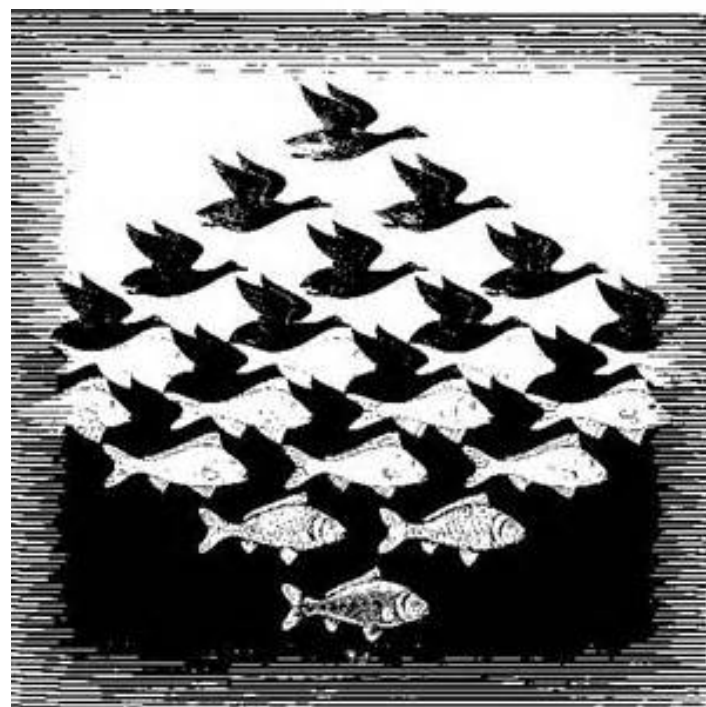
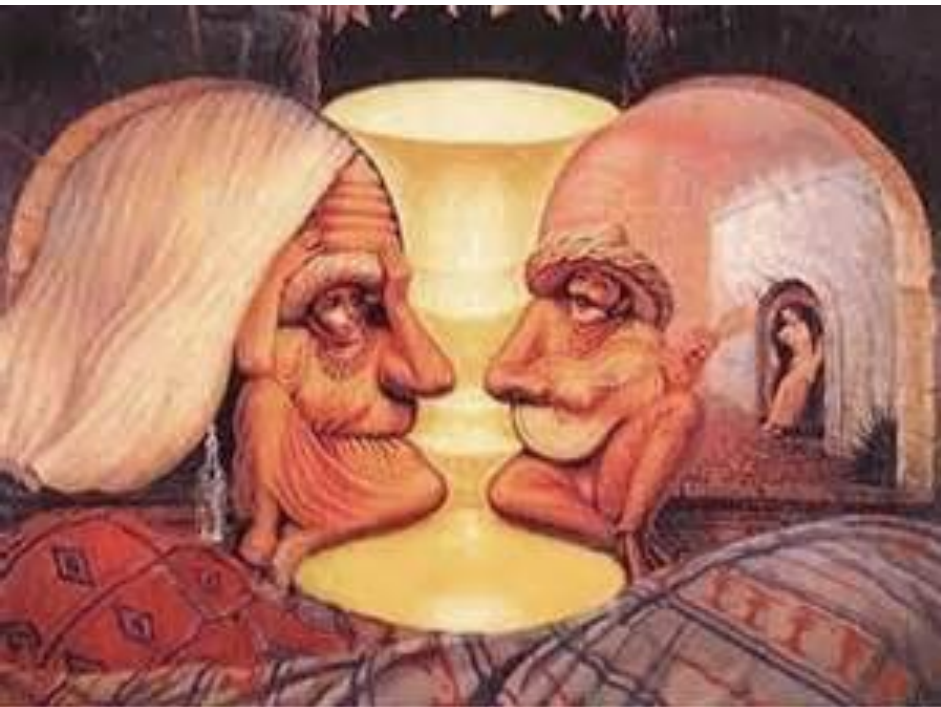
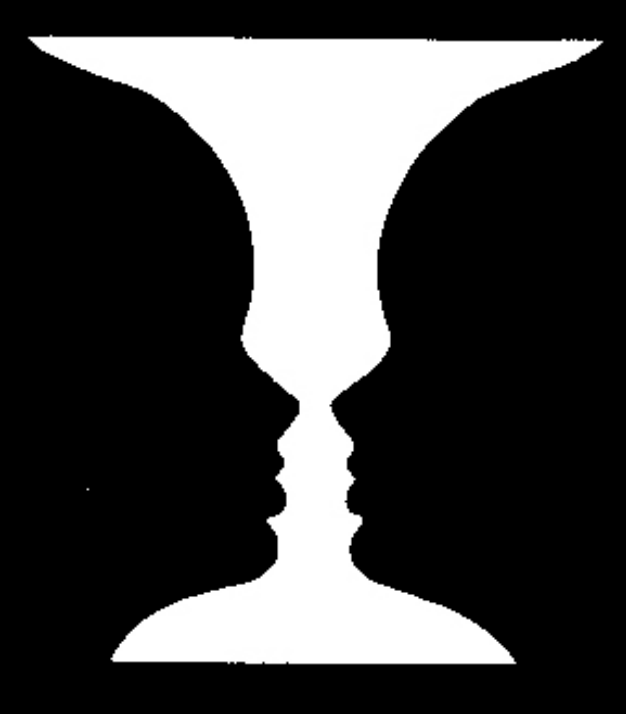


Economics in a pill



Economics in pills





Economics

- Greek: *oikos*: house *nomos*: custom or law
- Oikonomia: rules of the house, management of a household, administration of the household
- Economics is the study of social behavior (choices) guiding in the allocation of scarce resources to meet the unlimited needs and desires of the individual members of a given society

Economics

- Focus on:
 - Production, distribution, consumption of good & services
 - How economic agents behave or interact with the social structure
 - How the economy works: how are individual needs communicated such that the correct amount and quality of goods & services become available
 - The distribution of scarce resources to satisfy infinite needs.
 - Choices in a world of scarcity
 - Material exchanges

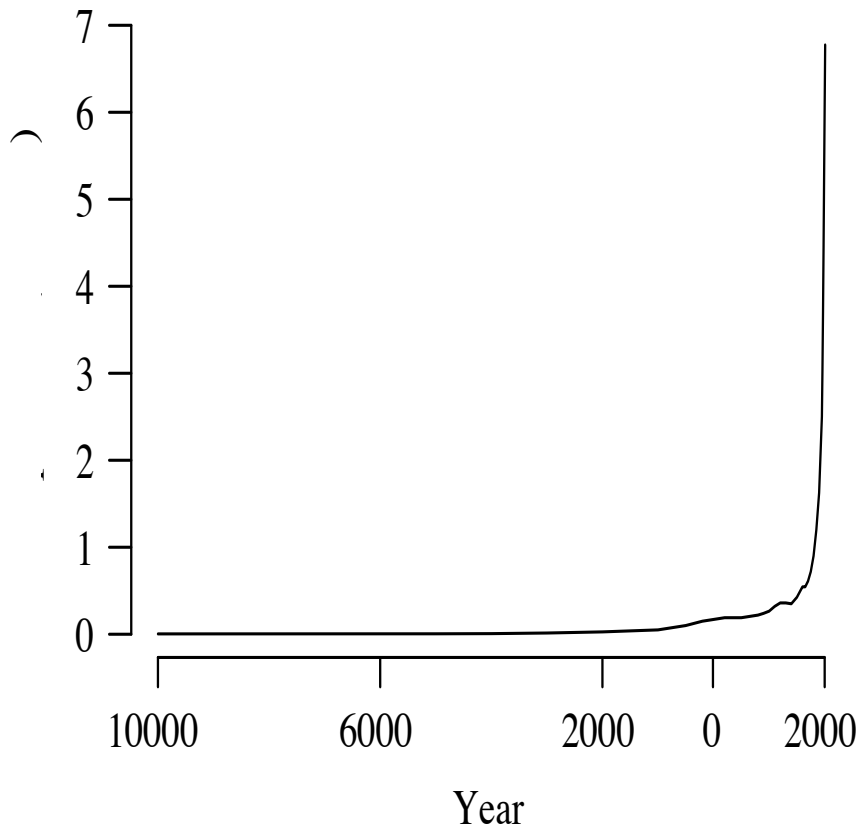
Economics

- Macroeconomics: Analyzes the entire economy and the issues that affect it (growth, inflation, employment, monetary and fiscal policies)
- Microeconomics. Examines the behavior of basic elements in the economy: households, firms, markets and their interaction
- Political Economy Vs. Economics
- Normative Economics (**ought to be**) Vs. Positive Economics (what is)
- Applied Economics Vs Theoretical Economics
- Rational Vs. Behavioral Economics
- Mainstream Vs. Heterodox Economics
- Different Theoretical perspectives: Classical, Neoclassical, Marginalist, Marxism (neo), Keynesian (Post, Neo, New), Liberal, Monetarist

Social Science

- Science that studies human behavior in a specific framework:
SOCIETY
-which is evolving and changing
- There is not such a thing like a society → Aggregation
- **individual behavior**

Tipping Points



“ At a certain stage of development, the material productive forces of society come into conflict with the existing relations of production or -this merely expresses the same thing in legal terms- with the property relations within the framework of which they have operated hitherto. From forms of development of the productive forces these relations turn into their fetters. Then begins an era of social revolution”

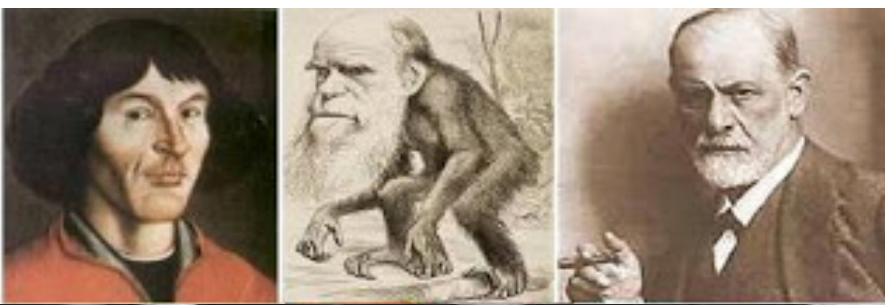
Karl Marx, 1859 Contribution to the Critics to the Political Economy (Introduction)

Social Science

- Challenging concept in social science

CHOICES

- Laplace physical determinism: *If we could have the complete information about the universe at a moment, we would have the complete knowledge of the past, present, and future universe down to every detail*
- Is there any way to include free will choices in a physics framework?
- Does the free will exists? Does it changes anything?



