Financialization in the Light of Keynesian Theory

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Every financial crisis reminds one of the sayings of an ancient Greek philosopher: "It is never possible to step into the same river twice" (Heraclitus, circa 544 B.C.). And yet, just as the ever-changing river remains recognizable, episodes of financial crises are also recognizable as belonging to a general pattern despite their different historical specificities. Most crises share a general time pattern in which the process starts with a build up of confidence in rising asset prices with optimism turning into mass hysteria and a bullish mania at the peak of the bubble; and then confidence collapses making way for a bearish panic and crash (Kindleberger, 1996; Rogoff and Reinhart, 2008). While this recurring pattern typical of most financial crises is a summary description of what happens, how it happens in each specific case is part of a particular historical narrative. The question as to why the pattern tends to recur at fairly regular intervals leads us to the realm of economic theory.

From this point of view, a theoretical analysis is essential but inadequate for understanding any particular episode. It is inadequate because it leaves out the specifics and yet, it is essential because it provides the necessary comparability with other crises. The present essay attempts to isolate and understand the recurring common features of several recent crises in advanced market economies in the light of Keynesian theory (Keynes, 1936/1964) with some crucial modifications introduced later particularly by Kaldor (1982), and Minsky (1986) with respect to the financial sector.

1. Two Regimes of Aggregate Demand under Capital Gains.

The idea that public investment is the most reliable instrument available to deal with demand deficiency and mass unemployment was

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given a conservative twist in recent years. Instead of direct public investment for employment generation, recent policies relied on indirect stimulation of consumption demand through a boom in the stock and real estate market supplemented by discriminatory tax cuts in favour of the richer sections of the population. Since more is saved out of profit, especially as retained corporate profit, the overall saving propensity increases due to such income redistribution in favour of profits. Other things held equal, this would have weakened the multiplier mechanism to depress aggregate demand, but this depressive effect was countered through increased consumption by the rich due to the wealth effect they enjoyed from rising asset prices.[1]

Rising asset prices result in a wealth effect by enhancing the credit worthiness of the private borrowers in the eyes of lending banks and other institutions who become more solvent, and therefore in a more comfortable position to lend. As a result both borrowers and lenders reinforce mutually tendencies for credit to expand. The result is a private debt financed boom, which also differs from the Keynesian policies of public debt financed economic expansion.

However, the wealth effect operates in this context with some significant difference. While the conventional wealth (or real balance) effect also depends on the change in the stock of wealth (e.g. the stock of real money balance held by the public), the wealth effect operates in the present context through stimulating borrowing and lending against the incremental value of wealth due to capital gains.

This stock flow relation affects expenditure in contradictory ways. Against the stock of wealth inherited from past periods is accumulated borrowing as stock of outstanding debt, and these two stocks are linked through some credit worthiness criterion related to the debt to wealth ratio. The repayment obligations on the stock of outstanding debt depresses income and consumption, whereas the flow of fresh borrowing against the rising value of wealth on account of capital gains finances higher consumption. In discrete time this relation can be seen as:

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[1] Hein (2009), Palley (2008), Foster and Magdoff (2008), Skott and Ryoo (2008), Stockhammer, Ozlem and Ederer (2009) provide evidence and analysis on this and related aspects of this issue.

$$W_t = W_{t-1} + \Delta W_{t-1} \tag{1}$$

where outstanding debt D $(=D_{t-1})$ is related to the stock of inherited wealth W_{t-1}, while new flow of loan stimulating consumption comes from fresh borrowing ΔD_{t-1} against the expected increase in wealth W during the period. Consequently, consumption is subject to two contradictory effects. Fresh borrowing raises but repayment obligations on past debt depress consumption. In a regime of debt financed expansion fresh borrowing (dD/dt) against rising wealth stimulates consumption which gives way to debt burdened contraction, when the negative influence of the repayment burden on the stock of outstanding debt D outweighs the positive effect on consumption through borrowing. Debt cycles can be shown to result from this contradictory pulls of the stock and flow of debt (Bhaduri, 2010).

