goodwin, where the aggregate demand is wage-led, the wage-share is predatory of the external sector, and the financial norm stands as

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an exogenous apex-predator of both real wages and the current account. Its main results allow us to understand the stylized facts of the Argentinian economy: a higher financial norm increases inequality and required current account surpluses, reduces stability, and increases volatility and recessions length.

Keywords: Argentina; crisis; business cycle; balance of payments constraints; financialization.
JEL: C61; E32; E37; F41.

Chena, P. I., Panigo, D. T., & Zorba, G. (2020). Más allá de Goodwin: la financiarización como un cambio estructural para explicar la nueva crisis argentina. *Cuadernos de Economía, 39*(80), 523-540.

Este artículo busca explicar los motivos de la crisis argentina de 2018/2019 mediante un modelo de crecimiento-ciclo a la Goodwin, en donde la demanda agregada es tirada por los salarios, la participación de los trabajadores en el producto es predadora del sector externo y la norma financiera se erige como superpredador exógeno tanto del salario real como de la cuenta corriente. Sus principales resultados nos permiten comprender los hechos estilizados de la economía argentina: una norma financiera más elevada aumenta la desigualdad y el superávit de cuenta corriente, reduce la estabilidad e incrementa la volatilidad y la duración de las recesiones.

Palabras clave: Argentina; crisis; ciclo económico; restricción externa; financierización.
JEL: C61; E32; E37; F41.

Chena, P. I., Panigo, D. T., & Zorba, G. (2020). Além de Goodwin: a financeirização como uma mudança estrutural para explicar a nova crise argentina. *Cuadernos de Economía, 39*(80), 523-540.

Este artigo visa explicar os motivos da crise argentina de 2018/2019 mediante um modelo de crescimento-ciclo à Goodwin, onde a demanda agregada é impulsionada pelos salários, a participação dos trabalhadores no produto é predadora do setor externo e a norma financeira se erige como superpredador exógeno tanto do salário real como da conta corrente. Seus principais resultados nos permitem compreender os fatos estilizados da economia argentina: uma norma financeira mais elevada aumenta a desigualdade e o superávit de conta corrente, reduz a estabilidade e incrementa a volatilidade e a duração das recessões.

Palavras-chave: Argentina; crise; ciclo econômico; restrição externa; financeirização.
JEL: C61; E32; E37; F41.

INTRODUCTION

Several months after taking office, the last neoliberal government of Argentina (2015-2019) proposed the following main economic goals: reducing the inflation rate (supposedly associated with fiscal deficit monetization), addressing foreign-currency shortage (allegedly attributed to reversing the problem of international competitiveness caused by a workers' excessive negotiating power, which determines a secular real exchange rate appreciation), and resolving private investment stagnation (purportedly linked to a low and decreasing rate of return of capital).

To address these macroeconomic problems, we chose a compulsory financialization strategy (Chena & Biscay, 2019)[1], which includes the following:

1. Capital account liberalization;
2. Exchange rate deregulation, with a strong initial currency devaluation;
3. Payment to vulture funds, as a starting point to address massive external indebtedness;
4. Financial norm[2] increase (hidden inside an "inflation targeting" scheme);[3]
5. Utilities financialization (through fee-dollarization and subsidies reduction);
6. Trade liberalization (with non-tariff barriers elimination);
7. Reduction of taxes and regulations on commodity exports.

The main government objective was to generate greater discipline for workers and non-financial firms in order to: a) moderate the exchange rate tension by improving the current account (based on a balance of payments absorption approach, but also expecting an exports boom with a higher real exchange rate); b) attract global value chains investments—a process they called "*lluvia de inversiones extranjeras*" ["a shower of foreign investments"]—, stimulated by a profit rate recovery); c) accelerate economic growth (given the assumption of a profit-led or export-led growth regime); and d) quickly reduce the inflation rate (as long as the worker discipline could contribute to a fiscal deficit reduction and the transition from monetization to external indebtedness).

[1] These authors associate financialization with the financial supremacy reflected in a capital market norm imposed on the rest of the economy through two major channels. On the one hand, the requirement of a high short-term return to non-financial firms that reduces long-term productive investment. On the other, the imposition of strong pressures to decrease labor costs through lower real wages, dismissals, or higher labor productivity. For the purpose of this paper, a financialization policy set is one that jointly promotes both channels.