*Narcissistic
Wounds
Inflicted
to Humanity*



Bonds of Union
Escher, 1956

Economics & Sociology

- Two perspectives too interconnected and interdependent: Society is greatly influenced by economic factors, and economic processes are largely determined by the environment of the society
- Economic Sociology: Jevons (*General Mathematical Theory of Political Economy*), Weber (*The Protestant Ethic and the Spirit of Capitalism*), Durkheim (*The Division of Labor in Society*), Simmel (*The Philosophy of Money*) Granovetter (*Economic Action and Social Structure: The Problem of Embeddedness*)
- Economics deals with specific spheres of humans action in society with a quantitative approach

Quantifying

- How to add pears with apples?
- Through the amount of work used to produce it? (Producer)
- Through the amount of utility it produces? (Consumer)
- Through the price (Trade)

Unit of account: monetary unit

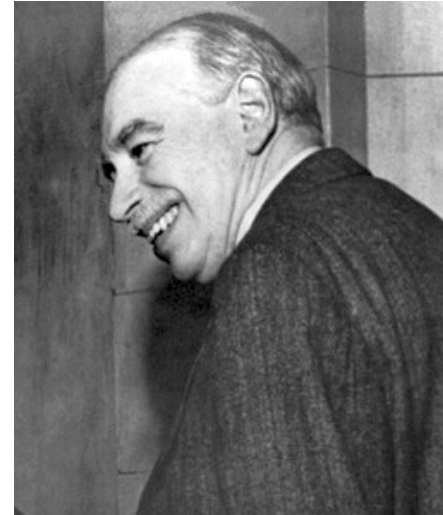
- Problem:
- A Kg is always a Kg; a cm is always a cm, an ounce is always a ounce but
- There is not such a thing as monetary unit to be used as a benchmark: the unit of measure is not always the same

The unit of measure and the units to be measured are changing simultaneously

From BANCOR to CRYPTOCURRENCY

BANCOR: proposed neutral unit of international currency in which all international trade would be measured. Each nation's BANCOR account would also be related to its currency through a fixed, but adjustable, exchange rate.

The key feature of Keynes proposal was that it placed an equal obligation on creditor and debtor nations to maintain a balance of trade



Special Drawing Rights (SDR): Unit of account created in 1969 by the IMF as a supplementary foreign reserve asset. Its value was defined by a weighted currency basket of 4 major currencies: US\$, Euro, British pound and Japanese Yen.

Cryptocurrency: is a peer to peer payment system, that develop a unit of account with a controlled level of money creation by cryptography. Is a Digital Medium of Exchange that is gaining receptivity as currencies are loosing their value. Is a major challenge for central banks. Ex: BITCOIN, RIPPLES, LITECOIN, PEERCOIN, NXT, DOGECOIN, NAMECOIN, MASTERCOIN, QUARK



Economics (18th – early 20th century)

- **Adam Smith** (1723-1790). Cited as the ‘father of modern economics’. [*The Theory of Moral Sentiments*](#) (1759), and [*An Inquiry into the Nature and Causes of the Wealth of Nations*](#) (1776). Self Interest and mutual Sympathy of human beings guide to a Natural Liberty, a society with division of labor to increase production.
- **Karl Heinrich Marx** (1818 –1883). [*The Communist Manifesto*](#) (1848) and [*Das Kapital*](#) (1867–1894). Class struggle – Capitalism as dictatorship of the bourgeoisie. Labor Vs Capital. Dialectical materialism.
- **Austrian School** (end 19th early 20th century): Menger, Bohm Bawerk, Von Mises, Hayek. Main contributions: subjective theory of value, economic calculation problem (information), analysis of the purposeful actions of individuals (systemic view). Praxeology and catalaxy. [*Road to Serfdom, Human Action*](#).
- **John Maynard Keynes** (1883 –1946). [*The General Theory of Employment, Interest and Money*](#) (1936). Relationship between money, unemployment and prices. Business Cycles. Sticky prices. Aggregate Demand-Full employment. Keynesian Multiplier. Interventionists policies.

Human Brain & Scrambled Words

According to research at Cambridge University, it doesn't matter in what order the letters in a word are, the only important thing is that the first and last letter be at the right place. The rest can be a total mess and you can still read it without a problem. This is because the human mind does not read every letter by itself, but the word as a whole.

Ethical Foundations of Market Economics

MARKETS TO DEAL WITH SCARCITY

For consumers, competitive markets promote:

- **Freedom:** promote freedom of individual choice
- **Equality:** avoid discrimination among customers with the same ability to pay
- **Objective valuation:** use prices to encourage conservation
- **Need satisfaction:** provide for a reliable supply of private goods
- **Efficiency:** use prices to eliminate shortages and long lines
- **Welfare:** improve living standards by providing better products at lower prices

For producers, competitive markets promote:

- **Freedom:** rely on voluntary actions, not coercion.
- **Efficiency:** reward creativity in problem solving.
- **Cooperation:** promote cooperative behavior globally.
- **Morality:** encourage moral virtues such as hard work, honesty and thrift.
- **Individual & Social:** align self-interest with efficiency at satisfying consumer desires.

Moral Criticisms of Markets

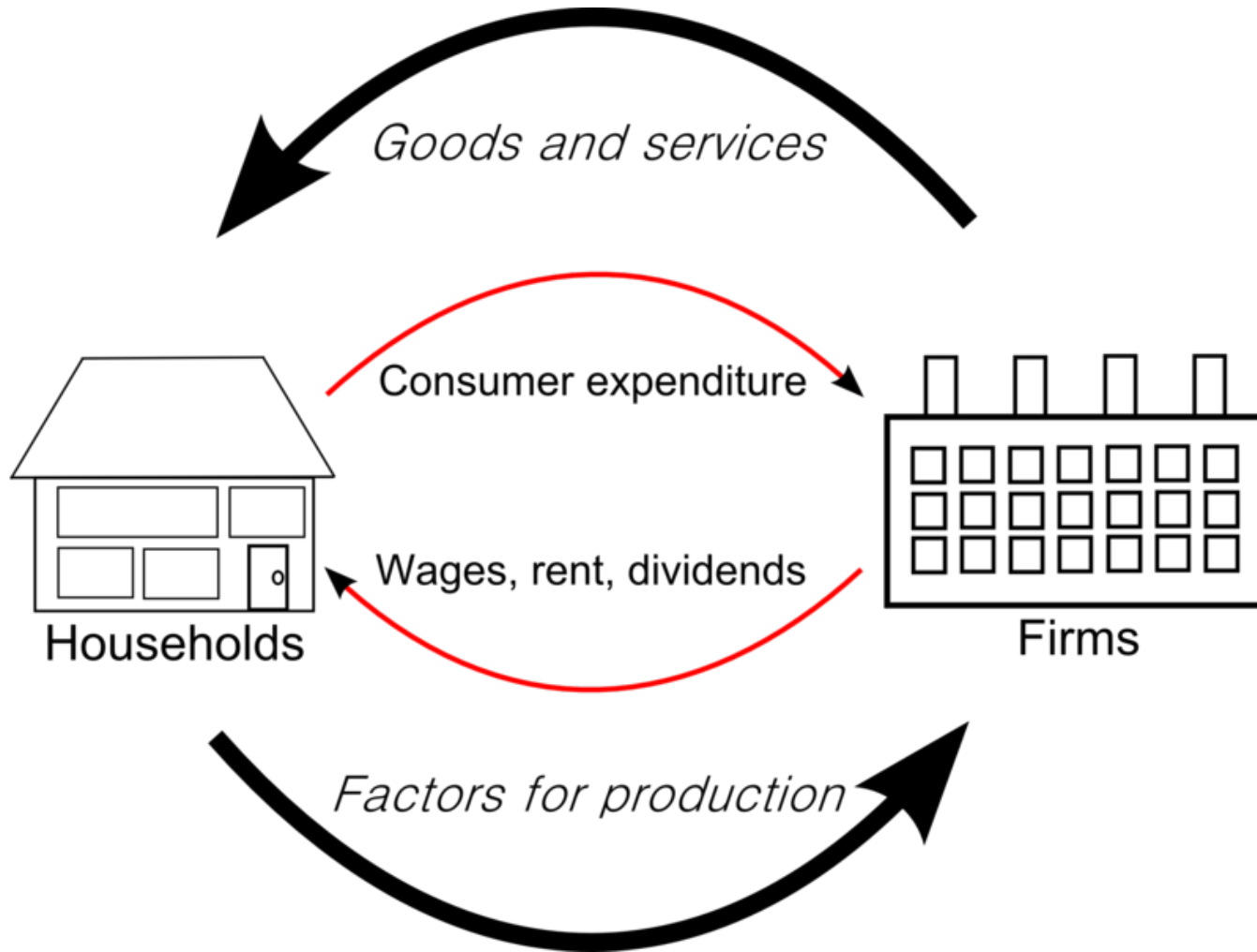
- Selfishness and self-interest
- Can competition be eliminated?
- People do everything for money
- An uncaring system
- Personal and impersonal transactions