However, the increase in wealth that occurs mostly through higher prices of existing assets (including housing and real estates) is largely notional.[2] Most of this increase in asset value cannot be realized on a macro economic scale without setting off strong depressive bearish tendencies in the asset market. Nevertheless, on a micro scale, the higher value of wealth makes each individual wealth owner more creditworthy while expanding simultaneously the credit base of individual lending institutions through an increase in the (mark to market) valuation of assets on their balance sheets. This leads to an increase in the actual flow of credit against notional increase in wealth to finance higher private consumption (cf. Bhaduri, Laski and Riese, 2006).[3]

The effect on consumption is captured through the contradictory negative role of the stock of debt and the flow of fresh borrowing against capital gains in a consumption function of the general form:

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[2] Our analysis concentrates on the short period, and as first approximation we may assume that the stock of assets is given, i.e. the secondary market is overwhelmingly more important than the primary market of fresh issue.

[3] Statistical evidence on the importance of fresh borrowing against capital gains financing higher consumption as well as acquisition of financial and real assets can be found in Baker (2006), Campbell and Cocco (2006), Dayan and Maki (2000), Maki and Palumbo (2001). More than four decades ago Kaldor (1966) had incorporated in his steady state growth model the capital gains effect for estimating personal saving.

$$C = C(Y, G, D) \tag{2}$$

with respective partial derivatives $C_Y > 0$, $C_G > 0$, and $C_D < 0$, where consumption C depends positively on income Y and capital gains G, but negatively on the inherited stock of debt D.

The effect of the asset market boom on real investment remains less certain. However, the extent to which expected capital gains lure away investment fund from the real to the financial sector, it would have a depressive effect on real investment. Keynes' "two price theory" comparing acquisition price with construction or replacement price of asset provides a simple way of investigating the relation between investment in the financial and in the real sector. Financial investment entails change of ownership (in the secondary market), while real investment results in the creation of new production capacity. This idea was reformulated in Tobin's (1969) q-theory without capital gains, and, in a more relevant way for the present purpose by Minsky (1986) through incorporating capital gains. Under expected capital gains G during the current period, we reformulate the q-theory as

$$q = [(P_a - G)/P_c] \tag{3}$$

where P_a = acquisition price and P_c = construction/replacement price of an asset.

The argument is greatly simplified by assuming static expectations, where the acquisition cost P_a in the numerator of (3) is reduced by expected capital gains G, because the ownership of the acquired asset is assumed to be resalable without difficulty in the stock market at expected capital gains. Consequently, from the point of view of the investor the acquisition price P_a is reduced by expected capital gains.[4] By this reasoning, capital gains have a depressing effect on real investment in so far as investment funds are attracted away from the real to the financial sector by the lure of higher capital gains.

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[4] I am indebted to Stefania Martelli for discussions, who also used this formulation in her Ph.D (2008) thesis in the University of Pavia.

Accordingly the demand function for real investment (I) is written as:

$$I = I(Y, G) \qquad\qquad (4)$$

$I_y>0$, $I_G<0$ i.e. real investment is influenced positively by capacity utilization proxied by current income Y but negatively by G in sofar as it diverts funds from real to financial investment.

Similarly, expected capital gains due to booming asset prices usually attract capital inflow from overseas, and the corresponding capital account surplus in the balance of payments would have its counterpart in current account deficit provided compensating capital movement is included in the capital account. On this accounting convention, the current account balance B, defined as export plus net factor income minus import, adjusts to capital account inflows and outflows to keep the overall payments in balance. Without specifying the possible routes through which such adjustments might take place, for our present purpose we merely note that inflow on the capital account (especially portfolio investment for acquisition) is encouraged by capital gains, and G has a depressing effect on the current account B, while higher income stimulating imports has a negative effect on the current account balance. These influences on the current account (B) are summed up as:

$$B = B(Y, G), \quad B_y<0, \quad B_G>0 \qquad\qquad (5)$$

We consider equilibrium of the flow variables during a short period taking the stock of inherited debt (D) as given. Saving (S) investment equality determining output in an open economy from the demand side is given from (2), (4) and (5) as:

$$[Y\text{-}C(Y,G,D)] = S(Y,G,D) = I(Y,G) + B(Y,G) \qquad\qquad (6)$$

where inherited debt D is a given parameter.