[2] Based on Boyer (2000), a financial norm is a shareholder value requirement imposed from finance to production in globalized economies, through financial, monetary, trade, and fiscal policies.

[3] In a small open economy, the financial norm is (mostly) exogenous. Notwithstanding, monetary policies such as an inflation targeting regime (where a higher than the UIR parity interest rate is imposed to reduce inflation rates) could finally determine a higher local financial norm.

After four years of the implementation, financialization policies have clearly failed: the country doubled its rates of inflation, unemployment, and extreme poverty. There are two million people unemployed, ten million people with job problems (lack of job or in informal employment), 40% of the population lives below the poverty line, and one in ten Argentinians go hungry every day. In just four years, the country has regressed 15 years in terms of social welfare (see Panigo, Bona, & Wahren, 2019 and Fraschina & Panigo, 2020).

But the most important warning is that, for the first time in decades, a big crisis will not be coupled with a typical current account surplus. Indeed, the external indebtedness has been so great that, even in a recessive environment with a sharp drop in consumption (domestic absorption and imports), the current account deficit reached a record USD 31,000 million in 2017. Despite an intense additional contraction in consumption throughout 2019, the current account deficit will reach approximately USD 10,000 million.

For the next few years, the problem will become even more complex due to debt payments. Adding-up capital and interests (the latter are recorded in the current account), Argentina will annually be facing debt payments of USD 30,000 million between 2020 and 2023 (on average). In other words, without good roll-over conditions, half of all foreign currency obtained through exports will be used for debt payments.

Within this context, the objective of the article is to develop a new theoretical scheme to explain the last Argentinian crisis (2018-2019) using a modified prey-predator model, inspired by seminal research undertaken by Lotka (1926), Goodwin (1967), and Volterra (1936). The contribution of this paper is to explain why adopting a destabilizing financial norm cannot be offset by forcing a higher labour discipline in order to recover macroeconomic stability.

To achieve this goal, the article is structured as follows. After the introduction, the theoretical framework is presented, which describes existing contributions on the relationship between income distribution, productive structure, financialization, and business-cycle dynamics. Next, the formal section of the document is introduced, which includes a prey-predator model where the current account is the prey and wage-share is the predator: this has a wage-led demand regime, stop-and-go cycles, and an exogenous apex-predator (the financial norm). We then analyse the effects caused by an increase in the financial norm on income distribution, current account, macroeconomic volatility, and system stability. The paper concludes with a policy discussion, where the results obtained are used to interpret the Argentinean crisis.

THEORETICAL FRAMEWORK

Heterodox business-cycle models are often classified into two generations (Pasinetti, 1960): linear models (Frisch, 1933; Kalecki, 1935); and non-linear ones

(Gabisch & Lorenz, 2013; Goodwin, 1951; Goodwin, 1990; Kaldor, 1940; Marrama, 1946).

On a theoretical level, heterodox pioneering approaches to the business-cycle that are focused on four major fluctuation mechanisms are associated with different schools of thought:

1. Keynesian-Kaleckian models (investment multiplier-accelerator, see Harrod, 1936; Hicks, 1950; and Samuelson, 1939;)
2. Marxist models (highlighting class struggles, see Goodwin, 1967)
3. Structuralist models (Stop-and-Go dynamics, see Braun & Joy 1968; Díaz Alejandro, 1963; and Panigo, Chena, & Gárriz, 2010); and
4. Post-Keynesian models (financial cycles, see Minsky, 1982, 1986)

The growing importance of financial flows in production logics has led to the need for a deeper analysis about the relationship between financialization and macroeconomic dynamics. This has generated a new branch of macro-models that incorporate financial norm effects (Boyer, 2000).

