



FINANCE AND FINANCIAL INSTABILITY

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MOTIVATION

Recurrent financial instability and financial crisis which has increased over years

From devastating financial crises (e.g. emerging market financial crisis of the 1990s and subprime crisis) to large swings and volatility in asset prices and exchange rates (sometimes with severe consequences for real economy)

Laeven and Valencia (2012):

- Between 1970-2007: 124 banking crises/211 balance of payments-foreign exchange crises (30% nominal depreciation)/64 sovereign debt crises
- Most recent: Subprime Crisis, Eurozone Crisis, taper tantrum, EM volatility; Covid shock
- Average Output loss as share of GDP : 20.1 per cent ranging from 0 to 97.7 per cent

What can Post Keynesian Economics contribute to explaining these recurrent bouts of financial instability?

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“BASTARDISED” NEOCLASSICAL ECONOMICS

Underlying classical dichotomy and money neutrality

Stable underlying fundamentals/ “real” conditions run the show

Financially induced instability as market frictions (e.g. financial accelerator model) or add-ons (e.g. sunspot models)

Agency: Rationality – imperfect information – behavioural finance

MOTIVATION

POST KEYNESIAN ECONOMICS

Monetary Production Economy (Money/Finance intrinsically linked with real economy)

>> e.g. Keynes' and Minsky's financial theories of investment

Expectations in financial markets fundamental influence on investment/real economy

Expectations formed under fundamental uncertainty > subjective and inter-subjective processes of price formation

No underlying fundamentals or automatic tendencies to equilibrium

Inherent and endogenous instability of modern capitalism

Balance sheet view and importance of liability structures/funding (Minsky; Mehrling; Gabor/CMF)

OUTLINE

- 1. Keynes' General Theory, Chapters 12-17: Uncertainty, (Inter)-subjective processes of price formation, and Liquidity preference**
 - The “Asset Side View” of Financial Instability
 - Policy Implications
 - Applications and Extensions

- 2. Minsky's Financial Theory of Investment and Financial Instability Hypothesis**
 - The “Liability Side View” of Financial Instability
 - Policy Implications
 - Applications and Extensions

KEYNES' THEORY OF FINANCIAL INVESTMENT

GENERAL THEORY: CHAPTERS 12-17

Keynes focused his analysis of instability on the centrality of the **investment decision** in the capitalist growth process and on the key role played by financial institutions and practices in influencing the decision to invest

Financial markets receive “star billing” for two reasons (Crotty, 1990):

1. The cost of borrowed fund, the interest rate, is an important determinant of investment (liquidity preference) (Chapters 13 to 15)
2. Marginal efficiency of capital which determines investment decisions fundamentally shaped by expectations formation processes in the stock market (prospective yield) (in particular Chapter 12)

Investment determined by the interaction between the interest rate and the schedule of the marginal efficiency of capital

Both of these outcome of financial market decisions formed under fundamental uncertainty and lack of objective, underlying reality known by agents

>> No automatic equilibrium adjustment (reinforcing tendencies)

>> Investment cycles and long-term stagnation

THE MARGINAL EFFICIENCY OF CAPITAL

*“Equal to the rate of discount which would make the present value of the series of annuities given by the **returns expected from the capital asset** during its life just equal to its supply price”*

Relation between the supply-price of capital asset and its **prospective yield**

Supply price: Current cost of buying new equipment from the capital goods industry

Prospective yield: no stable anchor; uncertainty, confidence, and psychology

MARGINAL EFFICIENCY OF CAPITAL PROSPECTIVE YIELD: CHAPTER 12 GT

“The considerations upon which expectations of prospective yields are based are partly existing facts which we **assume to be known more or less for certain**, and partly future events which can only be forecasted with **more or less confidence**”....

”We may sum up the state of **psychological expectation** which covers the latter as being the *state of long-term expectation*...”