On total differentiation and rearrangement of terms, (6) yields

$$(dY/dG) = [I_G+B_G-S_G]/[S_y-I_y-B_y] = [(-)+(-)-(-)] / [(+)-(+)-(-)] \qquad (7)$$

The usual condition for the stability of the Keynesian income adjustment process, namely $S_y > I_y$ is sufficient to make the denominator of (7) positive.[5] Therefore the sign of the numerator determines the sign of the slope of Y with respect to G. From (7), higher capital gains has the effect of depressing savings by stimulating consumption, i.e. $S_G<0$. By assumption, $I_G< 0$, and also $B_G<0$. If the stimulating effect of capital gains on consumption (i.e. its depressive effect on saving) outweighs its depressive effect on real investment and on the current account balance, i.e. in absolute magnitude:

$$S_G > (I_G+B_G) \qquad (8)$$

the numerator in (7) will be positive. In view of (7) and (8), $(dY/dG).> 0$, implying that demand determined income increases with capital gains. This regime may be described as consumption led under capital gains because the positive effect of capital gains on aggregate demand through consumption outweighs its negative effect through investment and current account balance. In the opposite case, inequality (8) is violated, and the regime is characterized as investment led under capital gains, since the negative effect of capital gains on aggregate demand via real investment and current account balance outweighs its positive effect via consumption.[6] The locus of commodity market clearing saving investment equilibrium are exhibited for the two regimes in the <G, Y> plane in Figure 1.

The flow equilibria depicted in Figure 1 would be affected by the given stock of past debt. Other things held equal, a higher level of accumulated debt would reduce aggregate demand and income in both

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[5] The less stringent necessary and sufficient condition $[S_y-I_y-B_y] > 0$ includes propensity to import out of income.
[6] Capital gains G depresses all the variables: S by raising consumption, I by luring funds from the real to the financial sector by making acquisition of capital gains yielding assets more attractive, and current account balance by attracting capital inflows. Consequently, taking signs into account, $-S_G <- (I_G+B_G)$.

the regimes, and shift downwards both the consumption and the investment led curve, IS-C and IS-I respectively.

Figure 1 - *Consumption (IS-C) and Investment (IS-I)*
Led Regime under Capital Gains

Income, X

IS-C

IS-I

Capital Gains, G
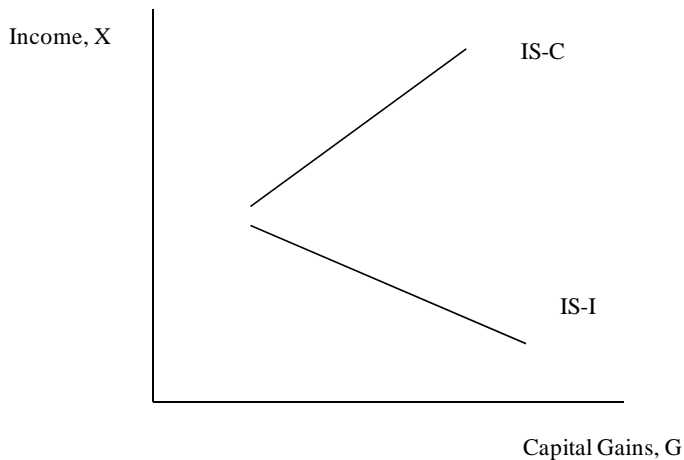
2. The Role of Finance

The mediation of money as a device to deal with uncertainty which influences the interaction between the real and the financial sector was arguably one of the most novel feature Keynes brought into his theory. It highlighted how money separates the decision to supply from the decision to purchase (or demand) to invalidate Say's Law during each short period. It also explained how money provides flexibility in the economic positions of agents under uncertainty, becomes the link between the present and an uncertain future. Thus, the higher the perceived state of uncertainty, the stronger would be the desire of concerned agents to maintain greater flexibility by taking a more liquid

position. However, greater liquidity like a larger insurance has a higher premium which is paid in terms of foregone possibilities of capital gains and interest income as higher opportunity cost.

It might be noted that this link between liquidity and flexibility of economic position under uncertainty also appears in other guises. For instance, under uncertain demand, firms might deliberately keep excess capacity or inventories in reserve (analogous to liquidity) as a strategy for maintaining a more flexible position. Similarly, they might prefer a method of production with lower fixed but higher operating cost even if total unit cost turns out to be higher. Money as the most general device for maintaining flexibility in face of uncertainty therefore has a central role in Keynesian analysis.