The financialization process is characterized by the increase in financial creditors and shareholders' power. This is reflected in a financial norm imposed on the rest of the economy through two major channels (Boyer, 2000). On the one hand, we have the requirement of a short-term return to non-financial companies that decreases their productive investment opportunities. On the other, we have the exertion of strong pressure to decrease labour costs, through decreasing real wages, lower turnover costs, and/or a higher labour productivity. Using a short-term closed economy model (inspired by the United States economy in the 1990s), Boyer (2000) points out that the probability of secular stagnation and macroeconomic instability grows under global finance supremacy. Moreover, there is an empirical relationship between falling real wages and financialization that increases social inequality (Diwan, 2001). As a consequence, most wage-led economies show stagnation paths (or brief and volatile growth periods, see Stockhammer & Kohler, 2019).

Taking these theoretical elements into consideration, we develop a growth-cycle model *a la* Goodwin (1967) but with remarkable differences to explain the Argentinian 2018-2019 crisis. It is an open economy model with stop-and-go cycles and wage-led aggregate demand, where the wage-share is predator of the current account (see Díaz Alejandro, 1963). In addition, the financial norm is introduced as an exogenous apex-predator of both real wages (see Boyer, 2000) and the current account (see Moreno-Brid, 1998),[4] with significant effects on equilibrium values and system stability.

[4] The apex-predator metaphor is used to indicate that a financial norm increase (that mimics an interest rate increase) will reduce real wages (as long as the shareholder value requirement imposes higher financial opportunity costs having to be compensated with lower labor costs) and the current account being deteriorated (because of higher external debt interest payments).

THE MODEL

The predator-prey model (with exogenous apex-predator) proposed to explain the recent Argentinian macroeconomic crisis includes the following simplifying assumptions:

1. Exogenous (disembodied) steady technical progress
2. Exogenous labour force growth rate
3. Exogenous exports growth rate
4. Two homogeneous production factors (labour and capital)
5. Variables expressed in real terms
6. Constant capital-output ratio
7. Wage-led GDP growth
8. Counter-cyclical current account
9. Flexible exchange rate regime with an open capital account
10. Negative relationship between real wages and real exchange rate
11. Exogenous (international) financial norm (equal to the interest rate) with negative impact on both real wages and current account.

Table 1 briefly describes the main model relationships.

Table 1.
Model Equations

Capital – Output ratio:	$\bar{\sigma} = \frac{k}{q}$	(1)
Employment:	$l = \frac{q}{a}$	(2)
Wage-share:	$u = \frac{w}{a}$	(3)
Employment rate:	$v = \frac{l}{n}$	(4)
Current account index:	$icc = \frac{x}{me}$	(5)
Labour productivity:	$a = a_0.e^{\alpha t}$	(6)

(*Continued*)

Table 1.
Model Equations

Population:	$n = h_0.e^{\beta t}$	(7)
Exports:	$x = x_0.e^{\pi t}$	(8)
Real wage growth:	$\frac{\dot{w}}{w} = \eta - \tau.\frac{\dot{tcr}}{tcr} - t.r$	(9)
Investment rate:	$\frac{\dot{k}}{k} = \frac{\dot{q}}{q} = \psi.u$	(10)
Extended imports growth:	$\frac{\dot{me}}{me} = \theta + \kappa.\frac{\dot{q}}{q} + m.r$	(11)
Real Exchange rate growth:	$\frac{\dot{tcr}}{tcr} = -\delta.icc + j.r$	(12)

Source: Own elaboration.

Where k is the capital stock, q is the GDP, w is the real wage, me is an extended imports index including external debt interest payments, a_0 is a labour productivity scale parameter and α is its growth rate, h_0 is a population scale parameter and β is its growth rate, x_0 is the exports scale parameter and π is its growth rate, η is the real wage autonomous growth rate, τ is the response of the real wage growth rate to the real exchange rate growth rate, t is the direct effect of the financial norm on the real wage growth rate (either through prices or fees), ψ is the wage-share impact on the GDP (and capital stock) growth rate, θ is the extended imports autonomous growth rate, κ is the imports growth rate sensitivity to domestic absorption (GDP growth rate), m is the financial norm influence on the extended imports growth rate (through debt interest payments), δ identifies the response of the real exchange growth rate to the current account, and j is the financial norm effect on real exchange rate dynamics (mediated by the capital account regulation policy), while r is the financial norm, which is supposed to be mainly exogenous in this model version.

