Capital-Market Liberalization is Certainly no Paragon of Virtues: A Theoretical Review

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Abstract

The theory of capital market liberalization is based on two central assumptions- convex technologies and concave preference functions faced by agents. Standard models employed by the economists of the International Monetary Fund (which we simply call the Fund) justifiably reveal that more the financial market is globally integrated, the better are the risks dispersed, based on the above mentioned assumptions. So, the Fund's economists deliberately claim that full capital market liberalization helps cross-country smoothing of any adverse shock. However, ironically, the above-mentioned proposition is true when capital flows are counter cyclical. In reality, capital flows pro-cyclically because of the credit market imperfections, giving rise to a natural set of non-convexities. In this paper, we have made a modest attempt to review why capital market liberalization leads to economic instability instead of accelerating economic growth.

Keywords: **financial integration, risk sharing, contagion, capital market- liberalization, financial crisis, convex technologies**

JEL Classification : G01, G10, G15

Paper Submission Date : January 16, 2014 ; Paper sent back for Revision : February 4, 2014 ; Paper Acceptance Date : May 4, 2014

From a macroeconomic perspective, the United States (US) Federal Reserve (Fed), which intends to curtail down dollars by tapering off bond buyback in response to recoverable aspects of the US economy, have explicitly exposed the vulnerabilities of the Indian economy, particularly noticeable in the external sectors. The latter is now heavily dependent on the short term foreign institutional investment (FII) flows to bridge the balance-of-payment. Reclining on the advocacy propagating the capital market liberalization, plenty of cheap U.S. money has flooded the Indian debt and equity market. However, quite surprisingly, the expectation regarding the Fed's announcement of reversal has led to a reverse flow from the Indian market. Investors are retreating to the U.S. economy by mercilessly dumping Indian stocks. Indian firms, which had already borrowed in foreign exchange through external commercial borrowings, completely ignoring the foreign exchange risk, are now suffering enormously due to the devaluation of the Indian currency. It not only makes the imports costlier but also ignites inflation, restraining the Reserve Bank of India (RBI) to undertake policies desperately needed to boost investment and growth. Keeping in view the above-mentioned perspectives, here we come forward to investigate why capital market liberalization instead of expediting economic growth (as put forward by market fundamentalists) often leads to economic instability.

Survey of Literature

Stiglitz (2010), in one of his seminal papers, assessed the consequences of full financial market liberalization and

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challenged the orthodox acclamation: Capital market liberalization would be good for countries on which it is being imposed. Prolific research undertaken by the following researchers: Battiston, Domenico, Gallegati, Greenwald, and Stiglitz (2009); Bhattacharjee and De (2013); Greenwald and Stiglitz (2003); Gallegati, Greenwald, Richiardi, and Stiglitz (2008); Stiglitz (2004) thereby concluded that it is difficult to establish a convincing connection between financial integration and economic growth, taking into account the factors like trade flows and political stability. Given the state of substantial addition to external debt of emerging market economies and the dependence of these economies on the Fed monetary accommodation programme, it would, indeed, have been truly striking, if they had come to any other conclusion. Each of the scholars addressed this issue by using a variety of mathematical formulations to determine the optimal degree and form of financial integration.

If neither theory nor evidence supports the view that perfect capital market liberalization leads to greater stability and allows cross-country smoothing [1], then it is quite vague on the part of the monetary authority to enhance the interest rate to counter the FII outflow. Similarly, it is futile on the part of the state to encourage foreign institutional investment by removing 'irrational caps' and instilling confidence among portfolio investors in the Indian economy. It is hard to believe that the policy of capital market liberalization in India is based on mere theory or evidence. Either the state has been guided by the agenda of promising the financial interests of corporate lobbies, or the policy undertaken by the state is based more on ideology coinciding with narrow interests instead of gaining inspiration depending on economic science [2]. Since the International Monetary Fund (referred to as Fund) has often been regarded as a cheerleader for full capital market liberalization (or financial globalization), we have made a modest attempt in this paper to review why capital market liberalization leads to economic instability instead of accelerating the economic growth.

Fund's Theory of Capital Market Liberalization

Free market ideologues of the Fund repeatedly assert that capital market liberalization is good for economic growth as it reduces the volatility of consumption by formulating the neoclassical model with perfect information, perfect capital markets, and perfect competition. Integration of regional financial markets demand perfect capital mobility, which in turn implies that there is no relation between domestic savings and domestic investments. Because in a world of perfect capital mobility, savings are motivated by the regional opportunities for investment, while investment is financed by the integrated regional pool of capital. Following the neo-liberal views of the Fund, integrated capital markets are assigned with the following characteristics: a) deeper capital markets, b) a single large pool of liquidity, c) intense competition, and d) a wider range of investment. Capital markets, if integrated based on this philosophy, have a positive impact, as it results in an efficient financial system by lowering transaction cost of capital for business and aids in widening the employment opportunities by increasing the level of output. From the above-mentioned discussion, we see only one side of the coin, that is, the neo-liberal views of the Fund, but we can set out to derive the opposite result, if the so-called perfect capital market liberalization delinks the investment decisions from the availability of national savings.