Limitations of Markets

Situations in which markets may not be suitable:

- Close Personal Relationships
- Social groups
- Times of Crisis
- Vulnerability
- Vices
- Equality

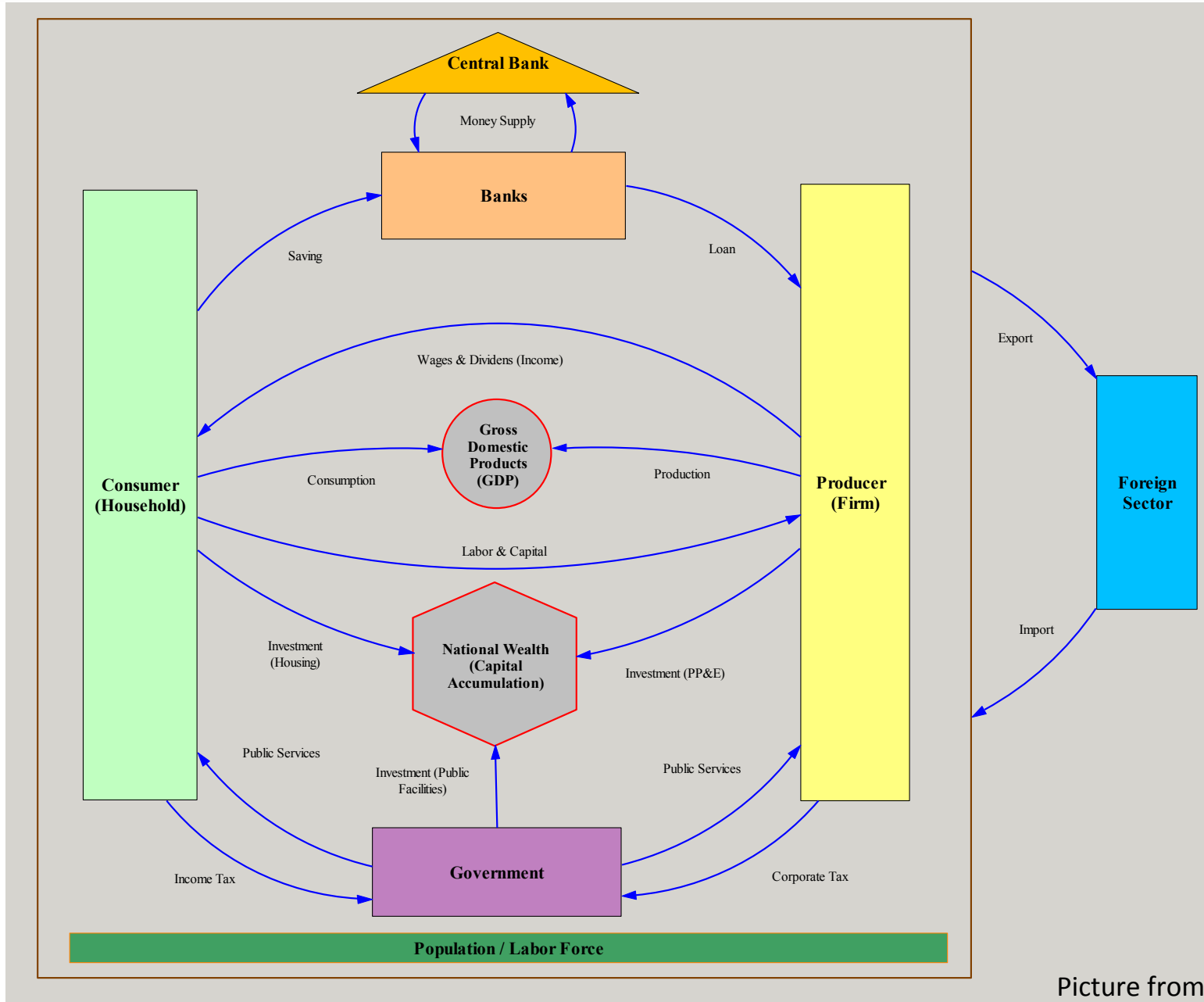
Circular Flow



Circular Flow

- **Two Sectors** (household and firms), **Two Markets** (products and resources): This model highlights the core circular flow of production, income, and consumption. Real Vs Nominal Flow.
- **Two Sectors, Three Markets:** Adds the financial markets, illustrating how saving is diverted from the household sector to the business sector to finance investment.
- **Three Sectors, Three Markets:** Includes the government sector. It highlights the importance of taxes, used to finance government purchases.
- **Four Sectors, Three Markets:** Includes the foreign sector. It highlights the role of trade with the rest of the world, especially exports and imports (Current Account of Balance of Payment) and also the flow of funds (Capital Account of BP)
- The **complete circular flow:** includes all four macroeconomic sectors (household, business, government and foreign) and all three macroeconomic markets (product, resource, and financial).

Macroeconomic System



Challenges of Macroeconomics

- Growth & Price Stability
- Employment & Productivity
- Appropriate amount of money & Stable value of the currency
- Balance of Payment Equilibrium
- Stability – Welfare - Development
- Short Term Vs Long Term



Monetary & Fiscal Policy

- Fiscal Policy: use of government revenue collection (taxation) and expenditure (spending) to influence the economy
- Monetary Policy: process by which the monetary authority manage the supply of money, usually targeting a rate of interest to influence the economy

Macroeconomic Accounting

- Expenditure approach
- **GDP** = Private Consumption + Gross Investment + Government Spending + (Exports- Imports)

$$\mathbf{GDP = C + I + G + X - M}$$

$$C = a + c(Y - T) = c_0 + c Y^d \quad (\text{Welfare economics})$$

$$I = f(Y, r)$$

- Income approach
- Productive Factors: Land, Labor & Capital
 $\Sigma (\text{Rent} + \text{Wages} + \text{net Profits})$



Multiplier Effect

2 sectors

$$Y = C + I$$

$$Y = c_o + c Y + I_o$$

$$Y = (c_o + I_o) / (1-c)$$

$$Y = k * (c_o + I_o)$$

$$**k = 1 / (1-c)**$$

c= marginal propensity to consume

t= marginal tax rate

m= marginal propensity to import

3 sectors

$$**k = 1 / [1-c (1-t)]**$$

4 sectors

$$**k = 1 / [1-c (1-t) + m]**$$

Quantitative Theory of Money

$$M.V = P.Q$$

M : Amount of money in circulation

V : Velocity of circulation of money

P : price level

Q : real expenditures

Predictor of inflation



Monetary Theory

Money Demand, Motives

Transactions
Precaution
Speculation

Money Supply

BM = powered money
M1 = Liquidity : close substitutes of money
M2 = M1 + long term deposits and instruments
M3 = M2 + loan agreements and other instruments

Money Issue
(Central Banks)

Money Creation
(Banking system)



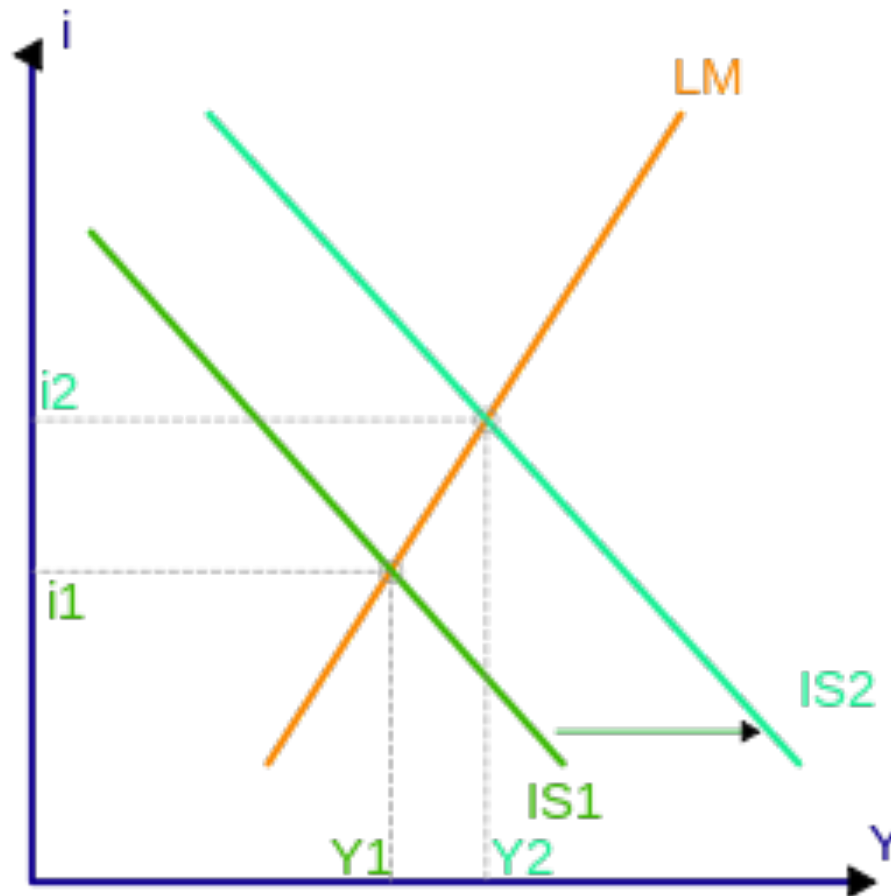
IS – LM (Hicks Synthesis)

IS curve:

**Investment & Saving
Interest rate/Output**

LM curve:

**Liquidity Pref. & Money Supply
Interest rate/Output level**



Exogeneity Vs Endogeneity

- Monetary - real spheres relationship:
- Does money supply exogenously cause economic activity and price levels? Or, does the level of economic activity determine credit demand and therefore money supply? This polemic goes back to 1810 in the House of Commons in England and it is known as the discussion Currency Principle vs. Banking Principle.
- Polemic is still on top: orthodox positions conceive an exogenous money supply, implying the monetary base depends on the amount of gold, foreign currencies and the multiplier, while credit and loans are assumed to be determined by deposits. In such a view, savings define investment and markets adjustments imply changes in 'quantities'. On the other hand, heterodox positions support the view of endogenous money, relating monetary base and credit to economic activity and the interest rate level, so credit loans create deposits and markets adjustments carry out 'price' changes.
- Orthodoxy here includes quantitativists, neoclassical, monetarists and neo-keynesians; and heterodoxy here includes non-bastard keynesians, neo-ricardians and post-Keynesians.