This variation of the Goodwin's predator-prey model (Goodwin, 1967) includes key aspects of the Argentinian economic structure, particularly in equations (8) to (11):

- Exports are mostly determined by exogenous factors (i.e. they are inelastic to the real exchange rate);
- Real wages grow autonomously (unlike Goodwin, 1967) but decrease with the real exchange rate and the financial norm;

- The aggregate demand is wage-led; and
- The current account equation includes debt interest payments (unlike many structuralist models that identify the current account with a trade balance).

As shown below, the interaction between these characteristics and financial norm variations are fundamental to be able to explain the transition from stable systems to explosive dynamics.

Laws of Motion Equations

In this system, the semi-reduced forms identifying the predator-prey analytical scheme are given by the following expressions:

$$\dot{icc} = \left\{\left[\left(\pi - \theta\right) - m.r\right] - \psi.\kappa.u\right\} icc \tag{13}$$

$$\dot{u} = \left\{-\left[\left(\alpha - \eta\right) + \left(\tau.j + t\right)r\right] + \tau.\delta.icc\right\} u \tag{14}$$

Or, more synthetically:

$$\dot{icc} = \left[A - B.u\right] icc \tag{15}$$

$$\dot{u} = \left[-D + C.icc\right] u \tag{16}$$

Where: $A = \left[\left(\pi - \theta\right) - m.r\right]$; $B = \psi.\kappa$; $C = \tau.\delta$; $D = \left[\left(\alpha - \eta\right) + \left(\tau.j + t\right)r\right]$.

Steady State Equilibrium

By solving the non-trivial equilibrium, reduced forms, or equilibrium values of our main endogenous variables, the following are obtained:

$$u^* = \frac{\left(\pi - \theta\right) - m.r}{\psi.\kappa} \tag{17}$$

$$icc^* = \frac{\left(\alpha - \eta\right) + \left(\tau.j + t\right)r}{\tau.\delta} \tag{18}$$

Or:

$$u^* = \frac{A}{B} \tag{19}$$

$$icc^* = \frac{D}{C} \tag{20}$$

For the steady state to make economic sense, it is necessary to use the following additional assumptions:

a) Since C is positive by construction, then D also needs to be positive (as icc^* must be positive), that is $r > (\eta - \alpha)/(\tau.j + t)$

b) Since B is positive by construction, A needs to be positive and less than B (because u^* must be positive and less than 1), that is $\left[(\pi - \theta) - \psi.\kappa\right]/m < r < (\pi - \theta)/m$

Thus, the combined existence of equilibrium that makes economic sense for both variables requires that:

$$Max\left[\frac{(\eta-\alpha)}{(\tau.j+t)}, \frac{(\pi-\theta)-\psi.\kappa}{m}\right] < r < \frac{(\pi-\theta)}{m} \tag{22}$$

If condition (22) is not fulfilled, then either there are no closed orbits[5] or they do not make economic sense (impossibility zone). When there are no closed orbits, the only possible behaviour is divergence (or tendency towards the impossibility zone –i.e. trivial equilibrium).

Local Stability (Close to Steady State Equilibrium)

In the neighbourhood of the equilibrium, the system behaves similarly to its linear component. Therefore, the Jacobian is given by:

$$J = \begin{bmatrix} A - B.u & -B.icc \\ C.u & C.icc - D \end{bmatrix} \tag{23}$$

Replacing u and icc by their non-trivial equilibrium values, expression (23) becomes:

$$J = \begin{bmatrix} 0 & -\dfrac{B.D}{C} \\ \dfrac{A.C}{B} & 0 \end{bmatrix} \tag{24}$$

with eigenvalues:

$$\lambda_{1,2} = \pm i.\sqrt{D.A} \tag{25}$$

which is equivalent to:

$$\lambda_{1,2} = \pm i.\sqrt{\left[(\alpha - \eta) + (\tau.j + t)r\right].\left[(\pi - \theta) - m.r\right]} \tag{26}$$

[5] According to Brouwer's theorem, if the system has a closed orbit, the flow in the region inside that orbit would have a fixed point (see for example, Hirsch, 2012), and that fixed point is in contradiction with the absence of equilibrium.