PROSPECTIVE YIELD: CHAPTER 12

SPECULATION

Subjective and inter-subjective processes of price formation

Conventions and State of Confidence

- Conventions: “Assuming that the existing state of affairs will continue indefinitely, expect in so far as we have specific reasons to expect a change”
- Precariousness of Conventions
- Waves of optimism and pessimism
- Musical Chair/Beauty Contest

Speculation vs. Enterprise

- Separation between ownership and management and emergence of the stock market (Secondary Market) – Shareholder value
 - *If I may be allowed to appropriate the term speculation for the activity of forecasting the psychology of the market and the term enterprise for the activity of forecasting the prospective yield of assets over their whole life.*

CHAPTER 12

SPECULATION

“Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes a bubble on a whirlpool of speculation. When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill-done”.

CHAPTER 12

SUMMARY AND POLICY IMPLICATIONS

Swings in asset prices detached from “fundamentals” inherent feature of capitalist economies
> Negative implications for investment and capital formation

Capitalism is unstable because investment is unstable because equity markets are unstable
(financial theory of unstable capitalism)

Worse in more liquid markets

Animal Spirit: spontaneous urge to action rather than inaction

Policy Implications:

- Stabilizing conventions?
- “Force” socially beneficial investment
- State investment

CHAPTER 12

APPLICATIONS AND EXTENSION

Theories of financial asset prices, for example:

- Sheila Dow: role of psychology in financial markets (e.g. Dow, 2011)
- John T. Harvey: theory of exchange rate determination (e.g. Harvey, 2009)

BUT:

- Singular focus on the investment decision (asset side of balance sheet)
- Disregard for funding decision (liability side of balance sheet)
- Not theories of financial crises with systemic implications
- Over-focus on psychological factors? Only context and time specific factors? Structural conditions?

LIQUIDITY PREFERENCE

CHAPTERS 13-17

Second source of instability on investment stems from the interest rate which is also not a real variable, as in loanable funds theory, but **determined in the money market**
>> Liquidity Preference Theory

Interest rate is the reward for parting with the security provided by money in a world of **fundamental uncertainty** and historical time >> money as “secure abode of purchasing power” and medium of contractual settlement (Paul Davidson)

Money has the highest liquidity premium because it acts as safe unit of account, store of value, and means of payment (**functions of money**)

4 **motives to hold money**: transaction, finance, precautionary, and speculative

>> Increase in liquidity preference (demand for money) raises interest rate and depresses investment

LIQUIDITY PREFERENCE

CHAPTERS 13-17

Liquidity preference as a general theory of asset prices (e.g. Kregel, 1988, Carvalho, 1992, Wray, 1992; Minsky, 1975)

- Narrow interpretation of liquidity preference theory: money vs. bond
- Broad definition of liquidity preference: liquidity preference as a spectrum and general theory of asset demand and asset prices

Keynes' own rate of return equation in Chapter 17 of the GT:

$$(q - c) + a + l$$

Where q is the **expected** return, c the carrying cost, a the appreciation and l the liquidity premium

Equilibrium tendencies?

Policy Implications

LIQUIDITY PREFERENCE APPLICATIONS AND EXTENSIONS

Liquidity preference in closed (regional) economy (e.g. Sheila Dow; Victoria Chick)

- Theory of bank behaviour and credit supply
 - Changes in liquidity preference alter allocation to assets with different degrees of liquidity (e.g. peripheral SMEs)
 - Sudden increase in liquidity preference > financial instability
- Structuralists vs. horizontalists
- Speculative demand for money

LIQUIDITY PREFERENCE APPLICATIONS AND EXTENSIONS

Liquidity preference in open economy > Currency Hierarchy Framework (e.g. Sheila Dow; German Monetary Keynesians (e.g. Hajo Riese, Barbara Fritz); Brazilian Structuralists (e.g. Daniela Prates; Bruno de Conti; Bianca Orsi); Minskyans (e.g. Bruno Bonizzi, Kaltenbrunner, Raquel Ramos)

- Currency hierarchy due to currencies' differential ability to perform international monetary functions
- Assessed against the top currency with highest liquidity premium (*the money*; US Dollar)
- Explains phenomena like external vulnerability and exchange rate volatility, monetary subordination, high interest rates, original sin, FX reserve accumulation
- Framework of Exchange Rate Determination
- Focus on store of value function (Minskyans: unit of account and means of settlement)