Transmission Channels

- **Interest rate** (traditional Keynesian perspective)

$$\uparrow M \rightarrow \downarrow r \rightarrow \uparrow I \rightarrow \uparrow C \rightarrow \uparrow Y$$

M: Money supply r: interest rate Y:

output

C: consumption I: investments

- **Exchange rate** (considering global open economies)

$$\uparrow M \rightarrow \downarrow r \rightarrow \downarrow e \rightarrow \uparrow X \rightarrow \uparrow I \rightarrow \uparrow Y$$

e: exchange rate X:

exports

- **Credit availability**

$$\uparrow M \rightarrow \uparrow L_s \rightarrow \uparrow C \rightarrow \uparrow I \rightarrow \uparrow Y$$

L_s: supply of funds for loans

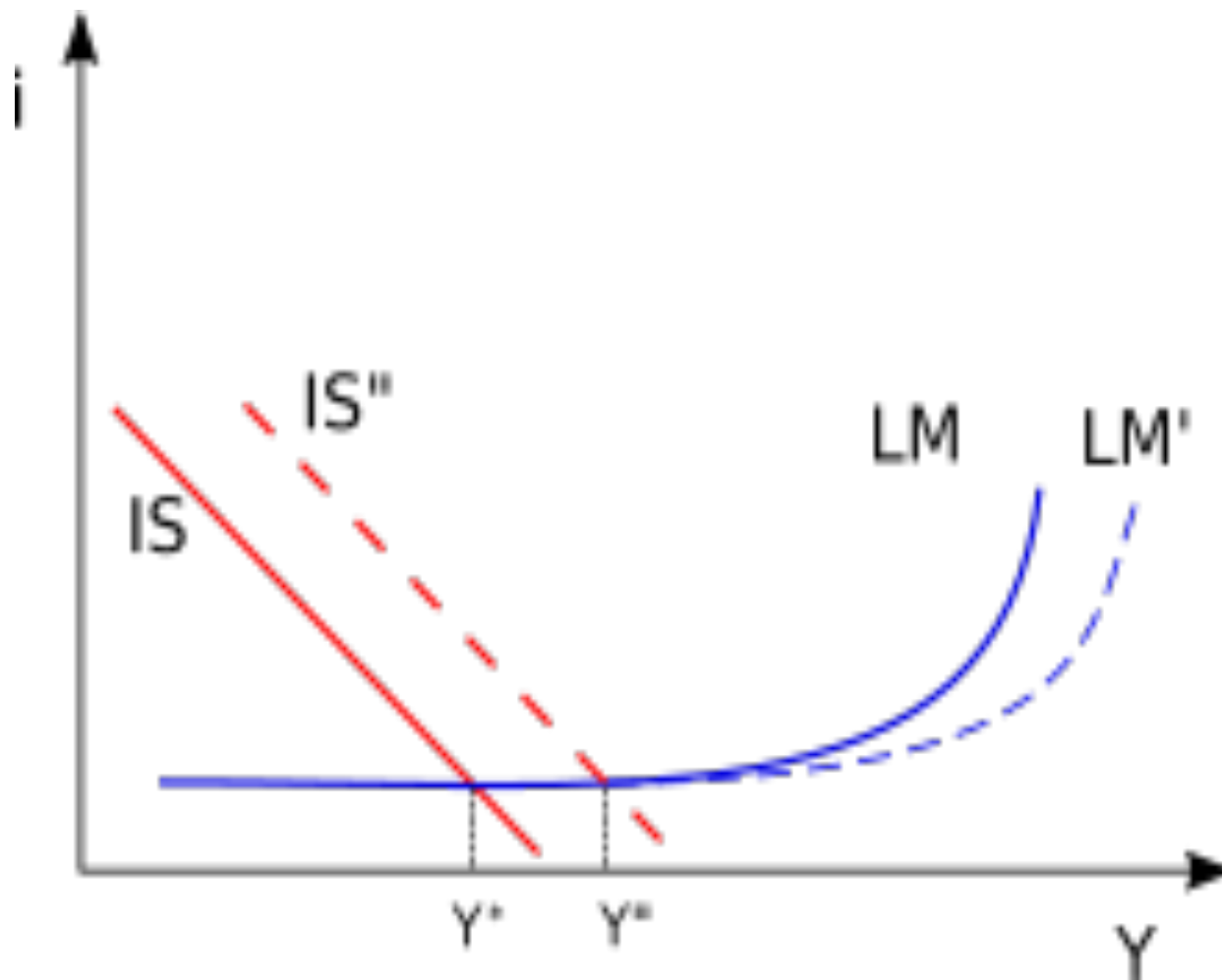
- **Assets**

$$\downarrow M \rightarrow \downarrow pV \rightarrow \uparrow \beta \rightarrow \downarrow L_s \rightarrow \downarrow I \rightarrow \downarrow Y$$

pV: Assets prices β: borrower's risk

$$\downarrow M \rightarrow \uparrow r \rightarrow \downarrow s_m \rightarrow \uparrow \beta \rightarrow \downarrow L_s \rightarrow \downarrow I \rightarrow \downarrow Y$$

Liquidity Trap



Price Vs Quantity

MARKET/Sector	Key Variable	Key Rate
Labor	Employment	w
Goods & Services	Production	q
Money	Liquidity	r
Foreign	X-M, flows	e

Cycles & Economic Fluctuations

... the presence or absence of a fluctuation inherent to the economic process is practically and scientifically the fundamental problem

J. A. Schumpeter

- ✓ Marx, Mitchell, Keynes, Schumpeter
- ✓ Kondratieff, Kutznet, Juglar, Kitchin
- ✓ Kalecki, Minsky, Kindleberger

Finance & Fluctuations

- ✓ Wicksell (1898)
- ✓ Fisher (1907)
- ✓ Hawtrey (1913)
- ✓ Robertson, Keynes (1930)
- ✓ Tobin, Minsky (1982)

➤ 1970 US\$/Gold Inconvertibility

➤ 1982 Debt Crisis (LDC)

➤ 1987 Crash USA

➤ 1992 FOREX Europe

➤ 1993 Stock Market Boom

➤ 1994 Tequila Effect (Mexico)

➤ 1997 Dragon Effect (East Asia)

➤ 1998 Vodka Effect (Russia)

➤ 1999 Samba Effect (Brazil)

2000Y2K

➤ 2000 Turkey Crash

➤ 2001 NASDAQ Crash (Dot com)

➤ 2002 Tango Effect (Argentina)

➤ 2002 Corporations' Financial Scandals

➤ 2002 USA Recession & Cra

➤ 2004 Expansive Cycle

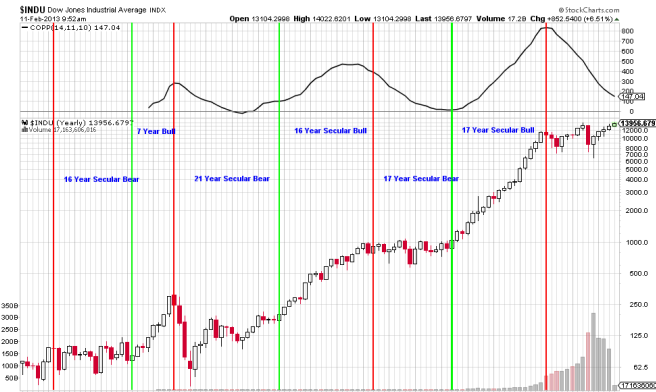
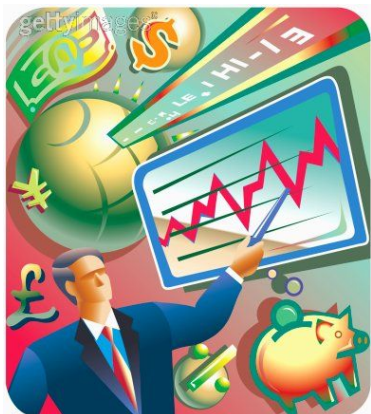
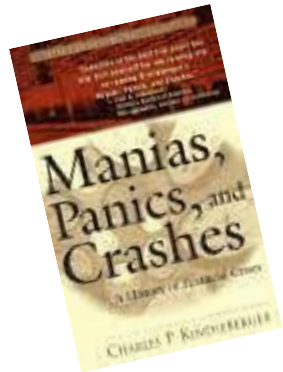
➤ 2007 Subprime Crisis