As A.D is positive, the eigenvalues are conjugate complex numbers, which guarantees the linear stability of the system around the equilibrium.[6]

The following section analyses system stability far-away from the equilibrium, where nonlinear components dominate

Global Stability

In order to prove the existence of global stability we will use a first integral, that is, a function $H(u,icc)$ such that $\dot{H}=0$ along each system trajectories (so H is a constant of motion). Therefore, system orbits can be understood as level curves of $H(icc,u)$.

More specifically, we propose the function:

$$H = C.icc + B.u - D.ln(icc) - A.ln(u) - H^*_{icc} - H^*_u \tag{27}$$

where H^*_{icc} and H^*_u are constants such that $H\left(icc^*,u^*\right)=0$

$$H^*_{icc} = C.icc^* - D.ln\left(icc^*\right) \tag{28}$$

$$H^*_u = B.u^* - A.ln\left(u^*\right) \tag{29}$$

Differentiating H with respect to time, we get:

$$\dot{H} = C.\dot{icc} + B.\dot{u} - D.\frac{\dot{icc}}{icc} - A.\frac{\dot{u}}{u} \tag{30}$$

Replacing $\dot{icc}$ *y* $\dot{u}$ by expressions (15) and (16) respectively, we get:

$$\dot{H} = C\left(A.icc - B.u.icc\right) + B\left(C.icc.u - D.u\right) - D\left(A + B.u\right) - A\left(C.icc + D\right) = 0 \tag{31}$$

Therefore, as required, the value of H remains constant along system orbits (so system orbits are level curves of H).

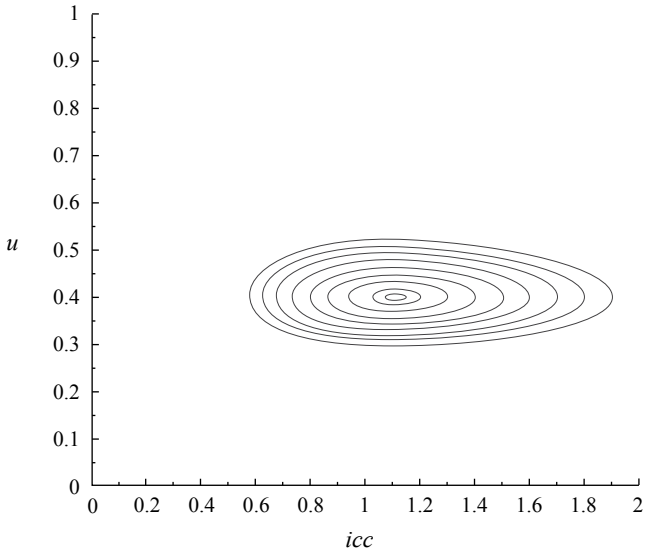
Figure 1 shows that these orbits are closed curves, which guarantees the global stability of the system.

To formally prove that this behaviour (i.e. having closed orbits) will remain the same throughout the first quadrant (the economic sense region), we observe that the Hessian matrix of H is positive, so the graph of H is convex.

$$\mathcal{H}(H) = \begin{bmatrix} \frac{D}{icc^2} & 0 \\ 0 & \frac{A}{u^2} \end{bmatrix} \tag{32}$$

[6] If A.D were negative (mathematically possible, but without economic sense in our model), Jacobian eigenvalues would be opposite real numbers, implying the existence of a saddle point in the linearization around the equilibrium.

Figure 1.
System Orbits / Level Curves of Function H



Source: Own elaboration.

Then, the behaviour of the system is also globally stable and has closed orbits around a non-trivial steady state equilibrium that makes economic sense (because A, B, C, and D are positive).

The main difference with the linear stability analysis is that closed orbits are no longer defined as regular ellipses. In this case, they are more spaced in for values above the equilibrium and more compressed below it.