HYMAN MINSKY

“John Maynard Keynes” (1975); “Stabilizing an Unstable Economy” (1986)

Missing link in General Theory is finance (credit) – liability side of balance sheets

- *Permanent payment commitments set up by debt which need to be honoured over time*

Balance sheet/Wall Street view of capitalist economies

- All entities were treated as banks acquiring assets by issuing liabilities

1. Financial Theory of Investment
2. Theory of inherent and endogenous fragility of capitalist economies due to firms' changing cash flow and debt characteristics > Financial Instability Hypothesis

MINSKY'S FINANCIAL THEORY OF INVESTMENT

Two building blocs

- Two-price system
- Lender's and borrower's risk

Investment demand is a function of the difference between the supply price (replacement cost of new capital assets) and demand price (price that investors are prepared to pay for acquiring capital assets)

- **Supply Price (PIs):** Price for current output - supply price of capital (cost plus mark-up) plus finance costs (lender's risk)
- **Demand Price (PId):** Asset prices - *expected* stream of income (and possibly expected capital gains) of an asset plus *subjective* finance costs (*subjective borrower's risk* or margin of safety)
 - Balance sheet interpretation of Chapter 17
 - (q-c): cash/income to meet outstanding obligations
 - I: ability to be used as means to meet outstanding obligations (means of payment function of money)

Lender's and borrower's risk increase with overall debt-level (Kalecki's principle of increasing risk)

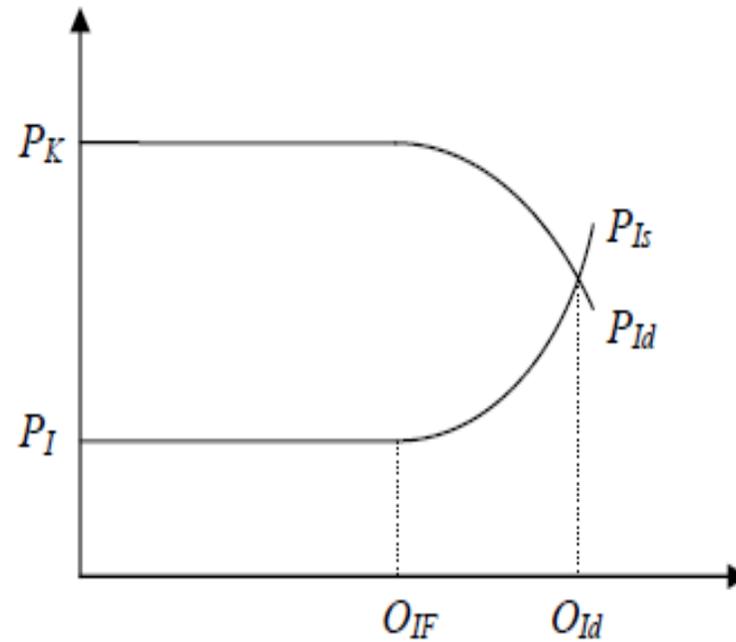
Conventional approach of chapter 12 and Chapter 17 (both for lender's and borrower's risk)

MINSKY'S FINANCIAL THEORY OF INVESTMENT

Investment (the quantity of investment goods purchased) takes place as long as the demand price (adjusted for borrower's risk) is above the supply price (adjusted by lender's risk)

MINSKY'S FINANCIAL THEORY OF INVESTMENT

Figure 1. Determination of the Level of Investment



Source: Wray and Tymoigne, 2008

MINSKY'S FINANCIAL INSTABILITY HYPOTHESIS

1. (Subjective) Expectations change over course of the cycle: stability breeds instability

- Expected income/cash flows and perceived borrower's risk (margin of safety)/lender's risk change (conventions change)
- Rising investment > higher profits and rising asset prices > feedback to expected variables (see above) and investment > boom/euphoria (Kalecki's view of profits)

2. Increasingly fragile financial structures - match between cash flow commitments (debt service and principal) and (expected) cash income (investment yields)

- Hedge: (expected) income meets interest rates and principal
- Speculative: (expected) income meets interest rates but not principal
- Ponzi: (expected) income does not cover interest rates