Assuming as given the state of uncertainty, and taking the rate of interest i as a given parameter set administratively by the monetary authority, in general an inverse relation would obtain between the demand for money and expected capital gains.[7] However, since money is also demanded for transaction, using Y as a proxy for the volume of transactions, the total demand for money (L) can be written as:

$$L= L(Y, G), \quad L_y > 0, L_G < 0 \tag{9}$$

In original Keynesian (as well as Monetarist) formulation the "quantity of money" was treated an exogenous variable controllable by the monetary authority. However this requires serious amendment because the assumption of an exogenously given supply of the "quantity of money" is not merely flawed in the present context on grounds of realism, it is even counterproductive for understanding why financial crisis erupts at regular intervals in modern sophisticated financial systems.

We need to recognise the fuzzy nature of "the quantity of money" due to the presence of an increasingly large range of substitutes for bank

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[7] With redefinition of units (setting total stock of assets as unity) we can write, $(G/P_a) = (\Delta P_a / P_a)$ which is dimensionally comparable with the rate of interest on more liquid assets enjoying no capital gains. In this case, $[(\Delta P_a / P_a) -i]$ is the opportunity cost or "premium" paid on holding the less liquid asset which carries no interest income (e.g. housing) but prospect of capital gains.

credit. This was particularly apparent in the recent crisis. The virtually unregulated "shadow banking system" of mutual funds, investment and mortgage banks, and other financial agencies created a phantom world of privately guaranteed mutual insurance schemes against credit defaults (like credit default swaps, and more generally other derivative trades). They created a dense network of interlocked assets and liabilities without any legal provision for "the lender of last resort" on the one hand, and virtually free from all regulations on the other. The financial firms were highly leveraged as they borrowed at low margin with very little of their own funds due to low liquidity holding to advance credit to the real sector. In these circumstances, even a relatively small credit default in relation to the total volume of loan advanced could easily destabilize the system by suddenly creating a demand for liquidity.

The real and the financial sector interact in these circumstances through accommodating fully the demand for credit through endogenous creation of the required credit money, if necessary outside the formal and centrally supervised system of credit creation. In so far as the real economy is concerned, it has an in built strong positive feedback mechanism that tends to be destabilizing. Higher real investment (I) leads to higher capacity utilization and higher profit (R) which in turn stimulates further investment and profit in the next round. This strong feedback mechanism between investment and profit operating through the multiplier mechanism was introduced first by Kalecki (1933/1971) in his theory of business cycles. In these early generations of business cycle theories, the sustained boom in the real economy comes to an end due to the negative impact of accumulating capital stock (Kaldor, 1940; Goodwin, 1951). A parallel model could be built where repayment obligation on accumulated debt brings the boom to an end (Bhaduri, 2010; Godley, 2001; 2002). However, we need to view this phenomenon of downturn differently because creation of sufficient endogenous money by a sophisticated financial sector would set no financial limit to the boom.

Paradoxically however the strong positive feedback between real investment and profit locks in the economy in an atmosphere of unreasonable optimism. "Conventions" set in that rising asset price accompanying the boom is a normal state of affairs (Keynes, 1937), while

the probability of abnormal negative shocks is systematically underestimated. All agents, the firms, the households in the real sector as well as banks and non-bank entities in the financial sector begin to underplay uncertainty and the possibility of negative shocks, and become inclined to take more risky financial positions by transiting from hedge to speculative to Ponzi finance (Minsky, 1986). It lowers their liquidity holdings and makes them economically less flexible and less capable of dealing with negative shocks. While the financial system increasingly loses flexibility, credit expands rapidly. Rivalry among competing financial institutions in this climate of optimism lowers the standard of credit worthiness, while creation of fancy credit instruments substitute for bank credit to keep hidden the lower availability of internal liquidity within the financial system. A wide range of credit substitutes is created through a heavily interlocked asset and liability structure of unregulated financial firms with no lender of last resort provision. While they make a mockery of exogenous control of money supply, decreased holding of liquidity by banks and financial firms results in increased systemic illiquidity of the financial sector leaving them more vulnerable to shocks. At the same time, the probability of default keeps rising in this regime of rapid endogenous expansion of various credit substitutes with an interlocked asset structure characterized by increasing systemic illiquidity. Increasing systemic illiquidity with rapid expansion of poor quality credit substitutes provide the recipe for the financial crisis.