Volatility

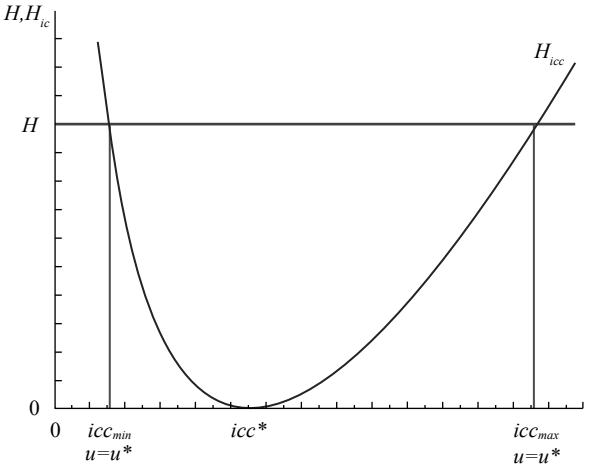
The orbit size depends on H values: the larger the value, the larger the orbit perimeter

Therefore, given H, we can calculate the extreme values of u and icc to obtain the variation range (a proxy for the business-cycle volatility). In order to achieve this, we separate into its two components:

$$H = H_{icc} + H_u = \left(C.icc - D.ln(icc) - H^*_{icc}\right) + \left(B.u - A.ln(u) - H^*_u\right) \qquad (33)$$

Equation (33) shows that, for a given orbit, H_{icc} reaches its maximum when $H_u = 0$ (this happens when icc is either a maximum or a minimum: $H_{icc} = H$, $H_u = 0$ and $u = u^*$, see Figure 2). A similar situation applies to u: maximum and minimum u values are those that satisfy $H_u = H$, $H_{icc} = 0$ and $icc = icc^*$.

Figure 2.
Relation Between H, H_{icc}, *u*, and *icc*



Source: Own elaboration.

We can observe that the greater the value of *H*, the greater the difference between maximum and minimum values for each variable. Consequently, the business-cycle not only depends on its structural parameters but also on the initial conditions.

EFFECTS OF FINANCIAL NORM VARIATIONS

Changes in the financial norm modify the steady state equilibrium, system stability, and business-cycle volatility. In the following sub-sections, these issues are formally examined.

Effects of the Financial Norm on Steady State Equilibrium

Taking partial derivatives of equations (17) and (18) with respect to r, it is possible to obtain the formal effect of the financial norm on the wage-share and the current account equilibria, respectively:

$$\frac{\partial u^*}{\partial r} = \frac{-m}{\psi.\kappa} = \frac{-m}{B} < 0 \tag{34}$$

$$\frac{\partial icc^*}{\partial r} = \frac{(\tau.j + t)}{\tau\delta} = \frac{(\tau.j + t)}{C} > 0 \tag{35}$$

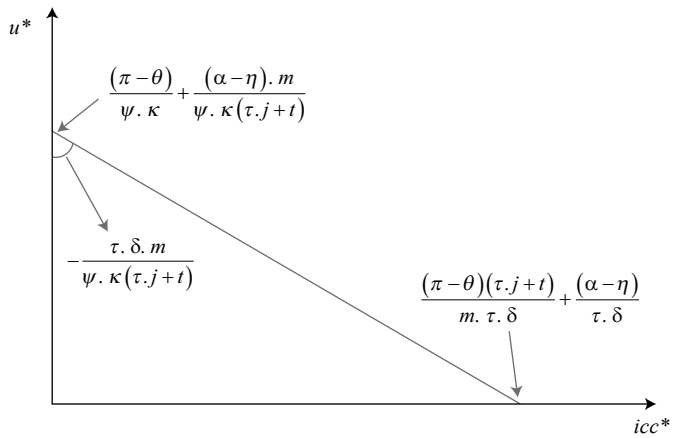
Additionally, since the financial norm is the same in both equations (17 and 18), it is possible to find a functional relationship between equilibrium values for different levels of *r*:

$$u^* = \frac{(\pi - \theta)}{\psi.\kappa} + \frac{(\alpha - \eta).m}{\psi.\kappa(\tau.j + t)} - \frac{\tau.\delta.m}{\psi.\kappa(\tau.j + t)}.icc^* \tag{36}$$

This equation defines a line over which the non-trivial steady state equilibrium ($[u^*, icc^*]$) will move when there are financial norm changes (Figure 3).