Suppose, there are two states in an economy- a good state and a bad state. The economy moves from one state to the other with a probability. Each state has its safe projects *(s)* as well as the risky projects *(r)*. All the agents (lenders and borrowers) are quite aware about the instability of the state, that is, all agents have full information of the likelihood that the state may change between today and tomorrow. The central assumptions of this analysis are that : a) in the bad state with full capital market liberalization, expected returns to the lenders, irrespective of the interest rates demanded by them, are so low that no loans are made to finance any project. However, in the closed economy, state-contingent rate of interest allows some loans to finance safe projects even in the bad state; b) lenders' expected returns are always maximized by giving loans to borrowers to invest in safe projects, assuming that there are I^*s safe projects.

Mathematically, in a good state, $\rho_1^{\,S}(i_1, i_2) = \rho_1^{\,r}(i_1, i_2)$ as well as in a bad state $\rho_2^{\,S}(i_1, i_2) = \rho_2^{\,r}(i_1, i_2)$, where $\rho_t(i_1, i_2)$ is the expected return to a lender, if the interest rates (i_1, i_2) are charged for a loan in a state $'t', t = \{1,2\}$.

In simple Keynesian framework of aggregate demand,

$$Y_t = C_t + I_t + G + X - M_t = Y_t - s(\rho_t)\, Y_t + I_r + X - mY_t$$

where,

$s(\rho_t)$ is the saving rate as an increasing function of 'ρ' in the state *t*.

M : imports equal to *'m'* fraction of income; *X, G* are autonomous exports and government expenditures respectively.

↳ **Financial Autarky :** Assuming each project requires two periods to complete, profit - maximizing interest rates $(i^0_1\, i^0_2)$ for the two periods in a good state are such as to generate savings to finance all the safe investment projects, that is, $I_1 = I^*_s$ in a closed economy. Then, by equating savings to investments in a good state, we have :

$$I^*_s = s\{\rho_1(i^0_1, i^0_2)\}\, Y_1 = \frac{s\{\rho_1(i^0_1, i^0_2)\}\,[X + G + I^*_s]}{m + s\{\rho_1(i^0_1, i^0_2)\}} \quad \& \quad Y_1 = \frac{X + G + I^*_s}{m + s\{\rho_1(i^0_1, i^0_2)\}}$$

But in a bad state, interest rates are sufficiently high enough to make some supply of loanable funds available to the potential demand for safe projects only, while the borrower cannot undertake any risky projects. So, supply of credit is being rationed in a closed economy so that $I_2 < I^*_S$ in a bad state. If (i^0_1, i^0_2) is the credit - rationing equilibrium interest rates such that $\rho^s_2(i^0_1, i^0_2) = \rho^r_2(i^0_1, i^0_2)$ ensuring that safe projects are undertaken in a bad state, then :

$$I_2 = s\{\rho_2(i^0_1, i^0_2)\}\, Y_2 = \frac{s\{\rho_2(i^0_1, i^0_2)\}\,[X + G + I_2]}{m + s\{\rho_2(i^0_1, i^0_2)\}} \quad \& \; Y_2 = \frac{X + G + I_2}{m + s\{\rho_2(i^0_1, i^0_2)\}}$$

From these, we have $I_2 = \dfrac{s\{\rho_2(i^0_1, i^0_2)\}\,[X + G]}{m} = s^*_2[X + G]/m$

This result shows that there is some consumption variability as consumption decreases with higher savings in the good state. The difference between consumption in the good state and the bad state $= I_2 - I^*_S$. But so long as *X* and *G* are exogenous, there is no output variability in autarky, since :

$$Y_t = \frac{X + G + I_t}{m + s(\rho_1)} = \frac{X + G}{m + s(\rho_t)} + \frac{I_t}{m + s(\rho_t)} = \frac{X + G}{m + s(\rho_t)} + \frac{s(\rho_t)(X + G)}{m(m + s(\rho_t))} = [X + G]/m \; for \; t = \{1, 2\}$$

More generally, if *'X'* and *'G'* are state-contingent or sensitive to the real rate of interest, then there would be output variability in autarky, but of course, it is less than that in an open financial economy.

↳ **Financial Openness:** In an open financial economy, investment decisions are delinked from the level of national savings, while global interest rates determine the domestic saving rate, say s_f. In a good state, all the investment projects are undertaken, though the country has a scarcity of capital (so, it borrows from abroad to finance investments). Then, $Y_1 = \dfrac{X + G + (I^*_s + I^*_r)}{m + s_f}$, which is higher than autarky. The explanations are:

a) foreign institutional investors are risk lovers, so that expected returns are always maximized by providing finances to borrowers to invest in both safe and risky projects (assuming there are I^*_r risky projects), while domestic lenders are all risk averse; b) scarcity of domestic capital (which is a common feature of almost all developing economies) leads to huge inflow of foreign capital, which is being induced by higher returns ; c) higher returns induce higher savings by foregoing current consumption.

But in a bad state, there is no such interest rate at which it is profitable to invest, so that $Y_2 = [X + G]/(m + s_f)$.