The general process of endogenous credit expansion to accommodate demand with increasing systemic illiquidity is captured formally as:

$$\text{M}_F = m \cdot \text{M} = m(G) \cdot L(G, Y), \ \ m_G < 0 \tag{10}$$

In (10) M_F = the internal liquidity holding by the financial sector, assumed a constant M_F; $L(G, Y)$ = demand for credit is endogenously met by creating mostly credit substitutes by lowering the liquidity reserve $m(G)$ through financial innovations. The partial derivative $m_G < 0$, because this process of creating credit substitutes through lowering m becomes easier at higher expected capital gains.

From (10) taking total derivative and collecting terms:

$$(dY/dG) = - [mL_G+Lm_G] / [mL_y] = -[(-) + (-)] / [+]= (+) \qquad (11)$$

Therefore the endogenous credit supply LM curve is positively sloped. Superimposing this LM curve on the IS curve in Figure 1, the equilibrium level of income Y and capital gains are determined simultaneously.

Figure 2 - *Endogenous credit and credit substitutes creation with demand determined income under capital gains*
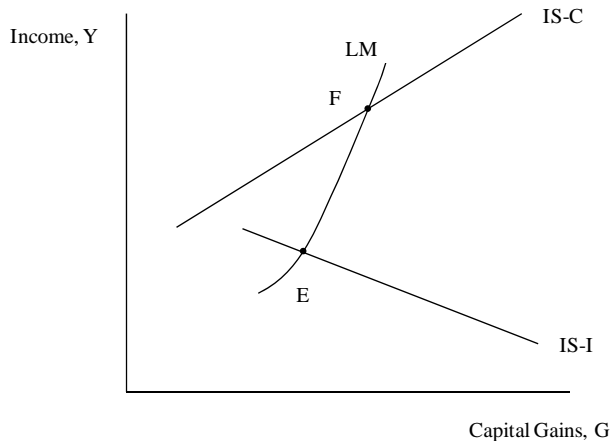
E = Equilibrium Income and Capital Gains in Investment-led Regime (IS-I).
F = Equilibrium Income and Capital Gains in Consumption-led Regime (IS-C).

The proclivity of the system to financial crisis arising from negative shocks like even a relatively small default can be understood against this background of systemic illiquidity coupled with rapid expansion of a range of credit substitutes in a network of tightly interlocked assets of financial firms. While financial innovations are devised continuously to escape regulations on the formal credit system by creating substitutes for bank credit, fragility increases along with the internal illiquidity of the financial system. The illiquidity remains hidden so long as prospects of high capital gains make financial innovations of all sorts easily acceptable, but erupts on the surface as soon as a sudden demand for

liquidity arises due to default or lower credit rating. Typically, in case of default or downgrading of their rating highly leveraged financial firms that had invested by advancing only a fraction of the funds by borrowing from various private financiers face contraction of margin, i.e. the fraction they need to cover with liquidity is raised.[8] In a chain reaction that unfolds in the crisis, financial firms facing contraction of margin are forced to sell assets immediately to save reputation by raising liquidity in a market where potential buyers, mostly other firms in the financial sector, are similarly illiquid because they all shared the same optimistic past that induced them to hold illiquid high capital gains yielding assets. Alternatively, they hoped to be protected under schemes of private insurance where the insuring private party itself turns out to be illiquid for the same reason.[9] Paradoxically the homogeneity of optimistic

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[8] For instance, a recent study (*Longworth Report*, Box1: BIS, 2010) illustrates how such contractions of margin trigger funding pressure.

"Following a sharp increase in early payment defaults (EPDs) in late 2006 involving borrowers failing to make even the first payments on newly originated subprime mortgage loans in the United States, purchasers of whole mortgage loans invoked terms allowing them to put back EPD loans to the originator. New Century Financial Corporation, one of the largest independent subprime originators, faced intense funding pressure in late February 2007 as recognition of the magnitude of EPDs triggered sudden and substantial margin calls against a wide variety of subprime collateral. Market commentary suggests that New Century faced margin calls amounting to more than $300 million on $8 billion of mortgage collateral, which adversely affected the company's cash reserves and financial condition. In April 2007, New Century Financial Corporation filed for bankruptcy. In June 2007, two hedge funds sponsored by Bear Stearns Asset Management (BSAM) that invested in highly rated structured products tied to subprime mortgages faced liquidity pressures and suspended investor redemptions. The funds utilised significant leverage obtained by financing highly rated mortgage-backed securities on very favourable terms from a number of dealers. Market commentary suggests that in June 2007 the more leveraged fund faced $145 million in outstanding margin calls while the less leveraged fund faced $60 million in margin calls. The BSAM-sponsored hedge funds sought a moratorium on margin calls from their creditors for an extended period of time. When no agreement was reached, several secured lenders seized and auctioned collateral, leading to a sharp fall in prices of subprime mortgage indices."