Based on the main result from equations (34) and (35) (and Figure 5), we can see that any exogenous increase in the financial norm results in opposite dynamics for u^* (decrease) and icc^* (increase). The first effect can be explained by the need for induced imports (due to economic growth) to be reduced in order to compensate for the increase in debt services (keeping the current account in a steady state: $\dot{icc} = 0$). On the other hand, the required increase in icc^* can be explained by the need to compensate for the direct reduction in real wages generated by the financial norm increase. A higher icc^* leads to a lower equilibrium real exchange rate and, therefore, to a higher real wage (ceteris paribus). These counterbalanced effects guarantee the stationarity of the wage-share ($\dot{u} = 0$).

Figure 3.
The Required Functional Relationship Between the Wage-Share and the Current Account to Guarantee Steady-State Equilibria



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Financial Norm Effects on Business-cycle Stability

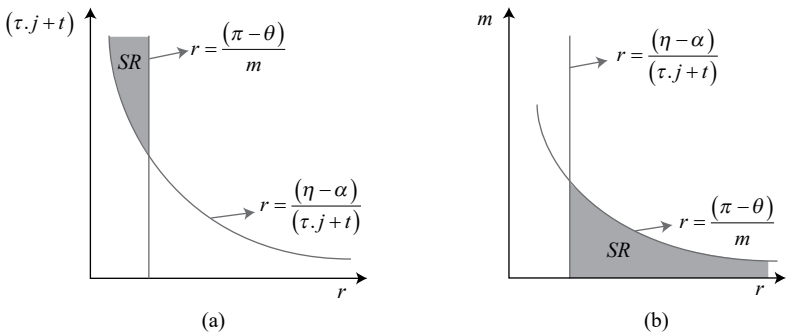
In equation (22), a necessary condition for the existence of equilibrium is that $\pi > \theta$ (meaning that without endogenous factors, the trade balance would tend to improve). If we additionally assume (to simplify the analysis in Figure 4) that $\eta > \alpha$ (meaning that without endogenous factors, the wage-share would tend to rise), an evaluation quadrant with a strictly positive financial norm can be obtained.

Additionally, we will work with the hypothesis that u <1 for relevant financial norm values. Based on the aforementioned circumstances, the stability regions for r in relation to key parameters of the class-struggle (t and τ), the financial regulation (j), and the weight of debt-interest payments in the current account (m) are described in Figure 4.

Panel (a) examines how the relationship between financial regulation, income-distribution and the financial norm affects the probability of a phase diagram with stable orbits around feasible steady-state equilibria (i.e. the stability region size - SR). Panel (b) shows how the relationship between the weight of debt-interest payments on the current account and the financial norm affects the above-mentioned probability.

When the system stability is lost because the financial norm is beyond the SR (and, therefore, the steady-state equilibrium is no longer in the first quadrant), stable dynamics can only be recovered through a higher net-exports, an autonomous surplus, or a reduction in the weight of debt-interest payments in the current account.

Figure 4.
Stability Regions for Different Values of $(\tau.j+t)$, m, and r



Source: Own elaboration.

As long as foreign trade structural parameters (π-θ) are hard to modify, the only remaining short-term policy appears to be the renegotiation of external financial conditions. Economic policies focusing on financial norms' effects on real wages, which are right-wing governments' first-line response to financial norm changes (i.e. financial liberalization -increase in j- and/or labour unions bargaining power reduction -increase of t or τ-), have no effect on system stability.

Financial Norm Effects on Business-cycle Volatility

As seen above, r values affect both steady-state equilibria and stability conditions. Additionally, the financial norm also has an impact on the business-cycle volatility.

If new equilibrium values (resulting from a higher financial norm) approach the current state of the system, it will reduce the value of the above-mentioned function H (a proxy for business-cycle volatility). However, if new equilibrium values move away from the current state of the system, it will increase H. This allows us to identify four alternative stages for the relationship between financial norms and business-cycle volatility (see Figure 5):

i. Stage 1 (recovery): $icc > icc^*$, $u < u^*$. Both variables are growing. In this stage, an increase in r leads to a higher icc^* and a lower u^*, reducing the business-cycle volatility (H).

ii. Stage 2 (expansion): $icc > icc^*$, $u < u^*$. u is still growing and icc begins to decline. The effect of r on volatility is non-monotonic (initially negative and finally positive).

iii. Stage 3 (adjustment): $icc > icc^*$, $u < u^*$. Both variables are decreasing. A higher r increases the business-cycle volatility.

iv. Stage 4 (recession): $icc > icc^*$, $u < u^*$. u is still decreasing and icc begins to grow. Once again, the effect of r on volatility is non-monotonic (initially positive and finally negative).