Consumption variability as a result of perfect capital market liberalization is measured by

$$C_2 - C_1 = (1 - s_f)\,(Y_2 - Y_1) \;=\; \frac{1 - s_f}{m + s_f}\;\; [I^*_s + I^*_r]$$

Thus, any adverse shock in a country induces credit rationing, and that is why, capital flows are pro-cyclical in contrast to the counter cyclical pattern of capital flows hypothesized by the theorists of the Fund. This theoretical perception is consistent with credit market imperfections, and hence pro-cyclical pattern of capital flows, giving rise to a natural set of non-convexities. It plays a key role in the instability associated with full capital market liberalization, and hence lowers the ex-ante expected utility of agents in developing countries.

Fund's theory of financial integration is based on two central assumptions - convex technologies and concave preference functions faced by agents. Under the strong mathematical assumption of convexities, risk spreading through the globally integrated financial system (or what is called the full capital market liberalization) always enhances the expected utility of agents. Standard models employed by the economists of the Fund show that the more globally integrated the financial markets are; the better are the risks dispersed based on the above assumptions. The theoretical proposition of the Fund is very simple: In a financially networked global economy, if any country faces a negative shock, it could borrow from the rest of the world to even out the shock. On the theoretical front, welfare gains (often defined by lifetime utility of representative agents derived from consumption) from capital market liberalization are less clear and very much dependent on the modeling framework. Each of a series of NBER working papers (for example, Bekaert, Harvey, & Lundblad, 2001 ; Obstfeld & Rogoff, 2000;) and so many IMF working papers (for example, Rogoff & Prasad, 2003) proposed that: In the presence of financial openness, each agent can be made better off by expanding the menu of financial assets; furthermore, consumption decision of agents does not depend on financial variables; hence, capital market liberalization is welfare enhancing by smoothing the changes in future dividends or interest rates through its effect on wealth.

Next, we tried to build up the model in pursuance of the "conventional wisdom" [3] of the Fund. After that, we tried to show the failure of the "conventional wisdom" to incorporate systemic changes brought about by capital market liberalization to the structure of the economy that makes the economy more vulnerable to crises, and hence brings about economic instability.

A Model of Consumption Smoothing as a Result of Capital Market Liberalization

The representative agent maximizes the present discounted value of expected utility, conditional on information available at initial time period t.

$$Max \quad E_t\left[\sum_{\tau=0}^{T-1}(1+\theta)^{-1}\,u(c_t)\right] \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

where, 'θ' is the agent's impatient factor, and the preference function of the agent is concave. Suppose, the agent's financial wealth at time t is $(s_t - c_t)$ in each period. Agent invests 'α' proportion of this saving into home assets which are assumed to be risk free, and earns risk free rate of return r_t^h, which is random and not known as of time t. 'r_t^f' can also be thought of as an international lending rate to a country and it is one source of randomness in this model of financial openness. So, the agent's dynamic budget constraint becomes :

$$s_{t+1} = (s_t - c_t)\,[(1 + r_t^h)\,\alpha_t + (1 + r_t^f)\,(1 + \alpha_t)] \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Essentially, the portfolio decision of the agent is assumed to be characterized by the share of portfolio invested in risk-free home asset, α_t, and the remaining in the risky foreign assets. In this framework, following the Keynes-Ramsey rule, each representative agent chooses the highest level of consumption by expanding the menu of financial assets (as a result of perfect capital market liberalization), consistent with his intertemporal budget restraint.

Solution by Dynamic Programming: We appeal to the technique of dynamic programming to construct a value function $V_t(s_t)$ as:

$$V_t(s_t)\ Max\ E_t\left[\sum_{\gamma=t}^{T-1}(1+\theta)^{-(\gamma-t)}u(c_\gamma)\right] \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)\ subject\ to\ (2)$$

so that the complicated multi-period problem can be reduced to a sequence of simpler two-period decision problem of the representative agent.

From (3), we can have the Bellman equation as :

$$V_t(s_t) = \underset{c_t,\alpha_t}{Max}\ \left[u(c_t)+(1+\theta)^{-1}E_t\{V_{t+1})(s_{t+1})\}\right]$$
$$= \underset{c_t,\alpha_t}{Max}\ \left[u(c_t)+(1+\theta)^{-1}E_t\{V_{t+1})((s_t-c_t)\left[(1+r_t^h)\alpha_t+(1+r_t^f)(1-\alpha_t)\right])\}\right] \quad \ldots\ldots\ldots\ldots (4)$$

First order necessary conditions are:

$$u'(c_t) = (1+\theta)^{-1}E_t\left[\{(1+r_t^h)\alpha_t+(1+r_t^f)(1-\alpha_t)\}V'_{t+1}(s_{t+1})\right] \&$$
$$E_t\left[V^{?}_{t+1}(s_{t+1})(r_t^h - r_t^f))\right] = 0$$

Unless we know the explicit functional form of the value function, we cannot have the explicit optimal values of c_t and α_t . However, by Envelope theorem from (4) :

$$V^{?}(s_t) = (1+\theta)^{-1}E_t\left[\{(1+r_t^h)\alpha_t+(1+r_t^f)(1-\alpha_t)\}V^{?}_{t+1}(s_{t+1})\right]$$
$$= u^{?}(c_t)$$

[From the first order condition]

Then, along the optimal path, $V'(s_{t+1}) = u'(c_{t+1})$ and so forth.