>> Margin of safety falls

>> Increased vulnerability to changing (financial) market conditions

THE FINANCIAL INSTABILITY HYPOTHESIS

BUILDING BLOCS

3. Endogenous “shock” (rise in interest rate) which turns fragility into instability

- Central bank raises interest rate to cool economy
- Banks raise interest rate reacting to high demand for external finance
- Complex temporal relation in investment function

4. Debt deflation (Fisher (1933))

- Rising interest rates \rightarrow higher borrowing costs, falling net-worth, lower credit ratings \rightarrow inability to meet cash flow requirements
- Falling profits and asset prices
- Defaults \rightarrow banking crisis

THE FINANCIAL INSTABILITY HYPOTHESIS SUMMARY AND POLICY IMPLICATIONS

Financial instability and crisis inherent feature of capitalist economies with “mature” financial markets (financial innovation)

Financial crisis not due to misaligned fundamentals but increasingly fragile financial structures – balance sheets and cash flow requirements

Stability breeds instability

Policy Implications:

- Big Government > stabilize firm profits
- Big Bank > stabilize asset prices and avoid bank default
- Regulate Finance and create dynamic institutional structures that contain financial instability

MINSKY

APPLICATIONS AND EXTENSIONS

Wide range of different applications and extensions

Capitalist firm > banks, households, states

Closed economy > open economy and emerging markets

Quantitative (Nikolaidi and Stockhammer, 2017)