➤ 2008 Giants Cracks

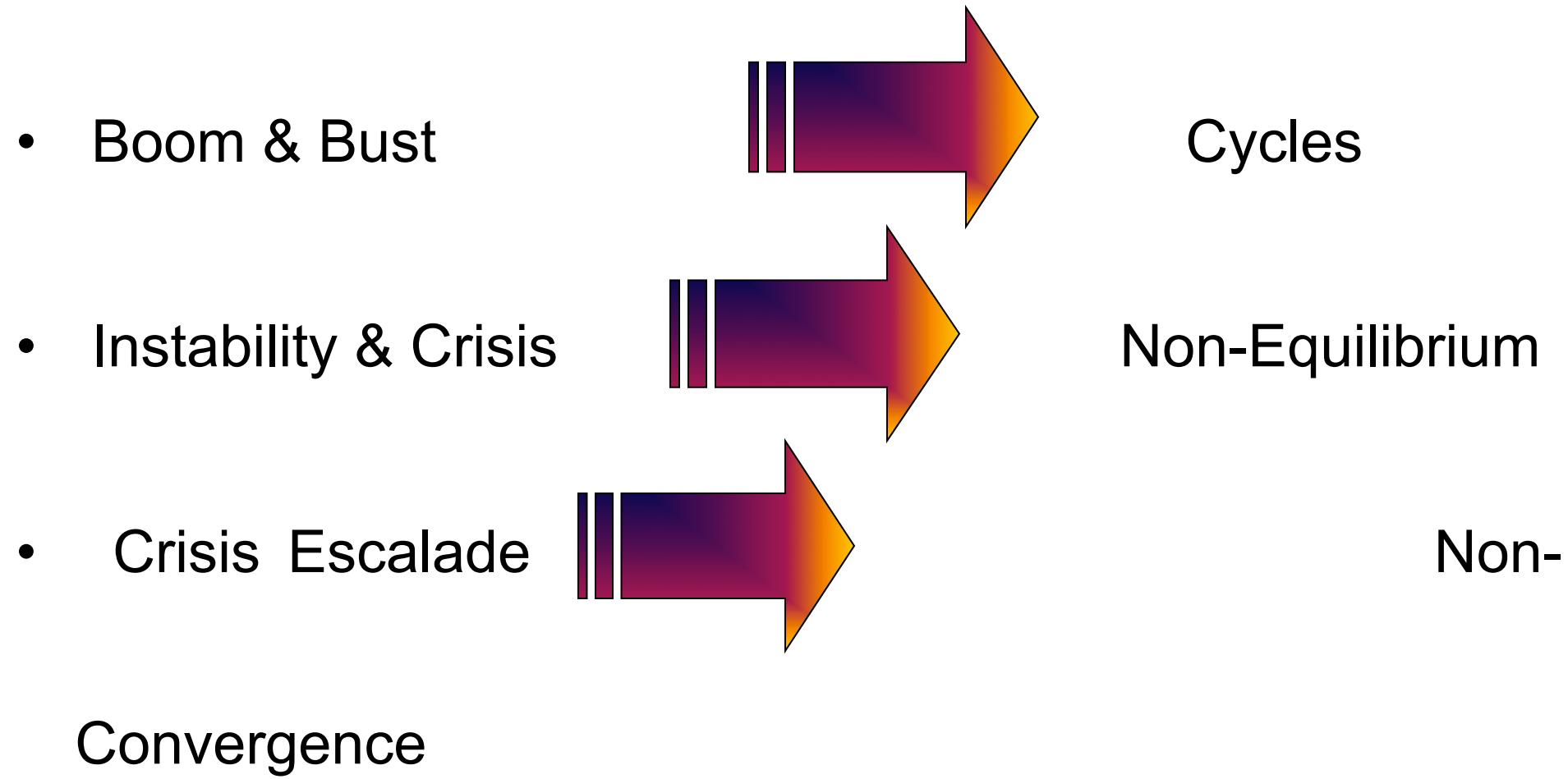
➤ 2009 National Debts

➤ 2014 EMEs ???

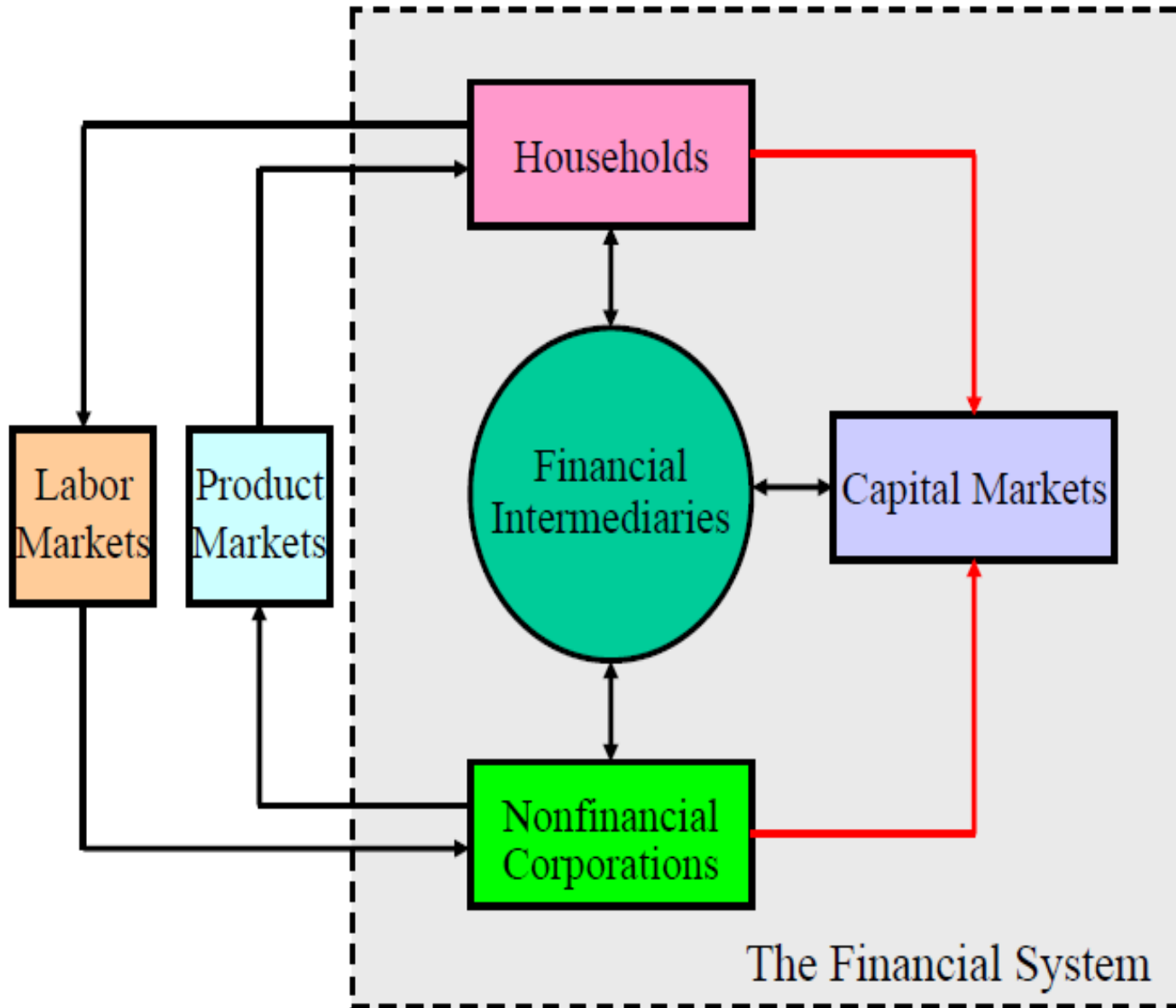
Volatility & Instability



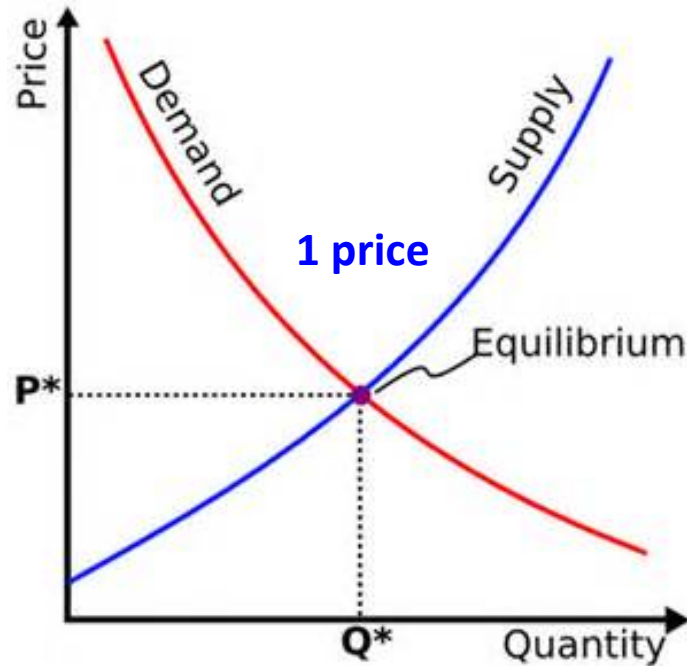
Inferences



Financial System



Demand & Supply



D = f (good/service price, price of related goods/services, preferences, expectations, disposable income, fashion, nature of the good)

S = f (good/service price, price of related goods/services, costs and conditions of production, government regulations, market conditions, expectations)