Then, from the first order condition :

$$u'(c_t) = (1+\theta)^{-1}E_t\left[\{(1+r_t^h)\alpha_t+(1+r_t^f)(1-\alpha_t)\}u'(c_{t+1})\right] \ldots\ldots\ldots\ldots (5)$$
$$\& E_t\left[V^{?}_{t+1}(s_{t+1})(r_t^h - r_t^f)\right] = 0$$
$$i.e,\ E_t\left[V^{?}_{t+1}(s_{t+1})(1+r_t^h)\right] = E_t\left[V^{?}_{t+1}(s_{t+1})(1+r_t^f)\right]$$
$$i.e,\ E_t\left[(1+r_t^h)u'(c_{t+1})\right] = E_t\left[(1+r_t^f)u'(c_{t+1})\right] \ldots\ldots\ldots\ldots (6)$$

Substituting (6) into (5) , two first order conditions become :

$$u'(c_t) = (1+\theta)^{-1}E_t\left[(1+r_t^h)\alpha_t u'(c_{t+1})+(1-\alpha_t)(1+r_t^h)u'(c_{t+1})\right]$$
$$= (1+\theta)^{-1}E_t\left[(1+r_t^h)u^{?}(c_{t+1})\right]$$
$$= (1+\theta)^{-1}(1+r_t^h)E_t\left[u^{?}(c_{t+1})\right] \ldots\ldots\ldots\ldots (7)$$

&

$$u^{?}(c_t) = (1+\theta)^{-1}E_t\left[(1+r_t^h)u^{?}(c_{t+1})\right] \ldots\ldots\ldots\ldots (8)$$

Both (7) and (8) have the same interpretations as of the Keynes-Ramsey condition, that is, the under certainty-inter-period marginal rate of substitution of consumption must be equal to the marginal rate of transformation. In this simple framework, labour income is assumed to be fully divisible. We concentrated only on the portfolio choice of agents with no labour income. All the income is derived from financial trade (that is, trade via capital account convertibility). We further assumed the existence of a riskless asset (available in the home market) that agents can borrow and lend freely at a risk-free rate. So, essentially, we excluded potential credit market imperfections from the model. In this restrictive framework (as designed by the Fund's economists), each agent can be made better off in the presence of financial openness by expanding the menu of financial assets (as reflected in dynamic budget constraint (2)). Hence, capital market liberalization is welfare enhancing by smoothing the changes in future dividends or interest rates through its effect on wealth (as reflected in (7) and (8)).

Each firm in this framework uses its shareholder's intertemporal marginal rate of substitution of consumption to determine the present value of the cash flow it generates. Let X_t be the value of the firm and π_t be its cash flow. Then, the rate of return from holding the stock of foreign firm in one period is $1 + r_t^h$, which equals to $(X_{t+1} + \pi_{t+1}) / X_t$.

$$\text{So, from (8) } u'(c_t) = (1+\theta)^{-1} E_t \left[\left(\frac{X_{t+1} + \pi_{t+1}}{X_t} \right) u'(c_{t+1}) \right] \quad \text{..... (9)}$$

(9) reiterates the following: Suppose there are two firms- one home firm and one foreign firm with the same level of expected returns. Furthermore, suppose that the foreign firm's returns are positively correlated with $u'(c_{t+1})$, that is , $(1 + r_t^f)$ is high when the consumption is low. On the contrary, the home firm's returns are negatively correlated with $u'(c_{t+1})$, that is, returns are high when the consumption is high. The underlying theory of the capital-asset-pricing model (CAPM) says that the foreign firm will be worth more, since it enables its shareholders to hedge against low consumption. Following this argument, capital market liberalization may allow countries to smooth consumption volatility by hedging against low consumption. It reiterates that short-term capital flows are counter-cyclical ; if short-term capital flows are smoothing consumption, then capital would flow into a country when the economy is weak, and flow out when the economy is strong.

However, we observed exactly the opposite to this theory in reality. Adverse consequences of capital market liberalization, truly manifested in the financial crises of 1998 and 2008, negate the notion that capital movements are counter-cyclical. Rather, capital, particularly short-term capital, moves pro-cyclically and not counter-cyclically. Given this pro-cyclical movement of short-term capital flows, it is hard to conceptualize how, by sharing risks through capital market liberalization, the effect of any adverse shock would be smoothed. So, pro-cyclical capital flows, of course, suggest a failing in the standard theory of the Fund. Above all, financial economists of the Fund developed this standard macroeconomic model on the assumptions of perfect risk and credit markets, which say that if risks are widely dispersed through capital market liberalization, the global financial system will be more stable and the expected utility will be higher. However, the real world is rife with several flaws and imperfections, which are assumed away by the Fund's economists. The inability of this type of representative agent model to incorporate meaningful information asymmetries and financial constraints makes the model less useful in understanding financial cascades fuelled by capital market liberalization [4].

According to the Fund's theorists, financial integration (partial or full) renders a scope to the households to avail financial assets for smoothing out both intratemporal and intertemporal consumption. Subsequently, financial integration also helps the firms to achieve efficient allocation of capital to their production technology using the household's marginal rate of intertemporal substitution. The extremely structured financial autarky restricts both capital inflows and outflows and hardly gives away scope to the households to trade in any financial asset. In this economy, neither do we find any risk sharing between domestic and foreign assets, nor is capital allocated efficiently between two production technologies. But the Fund's theorists (remain quite indifferent to give an explicit explanation) did not make any sincere endeavor to find out whether the above stated situation can be made better off by expanding the menu of financial assets under imperfect financial markets and the incomplete risk markets [5].