[9] At the end of 2007 Fannie Mae and Freddie Mac had astoundingly high leverage ratios of 65 times and 79 times respectively, while the leverage ratio of all the five big investment banks in the U.S (Merrill Lynch, Lehman Brothers, Bear Stearns, Morgan Stanley and Goldman Sachs) were between 33 and 26 times (Chitale, 2008). Bookstaber (2007) describes the financial systems as characterized by "complexity" and "tight coupling" where little time or space is left for correcting mistakes (as if on a complex interconnected system

expectations about asset prices that once fuelled the bullish mania now turns into its opposite with few takers for assets, resulting in falling asset prices and a bearish panic. And, equation (10) depicts, the value of m is raised in a regime of rising asset prices to lead to contraction of credit substitutes. A consumption led regime (IS-C) suffers contraction of both aggregate demand and credit availability. Even an investment led regime might not fare better despite lower capital gains because of the meltdown of the credit system with severely restricted funds for investment which would also vitiate the investment climate.

Figure 3 - *Possibility of debt cycles in consumption-led regime*
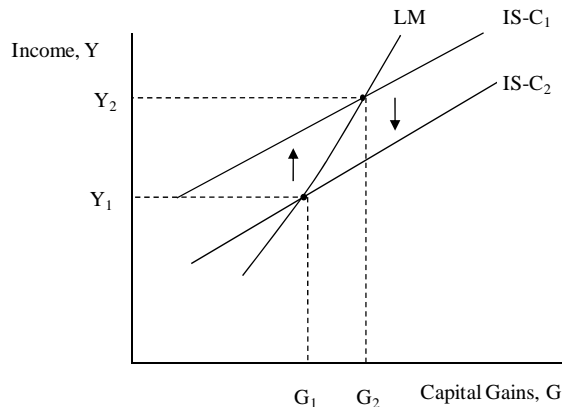
of assembly lines), and provides various instances of "fire sales" of assets by financial firms. In the recent crisis, the problem was exacerbated vastly by false protections offered by various derivative based insurance, perhaps most important being "credit default swap" (CDS). It became the most important arrangement according to which one party (reference entity) buys private protection against default (credit event) on a debt instrument (the reference obligation) by agreeing to a regular schedule of payments (spread). Although it resembles normal insurance, it is a purely private arrangement in unregulated markets without guarantee from any lender of last resort. In the extreme case of "naked" CDS it may not even have an insurable interest, but is meant to reduce overall credit risk of the buyer by transferring it to the seller. Based on Bank of International Settlements statistics, the British Bankers' Association claims that the CDS market was half of entire national and international debt of all countries taken together, amounting to 42 trillion U.S dollars in December 2008 which was 31% higher than the value of total equity, and 20% higher than the value of total bond.

Figure 4 - *Possibility of debt cycles in investment-led regime*
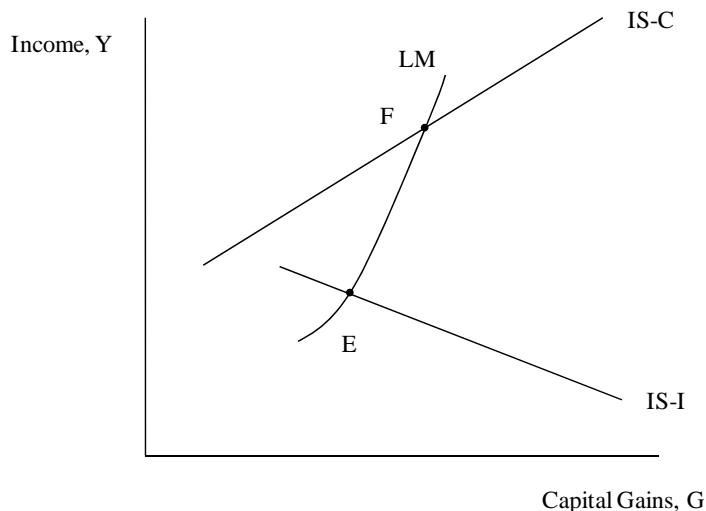
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