Institutional/Qualitative

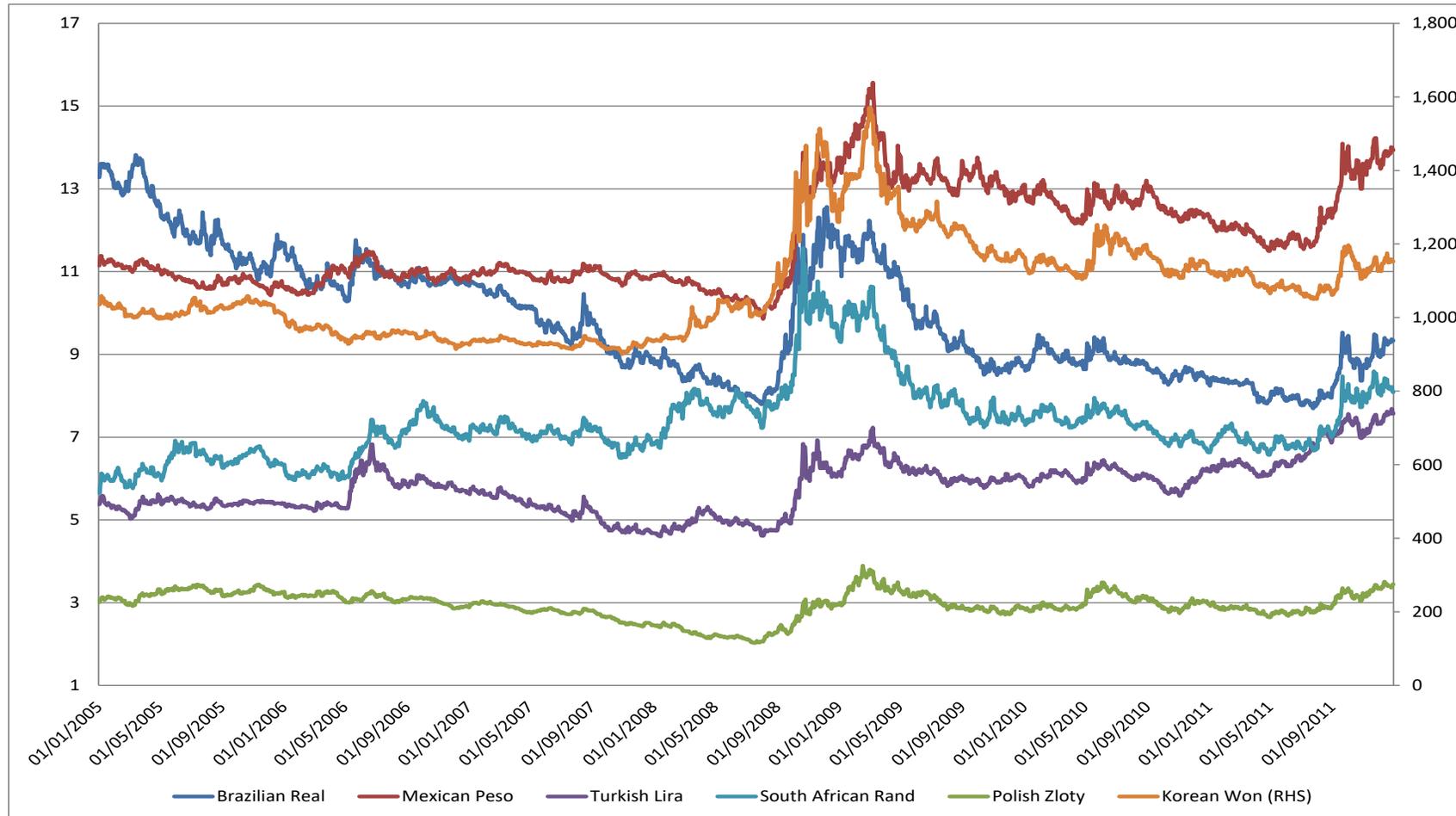
APPLICATIONS

EXTERNAL VULNERABILITY IN EME

“Endogenous” Vulnerabilities in Domestic Balance Sheets (e.g. Arestis Glickman, 2002; Kregel, 1998) – Asian Financial Crisis

- Financial liberalisation sets off boom and fragile financial structures
- “Super-speculative” units due to foreign exchange debt (Currency mismatch)
- “Non-productive” investments
- External shock (e.g contagion) and exchange rate depreciation trigger downward spiral

DEVELOPING COUNTRIES IN THE GLOBAL FINANCIAL CRISIS



APPLICATIONS

EXTERNAL VULNERABILITY IN EME

New forms of external vulnerability (Kaltenbrunner and Paineira, 2015)

- Large asset price, exchange rate, and capital movements largely independent of domestic economic conditions
- Endogenous fragilities in balance sheets of international investors
- High returns and appreciating exchange rates in EME (domestic currency assets)
- Currency mismatch in foreign investors' balance sheets (investment vs. funding currency)
- External shock (e.g. rise in FED Fund rate or change in international liquidity preference) triggers downward spiral

APPLICATIONS

EXTERNAL VULNERABILITY IN EME

Spatializing capital flows (Bonizzi and Kaltenbrunner, 2018)

- Minsky's balance sheet view does not only allow theorising financial instability along time but also across space
- In the case of cross-border capital flows, two sides of balance sheet necessarily located in different spaces
 - Instability (financial conditions in one space) carry over to another one through interconnected balance sheets > funding conditions in a Minskyan view
 - Power relations in global finance > power of "creditor" over debtor
 - Homogenisation pressures from financial core where international liabilities are concentrated
 - Deviations of Institutional, Macroeconomic and Regulatory Conditions in the Core need to be compensated by higher returns (Chapter 17 and own rate of return equation)

REFERENCES

- Arestis, P., & Glickman, M. (2002). Financial Crisis in Southeast Asia: Dispelling Illusion the Minskyan Way. *Cambridge journal of economics*, 26(2), 237-260.
- Carvalho, F. J. C. (1992). *Mr. Keynes and the Post Keynesians*. Aldershot, UK: Edward Elgar.
- Crotty, J. (1990). Owner-Manager Conflict and Financial Theories of Investment Instability: A Critical Assessment of Keynes, Tobin, and Minsky. *Journal of Post Keynesian Economics*, 12(4), 519-542.
- Chick, V., & Dow, S. (1988). *A Post-Keynesian Perspective on the Relation between Banking and Regional Development*. Thames Papers in Political Economy, Spring 1988.
- Bonizzi, B., & Kaltenbrunner, A. (2018). Liability Driven Investment and Pension Fund Exposure to Emerging Markets: A Minskyan Analysis. *Environment and Planning A: Economy and Space*, 51(2), 420-439.
- Davidson, P. (1978). *Money and the Real World*. London: Macmillan.