How Does the Capital Share in Production Technology Relate to an Increase in the Risk Premium of Financial Liberalization?

In the absence of uncertainty, capital will be allocated between the two production technologies, keeping their marginal productivities equal. In the circumstances of difference in production technologies, any form of financial integration that allows capital to flow between these two definitely proves to be beneficial to both the countries [6]. Thus, the Fund's theory came forward with a reliable notion - in an era of full capital market liberalization, capital will flow to the country with higher risk-adjusted productivity. Now let us take into consideration a situation where

the financial markets lack complete integration. A matured capitalist economy or developed country (say, the U.S., Japan, etc.) can only invest in a less wealthy developing country's (say, India, Ethiopia, etc.) production technology via lending. The developing country then reinvests the borrowed capital in its production technology. Following the simple Keynesian theory of investment, the developing country gains, if the rate of reinvestment (equals the marginal productivity of capital) exceeds the risk free rate of borrowing from the developed country (where the equilibrium risk free rate is a risk adjusted weighted average of marginal productivity of capital in the two technologies). However, diminishing return to scale (DRS) in capital tells us that, a rise in investment generates a fall in marginal productivity of capital, that is, additional unit of capital borrowed and reinvested will yield lower returns than the preceding unit.

Fund interpreted the situation accordingly, when the production technology in developing countries are subject to DRS (i.e, under the strong mathematical assumption of convexities in technologies), each additional unit of borrowed capital reinvested in production would yield a lower return, and it becomes more likely that the welfare loss from imperfect risk sharing and inefficient allocation of capital (due to incomplete financial openness of their economies) will exceed the gains from reinvesting in production technologies. Following this intuition that more the world economy gets the scope to be globally integrated, the better are the risks dispersed based on strong mathematical assumptions of convexities in technologies and concavities of the preference function of agents, the Fund insisted that many less wealthy countries (for example, Ethiopia) need to fully liberalize their financial markets, as it would allow them to share risks perfectly by enabling the market forces to freely determine the interest rates [7].

Economic Theory of Capital Market Liberalization (as Portrayed by the Fund's Theorists) Leaves a Number of Complex and Crucial Questions Unanswered

(1) The information imperfections in modern finance results in credit and equity rationing. Firms facing economic downturn fail to gain financial help from banks and other financial institutions. Due to the information imperfections, banks and other financial institutions are less likely to lend to firms, which are badly in need of finance in the face of any adverse shocks. This is the burning issue in our economy nowadays. So, the current adverse shock in the Indian economy may induce credit rationing, and that is why capital flows are likely to be pro-cyclical, in contrast to the counter-cyclical pattern of capital flows hypothesized by the standard neoclassical theory of the Fund. Credit market imperfections, giving rise to a natural set of non-convexities, play a key role in the instability associated with capital market liberalization, and hence lower the ex-ante expected utility of agents in developing countries such as India.

(2) Pro-cyclical pattern of capital flows inhibits the ability of the government to lower rates of interest, and thus, it impairs the state's ability to respond to the negative macroeconomic shocks. So, capital market liberalization intensifies the possibility of a crisis by amplifying the problem of unemployment in developing countries. Fund's analysis, based on the maintained hypothesis of a neoclassical economy with full employment and perfect information, can hardly resolve this problem [8].

(3) Capital market liberalization is a two-edged sword, but with one edge far sharper than the other. When markets are optimistic, and when there is excessive exuberance, capital flows in. Even though only a fraction of that goes into productive investment, growth is enhanced. However, irrational exuberance is often followed by irrational pessimism, consequences of which for developing countries are far more serious- countries like India always lose far more as capital flows out than they gain as capital flows in [9]. Reserve Bank of India should pay attention to the role of "irrational exuberance"- an irrationality that the subsequent events confirm. In fact, we have known for a long time from the widely celebrated 'fundamental inefficiency theorem' (Greenwald & Stiglitz, 1986) that even with rational expectations of agents, the market equilibrium will be Pareto-inefficient, as long as risk markets are incomplete. Following this remarkable theorem, it is not very difficult to understand that in the theory of the

second best- the elimination of one imperfection by liberalizing capital markets - will not lead to welfare improvement in the presence of "irrational exuberance" and all other market imperfections [10]. While these complications do not fit neatly within the 'IMF theory,' it often produces a favorable outcome of capital market liberalization, by paying no attention to the recent theoretical developments in behavioral macroeconomics and finance (for example, Akerlof, 2002).

(4) A well designed macroeconomic policy always maximizes incentives, and at the same time, limits risks faced by the agents. Considering the preceding discussion, we see that the policy of capital market liberalization provides risks without incentives. So far, we have discussed a series of imperfections in capital markets, which provide an explanation for why capital market liberalization increases the likelihood of risks. Real world is ubiquitous of non convexities associated with credit-rationing, bankruptcy, and so forth. So, when we have to choose between two polar regimes- full financial integration and autarky, the latter appears to be Pareto superior in the case of non-convex technologies as then, risk sharing can lower expected utility. Now, let us highlight the common mathematical structure shared by the highly celebrated works of Newbery and Stiglitz (1984) and Stiglitz (2004, 2010). In terms of it, we can formulate a simple over-lapping generation (OLG) model with incomplete risk markets, where capital market liberalization hinders the extent of a current productivity shock shared by future generations, and thus lowers the ex-ante expected utility.