Demand & Supply

2 prices: bid & ask



QQQ (AMEX)	25.32	0.26	↓	↓		
Dec 22 2002 @ 01:38 E						
Calls	Last Sale	Net	Bid	Ask	Vol	Open Int
02 Dec 10.00 (QIQ LI-E)	15.6	pc	15.3	15.5	← 0	222
02 Dec 10.00 (QIQ LI-A)	15.4	pc	15.3	15.5	0	222
02 Dec 11.00 (QIQ LJ-E)	0	pc	14.3	14.5	0	102
02 Dec 11.00 (QIQ LJ-A)	14.4	pc	14.3	14.5	0	102
02 Dec 12.00 (QIQ LK-E)	14.3	pc	13.3	13.5	0	965
02 Dec 12.00 (QIQ LK-A)	13.3	pc	13.3	13.5	0	965
02 Dec 13.00 (QIQ LL-E)	0	pc	12.3	12.5	0	1009
02 Dec 13.00 (QIQ LL-A)	12.3	pc	12.3	12.5	0	1009
02 Dec 14.00 (QIQ LM-E)	12.3	pc	11.3	11.5	0	1139
02 Dec 14.00 (QIQ LM-A)	11.9	pc	11.3	11.5	← 0	1139



“The financial structure is a cause of both the adaptability and the instability of capitalism (...) Investment therefore is a financial phenomenon”

H. Minsky, 1986:175,187



Firm. Financing Sources

- Internals

$$A_{t+1} = f(U_t)$$

$$U_t = f(V_t, P_t, u_t, e_t)$$

- Externals

$$S = \frac{Cr \cdot r}{1 - (1 + r)^{-n}}$$

A_{t+1} : Self-financing for next period

U_t : Before financial costs profits of period t

V_t : Sales during period t

P_t : Average sale price of period t

u_t : Investment Profitability Index of period t

($u_t = U_t / Kf_t = \text{profits} / \text{fixed capital}$)

e_t : Indebtedness Index of period t

($e_t = L_t / K_t = \text{liabilities} / \text{capital}$)

r : bank borrowing interest rate

n : # of time periods of the loan contract

Financial Instability

Fragility Level

$$F_t = \frac{S_t}{E(U_t)}$$

$E(U_t)$: Expected profits of period t

$$F_t = \frac{\frac{Cr \cdot r}{1 - (1 + r)^{-n}}}{E(U_t)}$$

Country. Macro Perspective

$$F_t = \frac{S_t}{E(B_t)}$$

$$B_t = f(X^+, M^-, u^+, e^-)$$

$$F_t = \frac{\frac{D_t \cdot r}{1 - (1 + r)^{-n}}}{E(B_t)}$$

Bt : Trade Balance of period t

Xt: Total Exports of period t

Mt: Total Imports of period t

ut : Imports investments index of period t
($ut = M_t / MKft = \text{total imports} / \text{fixed capital imports}$)

et : Country indebtedness index on period t
($et = D_t / RINt = \text{National Debt} / \text{Net International Reserves}$)

Dt : Debt Stock on period t

Instability Dynamics

$$\varphi_t = \frac{D_t}{B_t}$$

D_t : Debt stock at period t
 B_t : Trade Balance period t

$$I_t = k * \Delta X_t$$

$$E_t = B_t - r \cdot D_{t-1} - I_t$$

$$D_t = D_{t-1} - B_t + r * D_{t-1} + I_t$$

$$\frac{D_t}{X_t} = (1 + r) \frac{D_{t-1}}{X_t} - \frac{B_t}{X_t} + \frac{I_t}{X_t}$$

$$\frac{D_t}{X_t} = \varphi_{t-1} \cdot \alpha \left(\frac{1+r}{1+g} \right) - \alpha + kg$$

I_t : investments period t
 k : capital-product marginal relation
 X_t : net exports period t ($\Delta X_t = X_{t+1} - X_t$)
 E_t : national financial surplus

α : indicates the capacity of funds' generation
(which is stable in the short run)
 g : exports growth rate

$$\varphi_t = \varphi_{t-1} \left(\frac{1+r}{1+g} \right) + \frac{kg}{\alpha} - 1$$

Constant Rates

	$Kg > \alpha$	$Kg = \alpha$	$Kg < \alpha$
$g > r$	Fast Convergence	Convergence	Slow Convergence
$g = r$	Constant $\varphi_E > \varphi_O$	Constant $\varphi_E = \varphi_O$	Constant $\varphi_E < \varphi_O$
$g < r$	Slow Divergence	Divergence	Fast Divergence

Instantaneous Rate of Variation

$$\frac{\partial \varphi_t}{\partial g} = -\varphi_{t-1} \cdot \frac{(1+r)}{(1+g)^2} + \frac{k}{\alpha}$$

Cyclical Rates

$$g = \lambda \text{Sen}(t)$$

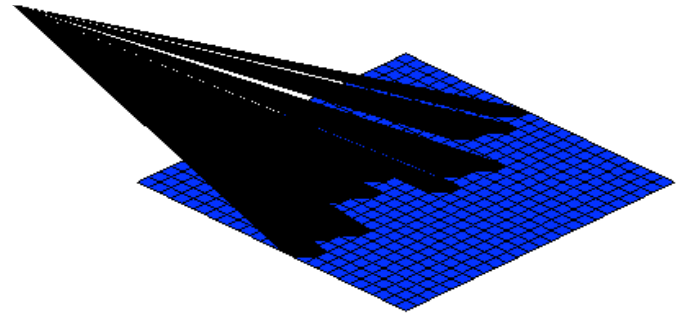
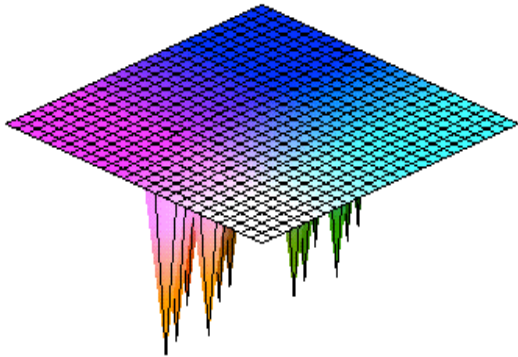
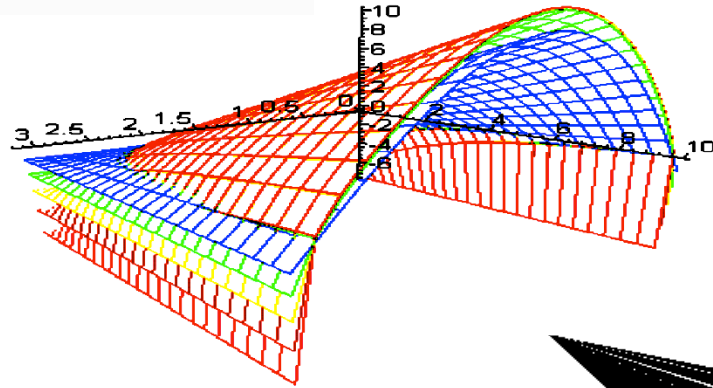
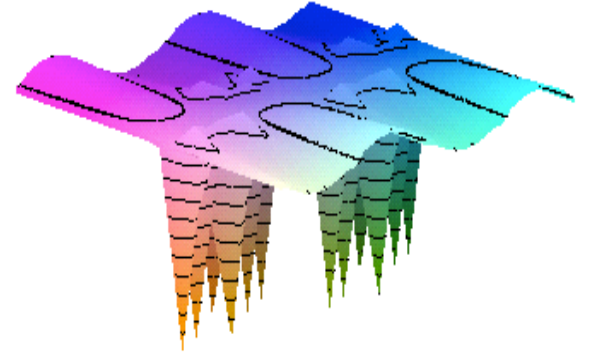
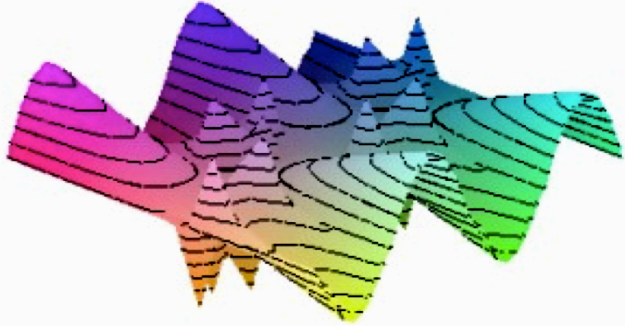
with a range of $g = [-\lambda, \lambda]$

$$\varphi_t = \varphi_{t-1} \left(\frac{1+r}{1+\lambda \text{Sen}(t)} \right) + \frac{k \cdot \lambda \text{Sen}(t)}{\alpha} - 1$$

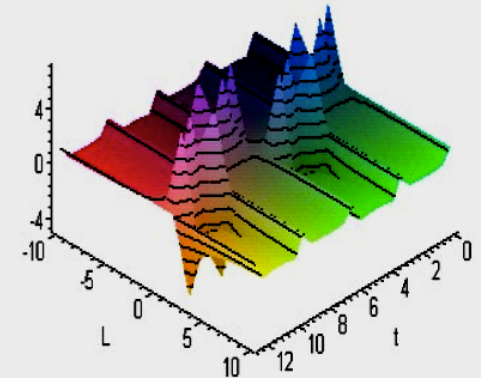
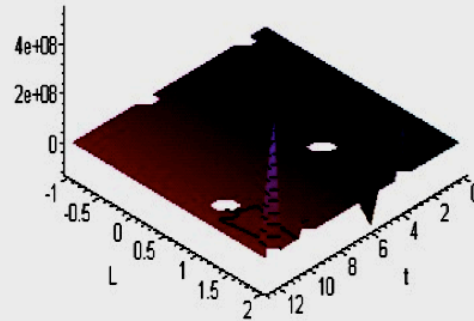
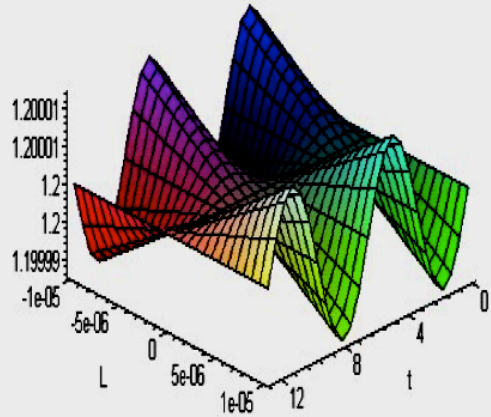
$$\varphi_t' = \frac{1+r}{1+\lambda \text{Sen}(t)} = f(t)$$

$$\frac{df(t)}{dt} = \frac{-\lambda \text{Cos}(t) \cdot (1+r)}{(1+\lambda \text{Sen}(t))^2} = \frac{-\lambda \text{Cos}(t) \cdot (1+r)}{1+\lambda^2 \text{Sen}^2(t) + 2\lambda \text{Sen}(t)}$$