REFERENCES

- Kregel, J. A. (1988). The multiplier and liquidity preference: two sides of the theory of effective demand. In *The Foundations of Keynesian Analysis* (pp. 231-250): Springer.
- Kregel, J. (1998). Yes, "It" did happen again - A Minsky Crisis happened in Asia. Paper presented at the 8th Annual Hyman P. Minsky Conference on Financial Structure, April 23-24, 1998.
- Laeven, L., & Valencia, F. (2008). Systemic Banking Crises: a new Database. *IMF Working Papers*, p. 1-78
- Minsky, H. P. (1975). *John Maynard Keynes*. New York: Columbia University Press.
- Minsky, H. P. (1986). *Stabilizing and Unstable Economy*. London: Yale University Press.
- Nikolaidi, M., & Stockhammer, E. (2017). Minsky models: A structured survey. *Journal of Economic Surveys*, 31(5), 1304-1331.

REFERENCES

- Orléan, A. (1999). *Le Pouvoir de la Finance*. Paris: Jacob.
- Prates, D. M., & Andrade, R. (2013). Exchange Rate Dynamics in a Peripheral Monetary Economy. *Journal of Post Keynesian Economics*, 35(3), 399-416.
- Wray, R. (1992). Alternative Theories of the Rate of Interest. *Cambridge journal of economics*, 16(1), 69-89.
- Wray, L. R., & Tymoigne, E. (2008). Macroeconomics meets Hyman P. Minsky: The financial theory of investment. *Levy Economics Institute Working Paper*, 543.
- Wray, L. R. J (2009). The rise and fall of money manager capitalism: a Minskian approach. 33(4), 807-828.

APPLICATION

GLOBAL FINANCIAL CRISIS

Dymski (2010): The Subprime Crisis

Extends Minsky's model on three axes to analyse subprime crisis and asks why policy measures (big government; LOLR unsuccessful):

- Household sector and its income/wealth divisions
- USA as global liquidity sink
- **Systematic differences between banks and non-banks' balance sheets and changing nature of banks**
 - Banks most highly leveraged institutions in system
 - Banks do most of the credit-intermediation
 - Banks do not cause asset-bubble
 - Renewal in lending restarts investment

Financial fragility in households along wealth and racial dimensions (subprime mortgages) > Housing boom and financial innovation (e.g. SIVs)

Foreign investors keen to hold US titles (US current account deficit)

Banks cease to be "responsible" for majority of credit intermediation and securitization removes ceiling on lending (borrower's risk) and makes banks prime agents in speculation

Households become most leveraged agents > lender of last resort intervention powerless > banks seized to be "pressure points in cyclical downturns"

APPLICATIONS

GLOBAL FINANCIAL CRISIS

Wray (2008): Money Manager Capitalism, Securitization and the Global Financial Crisis

- relative stability of post-war period led to development of Money Manager capitalism – more unstable version of modern capitalism
- securitization of mortgages (and other things) provided assets for (international) managed money with different risk appetites
- Competition from shadow-banking changed bank behaviour (financial innovation; from long-term lending to originate and distribute)

REFERENCES

- Dow, S. C. (2011). Cognition, market sentiment and financial instability. *Cambridge journal of economics*, 35(2), 233-249.
- Dymski, G. (2010). Why the Subprime Crisis is different: a Minskyian Approach. *Cambridge journal of economics*, 34(2), 239-255.
- Fisher, I. (1933). The debt-deflation theory of great depressions. *Econometrica: Journal of the Econometric Society*, 1(4), 337-357.
- Harvey, J. (2009). *Currencies, Capital Flows and Crises: A Post Keynesian Analysis of Exchange Rate Determination*. London: Routledge.
- Kaltenbrunner, A., & Paineira, J. P. (2015). Developing Countries' changing Nature of Financial Integration and New Forms of External Vulnerability: the Brazilian experience. *Cambridge journal of economics*, 39(5), 1281-1306.
- Keynes, J. M. (1997). *The General Theory of Employment, Interest and Money*. Amherst, New York: Prometheus Books.