In the real world, agents at different stages of their life cycle interact continuously, when young, dealing mainly with older people and later, mostly with youth. This feature is captured in the simplest form of the OLG model, where agents live for two periods so that at any point of time, the economy consists of two generations- the youth and the old. Agents work only in the first period of their life (youth), supplying inelastically one unit of labour and earning a real wage. They consume a part of it (c_t) and save the rest (s_t) to finance consumption during their old age (c_{t+1}). In this framework, the representative agent always intends to maximize his lifetime utility $u(c_{1t}) + (1+\theta)^{-1} u(c_{2t+1})$ subject to intertemporal budget constraints $c_{1t} = w_t - s_t$ & $c_{2t+1} = [1 + r_{t+1}]\, s_t$, where θ' is the agent's impatient factor. International lending rate to our country *'r'* is a variable and it is the source of randomness in this model.

For simplicity, we take the logarithmic form of individual utility function as :

$u = \log c_1 + (1+\theta)^{-1} \log c_2$

c_1 : consumption during youth , & c_2 : consumption during old age

Representative agent's utility maximization gives :

$$c_1^{t*} = \frac{1+\theta}{2+\theta} w_t \quad \& \quad s_t^* = \frac{1}{2+\theta} w_t$$

If for simplicity, we assume then $\theta = 0$, then $c_1^{t*} = c_2^{t*} = \frac{1}{2} w_t$ & $s_t^* = \frac{1}{2} w_t$

↳ **Financial Autarky :** There is no consumption volatility in this simple model, as c_1, c_2 are independent of global interest rate,which is a random variable. Now, suppose the production economy is characterized by constant return production function $f(k_t)$, output per worker, with $k_t = K_t / L_t$ and k_t depreciates at the rate 'δ' each period. Assuming Cobb-Douglas type net production function $f(k) = k^{\alpha} - \delta k$, we can have :

$$k_t = s_{t-1} = \frac{1}{2} w_{t-1} = \frac{1}{2} [f(k_{t-1}) - k_{t-1} f'(k_{t-1})]$$

$$= \frac{1}{2} [k^{\alpha}_{t-1} - \delta k_{t-1}, - k_{t-1} (\alpha k^{\alpha-1}_{t-1} - \delta)] = \frac{1}{2} [k^{\alpha}_{t-1} - \alpha k^{\alpha}_{t-1}] = \frac{1}{2} (1-\alpha) k^{\alpha}_{t-1}$$

If k^* is the steady-state accumulation, then,

$$k^* \quad \frac{1}{2}\ 1 \qquad ^{\frac{1}{1}} \qquad [11]$$

So, there is no volatility in consumption and wages. Furthermore, we can have the optimal expected utility of agent as :

$$E(U_t) = \log c_{1t} + E_t[\log(1+r_{t+1})] + \log s_t = 2\log(0.5) + 2\log(w_t) + E[\log(1+r_{t+1})]$$

↳ **Financial Openness:** Now, we allow perfectly free capital market by assuming that short-term foreign capital is being translated into investment goods and the flow of foreign institutional investment is entirely guided by the global lending rate which is a random variable. The moment cross-border flow of financial capital is allowed :

$$w_t = f(k_t) - k_t f\ \hat{}(k_t) = f(k_t) - k_t r_t = f\ [k_t(r_t)] - k_t(r_t)\, r_t = h(r_t)$$

So, wage rate now becomes the random variable.
Expected utility of the agent at period $'t'$ is :

$$E_t(u_t) = 2\log(0.5) + 2E_t(\log w_t) + E_t[\log(1+\mathrm{r}_{t+1})]$$

Hence, the ex-ante expected utility of the average generation becomes

$$E[E_t(u_t)] = 2\log(0.5) + 2E[E_t(\log w_t)] + E[E_t\{\log(1+\mathrm{r}_{t+1})\}]$$

Clearly, it shows that the opening up of the capital market unambiguously enhances consumption volatility. Social welfare is lowered as a result of that, when social welfare function is concave (i.e, agents are risk averse), that is, $\log(w)$ becomes the concave function of $\log(1+r)$ (For the proof, please see Appendix 1).