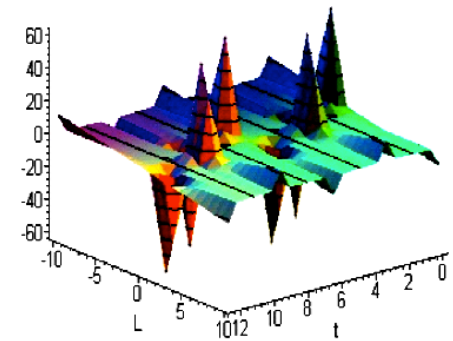
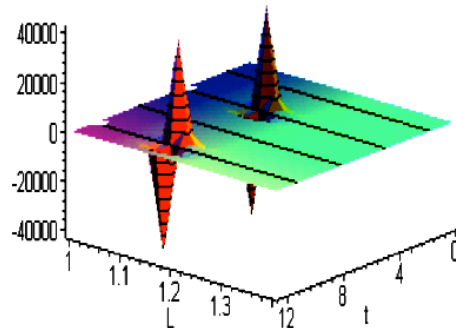
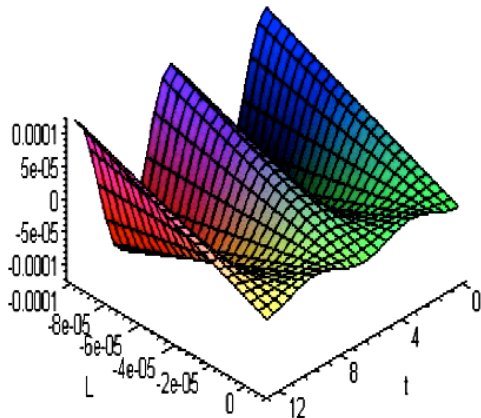
$$\varphi_t = \varphi_{t-1} \left(\frac{1+r}{1+\lambda Sen(t)} \right) + \frac{k \cdot \lambda Sen(t)}{\alpha} - 1$$



$$\varphi_t' = \frac{1+r}{1+\lambda Sen(t)}$$



$$\frac{df(t)}{dt} = \frac{-\lambda \text{Cos}(t) \cdot (1+r)}{(1+\lambda Sen(t))^2} = \frac{-\lambda \text{Cos}(t) \cdot (1+r)}{1+\lambda^2 Sen^2(t) + 2\lambda Sen(t)}$$

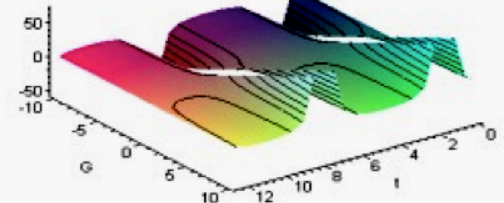
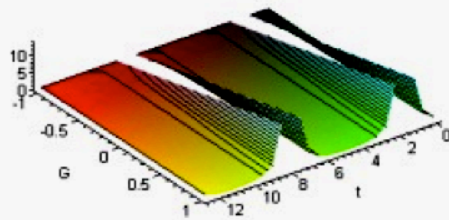
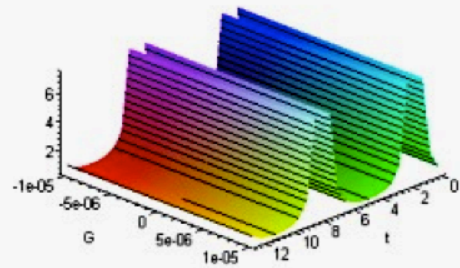
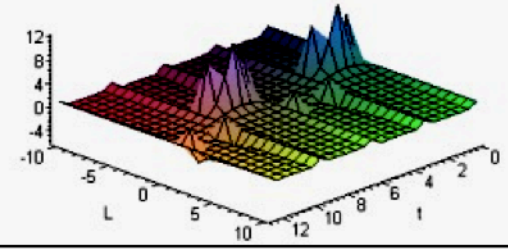
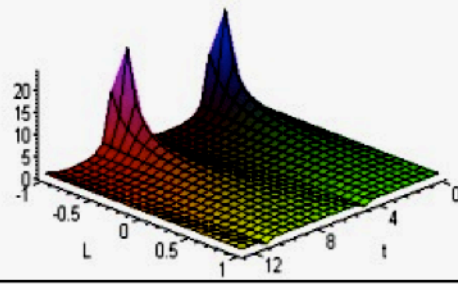
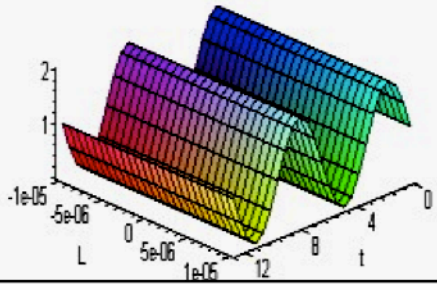


Nominal vs. Real Interest Rate: encompassed rhythm

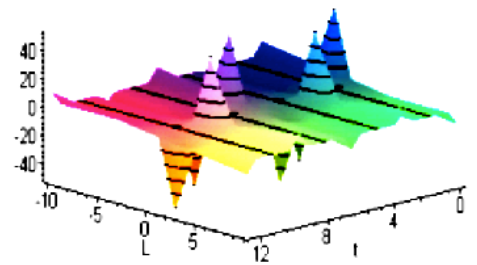
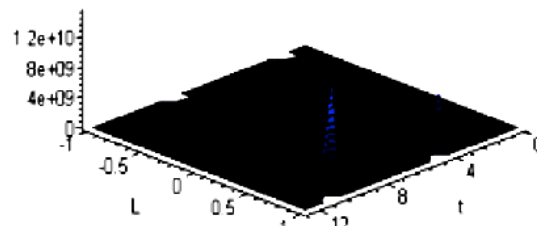
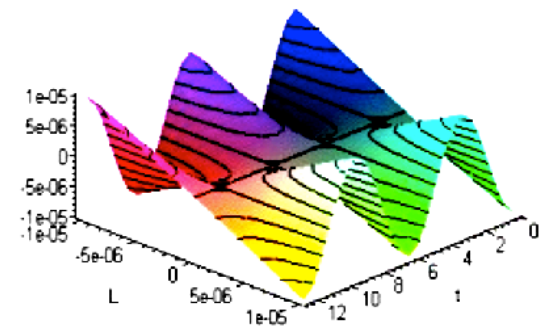
$$i = \gamma Sen(t)$$

$$\varphi_t = \varphi_{t-1} \left(\frac{1 + \gamma Sen(t)}{1 + \lambda Sen(t)} \right) + \frac{k \cdot \lambda Sen(t)}{\alpha} - 1$$

$$\varphi_t' = \left(\frac{1 + \gamma Sen(t)}{1 + \lambda Sen(t)} \right)$$



$$\frac{df(t)}{dt} = \frac{(\gamma - \lambda) \cdot \text{Cos}(t)}{(1 + \lambda Sen(t))^2}$$