In order to achieve greater precision, the relationship between the financial norm and the business-cycle volatility can be formalized as:

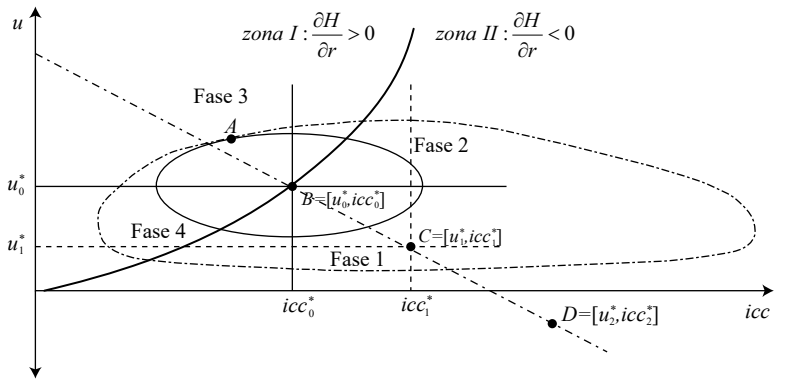
$$\frac{\partial H}{\partial r} = m.ln\left(\frac{u}{u^*}\right) - (\tau.j + t).ln\left(\frac{icc}{icc^*}\right) \tag{37}$$

Making equation (37) equal to 0 allows us to obtain a critical segmentation curve (see Figure 5):

$$u = u^*.\left(\frac{icc}{icc^*}\right)^{\frac{\tau.j+t}{m}} \tag{38}$$

As shown above, the relationship between the business-cycle volatility and the financial norm is stage-dependent. However, as long as the financial norm has an endogenous component (given by current account dynamics, which affect risk perception), the probability of an upward adjustment in r is greater during stage 3 (for example, when the economy is at a point like A in Figure 5 that has a declining and below-equilibrium level icc, combined with a downward evolution of u). In this stage, any rise in the financial norm increases the macroeconomic volatility and extends recessions since a higher financial norm moves the steady state equilibrium from B to C or D (depending on the intensity of the increase in r, see Figure 5). Equilibrium D is economically unfeasible, and the new feasible equilibrium C generates wider orbits (the dotted orbit in Figure 5) with deep and prolonged recessions (because GDP is wage-led), which can be socially untenable.

Figure 5.
The Relationship Between Business-Cycle Volatility and Financial Norm



Source: Own elaboration.

CONCLUSIONS

Financialization policies recently implemented in Argentina (as labour discipline mechanisms, supposedly required inflation and current account deficits to be reduced) led the economy to a recessive, regressive, and unstable configuration.

This article seeks to explain the underlying reasons for this behaviour by means of a growth-cycle model *à la* Goodwin (1967). where aggregate demand is wage-led, the labour share is predatory of the external sector, and the financial norm is an exogenous apex-predator of both the real wages and the current account.

Solving the model, we can see that a higher financial norm:

1. increases required inequality and current account surpluses (in steady state equilibrium);
2. reduces system stability regions, with an increase in the probability of hyper-recessive scenarios; and
3. increases business-cycle volatility (as long as the higher financial norm is often adopted in the adjustment stage)

It also follows from the model that stabilization (after a destabilizing increase in the financial norm) cannot be guaranteed through greater labour discipline (induced by direct and indirect effects of the financial norm on real wages), but with higher autonomous net-exports or with lower debt interest payments (through longer maturities, lower coupons, or debt cuts).

Finally, if the financial norm also has an endogenous component (linked to the current account dynamics, which affects risk perception), the financial norm upward adjustment is likely to be implemented in the adjustment stage of the business-cycle, increasing volatility and prolonging recessions.

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