↳ **Productivity Shock in the Domestic Economy :** The motivation to build up the model with productivity shock is very straight forward. In a closed economy, a positive productivity shock is accompanied by higher wages, higher savings, and consequently, lower interest rates. Hence, the lifetime consumption of the youth remains stable or does not increase as much as does the increase in output and wages. It is also relevant to note that future generations can also reap the benefits of the productivity shock in an OLG framework with financial autarky because in an OLG framework, increase in 'w_t' increases 's_t' and hence, 'w_{t+1}' for the young at $(t+1)$ period, thus benefiting succeeding generations. But with capital market liberalization, increase in 'w_t' increases the 's_t' with positive productivity shock, but it has no effect on 'r_{t+1}', since now the interest rate does not depend on the country's national savings. So, only the working youth benefits from this favorable productivity shock and there remains hardly anything for succeeding future generations to enjoy. This aspect is discussed as follows :

Suppose, domestic production function is of the form $f(k_t) = A_t k^{\alpha}_t$

Then, $k_{t+1} = s_t = \frac{1}{2} w_t = \frac{1}{2} A_t(1-\alpha)\, k^{\alpha}_t$

Now, in the closed economy also, there is consumption and output variability, because autarkic economy is now subject to randomness in domestic productivity, captured by $'A'$. With the same utility function :

$$E_t(u_t) = 2\log(0.5) + 2E_t[\log w_t] + E[\log(1+r_{t+1})]$$

and ex-ante expected utility of the average generation becomes

$$E[E_t(u_t)] = 2\log(0.5) + 2E[E_t(\log w_t)] + E[\log(1+r_{t+1})]$$

In the case of the liberalized capital market :
$w_t = (1-\alpha) A_t k^{\alpha}_t$ becomes more volatile.

When *'A'* is high, the country can borrow more, hiking the wage and when *'A'* is low, capital flight will be the result, thereby lowering wages, along with the variability in the international lending rate.

$$w_t = A_t[k^{\alpha}_t - \alpha k^{\alpha}_t] = A_t[k^{\alpha}_t - k_t \alpha k_t^{\alpha-1}] = A_t[f(k_t) - k_t f'(k_t)] = A_t[f(k_t(r_t)) - k_t(r_t) r_t] = A_t h(r_t)$$

Furthermore, a higher 'w_t' today has no adverse effect on 'r_{t+1}' next period. Hence, consumption and expected utility will be more volatile than in a close economy.

$$E_t(u_t) = 2\log(0.5) + 2E_t[\log w_t] + E_t[\log(1 + r_{t+1})]$$

$$= 2\log(0.5) + 2E_t[\log A_t] + 2E_t[\log h(r_t)] + E_t[\log(1 + r_{t+1})]$$

and ex-ante expected utility of the average generation becomes

$$E[E_t(u_t)] = 2\log(0.5) + 2E[E_t(\log A_t)] + 2E[E_t\{\log h(r_t)\}] + E\{E_t[\log(1 + r_{t+1})]\}$$

We have already seen that for risk averse social welfare function, welfare is also decreased as a result of capital-market liberalization.

An Alternative Model

Economic motivation to present an alternative framework to show that risk pooling by capital market liberalization is unambiguously welfare decreasing is the seminal work of Stiglitz (2010). Following his analysis, we can model the economy where bankruptcy introduces a key non-concavity in the production function. Theoretical proposition of the Fund that risk pooling by capital market liberalization is welfare enhancing is true under the mathematical assumption of concavity of $Q = F(K)$ with $F'(K) > 0, F''(K) < 0$. Now, we assume that the production *(Q)* is linear in stock of available capital *(K)*, so long as $K > K^C$, where 'K^C' is the critical level of capital stock at which bankruptcy (or system failure) occurs.

$K_i = \hat{K} + \varepsilon_i$, where K_i, the stock of available capital is a random variable and ε_i'*s* are *iid* with $E(\varepsilon_i) = 0$ and $var(\varepsilon_i) = \sigma^2 \quad i$. Following normalization, we choose $\hat{K}$ to be unity.

Clearly, when $K < K^C$, the country goes into bankruptcy. At $K = K^C$, losses are limited, where we assume $Q = F(K^C) = Q$. Then mathematically, $\lim_{K \to K^c} [F(K) - Q]$ = costs associated with systemic failure, where systemic failure is described by $\varepsilon_i = -8$.

$Q = F(K)$ is no longer concave now, which Fund's theorists often assume. In this model, if $K^C = 0, F(K^C)$ is the convex production function with bankruptcy, and if $K^C > 0, F(K^C)$ is neither concave nor convex.

So, in this model, shocks (ε_i) experienced by each country are independent and all the countries are assumed to be ex-ante identical. If we assume capital-market liberalization between two countries (country *'A' & 'B'*) only, then :

For country 'A'	For country 'B'
$K_1 = \hat{K}_1 + \varepsilon_1$	$K_2 = \hat{K}_2 + \varepsilon_2$
$K_1 : -Q \ \alpha$	$K_2 : -Q \ \alpha$
$\Pr : p \ \ (1-p)$	$\Pr : p \ \ (1-p)$

where $\hat{K}_1 = \hat{K}_2 = \hat{K} = 1$ (*normalization*) & $E(\varepsilon_i) = 0, var(\varepsilon) = \sigma^2 \quad i = 1, 2$

'K_i' assumes 'α' with the probability (1- p) so long as $K_i > K^c$ and it assumes '$-Q$' with the probability *'p'* where $K_i \quad K^c$, that is, when the country goes to the bankruptcy.

The expected output of each country under autarky = $-p.\ Q + (1-p)\ \alpha$, when the production function is linear in each country so long as $K_i > K^c$.