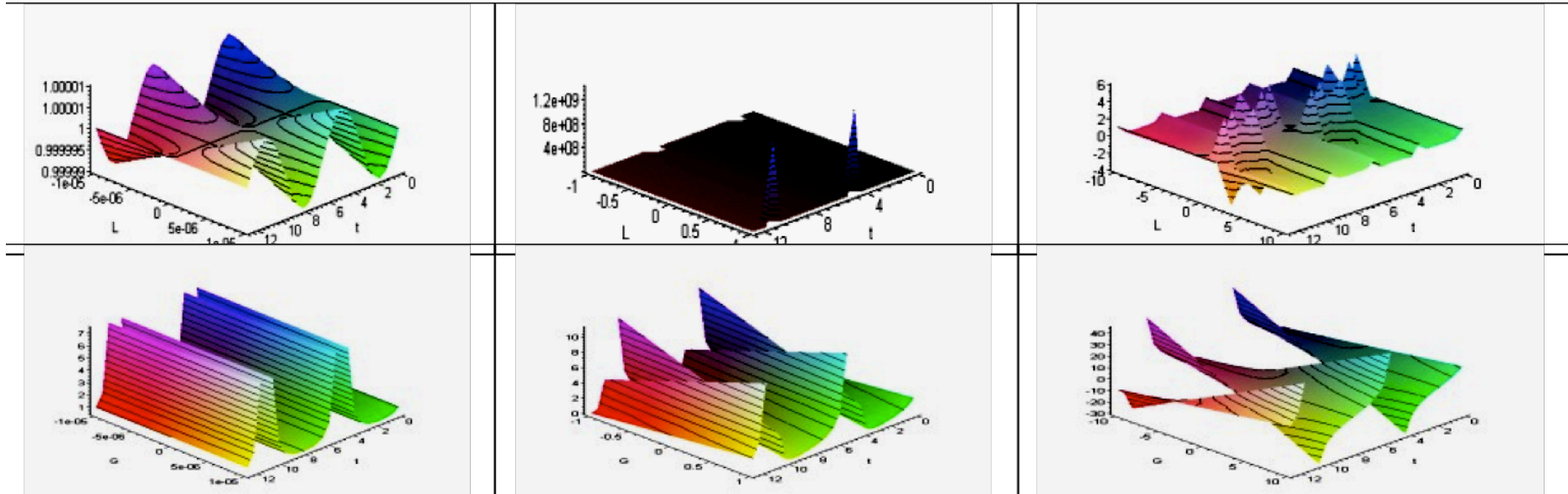


Different cycles: Non rhythmic encompass

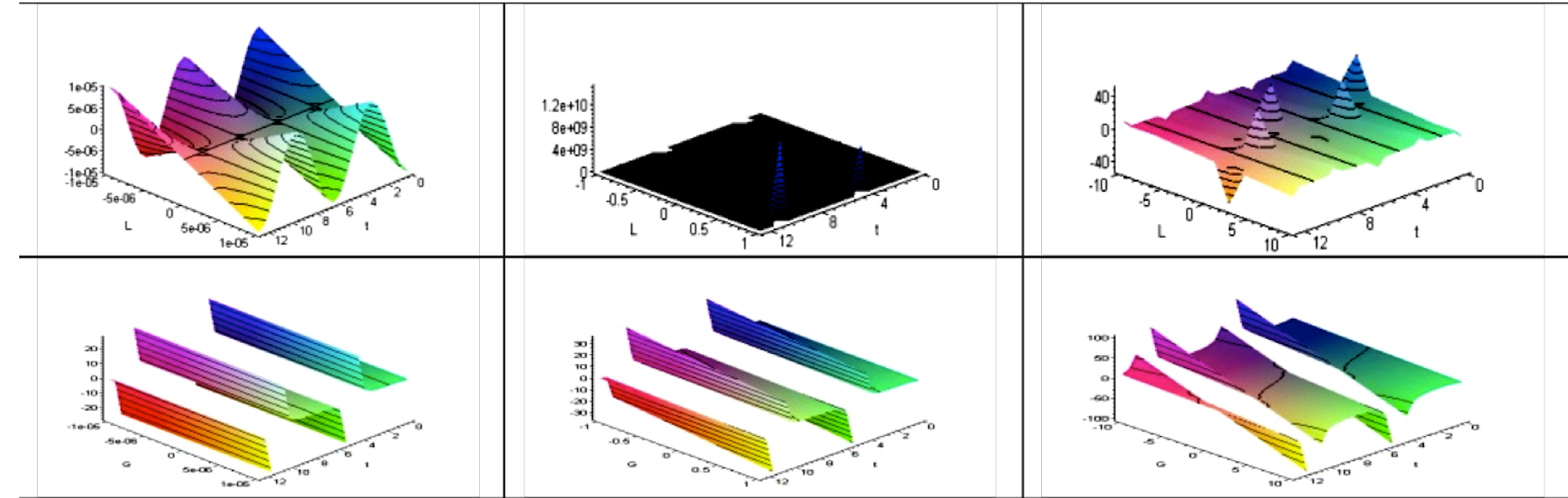
$$i = \gamma \text{Cos}(t)$$

$$\varphi_t = \varphi_{t-1} \left(\frac{1 + \gamma \text{Cos}(t)}{1 + \lambda \text{Sen}(t)} \right) + \frac{k \cdot \lambda \text{Sen}(t)}{\alpha} - 1$$

$$\varphi_t' = \frac{1 + \gamma \text{Cos}(t)}{1 + \lambda \text{Sen}(t)} = f(t)$$



$$\frac{df(t)}{dt} = \frac{-\gamma \text{Sen}(t) - \lambda \text{Cos}(t) - \gamma \lambda}{(1 + \lambda \text{Sen}(t))^2}$$



Model's Conclusions

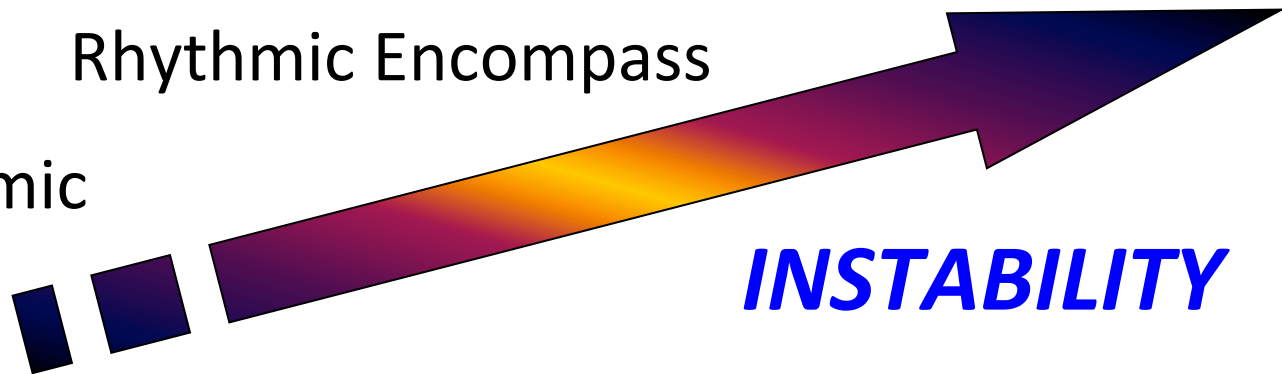
The analysis of the Index's dynamic shows that:

- Stability / instability dynamic depends on the relationship of the wave's width and length of both rates
- Stability / instability index becomes poorly explained by the absolute values of the rates the more differentiated the lengths of their fluctuations become

Non Rhythmic Encompass

Rhythmic Encompass

Linear Dynamic



INSTABILITY

Final Remarks

- ✓ Cyclical patterns of certain variables, as natural consequence of economic cycles, turn into highly irregular dynamics which frustrates stabilization policy analysis derived upon conventional, linear, time-invariant and oversimplified structure.
- ✓ Fluctuating of both rates in a non rhythmic way, is particularly interesting for small & medium open economies, as the required capital for investments is, in an important amount, foreign, and the dynamics of its price (the international interest rate) is not rhythmically encompassed to the economy .



- ✓ Highlight the importance of non-linear and far from equilibrium analysis as a tool to understand the complexity of economic dynamics, which by the same reason, should not be understood as rare, random or merely stochastic.
- ✓ The dynamic interactions of different non-linear forces in an evolutionary process create a lot of possibilities to generate endogenous chaos, an ignored concept in those studies focused on equilibrium.

Rules of the Game

- Institutional Economics
- Game Theory
- Behavioral Economics

Challenges of Finance

- Management of assets
 - What, When and How Buy/sell
- Valuation of assets
 - Price discovery → market role
 - Risk
 - Time



Source of information

ACCOUNTING



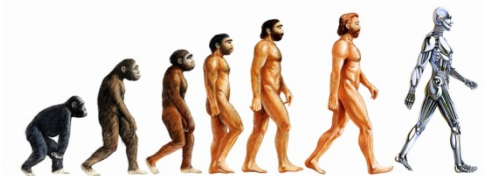
- Balance Sheets (stock analysis)

$$\text{Assets} = \text{Liabilities} + \text{Capital}$$

- Income & Expense Statement (flow analysis)

$$\text{Income} - \text{Costs} - \text{Expenses} = \text{Profits}$$

HISTORICAL DATA



- Price, volume, volatility, trends, cycles ...

Value of Money in Time

Simple Interest

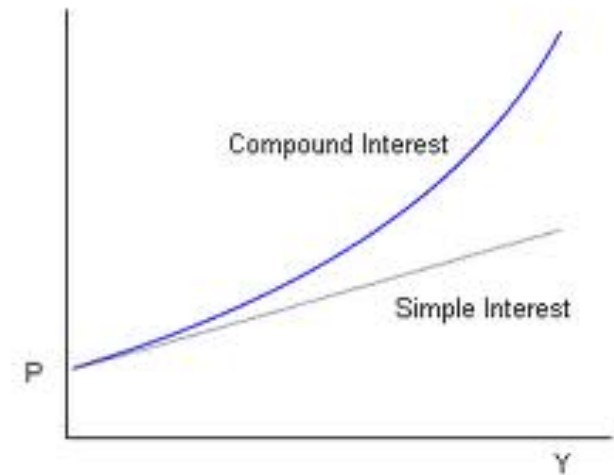
$$I = P * r * n \quad ; \quad A = P + I$$

Compound Interest

$$A = P (1 + r)^n$$

Effective Annual Interest

$$(1 + r) = (1 + r_m/m)^m$$



Present Value

- Of an Annuity

$$PV = \sum_{k=1}^n C(1+i)^{-k} = \frac{C}{i} \left[1 - \frac{1}{(1+i)^n} \right] = C \left[\frac{1 - (1+i)^{-n}}{i} \right]$$

- Of a Perpetual Annuity

$$PV = \sum_{k=1}^{\infty} C(1+i)^{-k} = C \sum_{k=1}^{\infty} \frac{1}{(1+i)^k} = \frac{C}{i}, \quad i > 0,$$

- Of a stream of Cash Flows

$$NPV = PV_1 + PV_2 + PV_3 \quad . \quad PV = \frac{C}{(1+i)^n}$$

Portfolio Theory

- Markowitz
- CAPM, APM
- Black Sholes

Macro-Finance: Financing Macroeconomics

- Financial Crisis
- Monetary Policy
- Rules of the Game
- Kydland & Prescott
- Rules Vs Discretion
- Financial Organizations: FMI, Basle, CB