If the two countries are isolated (i.e financial autarky), then the likelihood of bankruptcy (*'p'*) is proportional to $\Sigma p_i(1-p_i) = 2p(1-p) \quad i = 1, 2$

Now, we assume perfect capital market liberalization between two ($N = 2$) countries. Then, the probability of the global system failure is :

$= \Pr\left[\sum_{i=1}^{2} K_i < 0\right] = 1$ - Probability of the global stability $= 1 - \Pr\left[\sum_{i=1}^{2} K_i \quad 0\right]$

$= 1 - [\Pr(K_1 > 0)\Pr(K_2 > 0)] = 1 - (1-p)^2$

The expected output in post-financial liberalized era in each country

$= (1-p)^2 \alpha - [1-(1-p)^2]\, Q < [p.Q + (1-p)\alpha]$ (please see Appendix 2 for the proof).

Hence, capital-market liberalization is unambiguously welfare decreasing.

Model of Increased Risk of Contagion

The financial crisis in 2008 illustrates how the country 'A' lends to country 'B,' 'B' lends to 'C,' 'C' lends to 'D' (following the risk pooling advocacy of capital market liberalization), and without a sufficiently well capitalized clearing house (banks), how a default in a single country, say 'D,' leads to a bankruptcy cascade (which shows the prominent ability of capital market liberalization to increase risk of contagion). Next, we tried to make a modest attempt to incorporate these two salient aspects of capital market liberalization-risk diversification and increased risk of contagion in a model by following the widely celebrated works of Stiglitz (2010).

The country faces relatively small shocks (described *iid εi s*) and a macro shock to cause system failure (or bankruptcy cascade). The macro shock occurs in only one country among *'N'* no. of countries, with the probability *p/N, 'p'* being fixed. When bankruptcy occurs, $Q = 0$. Utility from final consumption of risk averse agents is described by $u(Q)$ with $u'(Q) > 0$ and $u''(Q) < 0$.

At financial autarky, the expected utility $= EU_A = (1 - \frac{p}{N})\, EU\, [F(\hat{K} + \varepsilon)] + \frac{p}{N}\, U(Q = 0)$

With capital market liberalization among *'n'* countries, $n = N$, capital flows to a country where there is a shortage, that is, $K'i = \Sigma \frac{K_i}{n} = \hat{K} + \Sigma \frac{\varepsilon i}{n}$

Now, expected utility $= EU_L = (1 - \frac{np}{N})\, EU[F(\hat{K} + \Sigma \frac{\varepsilon i}{n})] + (\frac{np}{N})\, u(Q = 0)$

Clearly, the above expression shows that as *'n'* increases, benefit from risk diversification (as a result of capital market liberalization), $EU\,[F(\hat{K} + \Sigma \frac{\varepsilon i}{n})]$ diminishes, while at the same time, costs of financial integration, $u(Q = 0)$ increases, as a result of being integrated with a country having a macroeconomic shock.

$$\frac{d}{dn}(EU_L) = (1 - \frac{np}{N})\frac{d}{dn}\{EU[F(\hat{K} + \Sigma \frac{\varepsilon i}{n})]\} - \frac{p}{N}\, EU[F(\hat{K} + \Sigma \frac{\varepsilon i}{n})] + \frac{p}{N}\, u(Q = 0)$$

$$= (1 - \frac{np}{N})\frac{d}{dn}\{EU[F(\hat{K} + \Sigma \frac{\varepsilon i}{n})]\} - \frac{p}{N}\, \{EU[F(\hat{K} + \Sigma \frac{\varepsilon i}{n})] - u(Q = 0)\}$$

$$= (1 - \frac{np}{N})\frac{d}{dn}\{EU\,[F(1 + \Sigma \frac{\varepsilon i}{n})]\} - \frac{p}{N}\, \{EU[F(1 + \Sigma \frac{\varepsilon i}{n})] - u(Q = 0)\}$$

[Following normalization, we set $\hat{K} = 1$]

Now as *'n'* gets large, in the limit, concavity of *'F'* goes to zero and the marginal benefit to risk pooling diminishes to zero. While as *'n'* gets larger, $EU\left[F\left(1 + \Sigma \frac{\varepsilon}{n}\right)\right] - u(Q = 0) \tilde{} U(F(1)) - u(0)$ gets large, finite

number, so that $\frac{d}{dn}(EU_L) < 0$.

Hence, whether full capital account convertibility or full capital market liberalization is net positive or negative to a country depends on the degree of risk aversion, the concavity of the production function, the costs of bankruptcy, and the impact of risk sharing on the likelihood of bankruptcy. The result of this simple model highlights the vague theoretical outline of the Fund in favor of market fundamentalism, that is, markets are efficient, self-correcting, and the market devices like capital market liberalization help to maximize growth and efficiency of the economy. In the face of any crisis, the contagion - the spread of disease from one country to another through financial networking - is a worrying issue for the economy. However, this contagion, being a quintessential externality, fails to establish logical aspect of market fundamentalism.

Research Implications and Scope for Further Research

Unfettered capital flows are characterized, as the economic historian Charles Kindleberger of the Massachusetts Institute of Technology famously noted, by panics and manias. Each time a crisis related to capital market liberalization hits a country, it typically goes through the wringer. The debt crisis of the 1980s cost South America a decade of growth; the Mexicans, who were vastly overexposed through short-term inflows, were devastated in 1994; the Asian economies of Thailand, Indonesia, and South Korea, all heavily burdened with short-term debt, went into a tailspin in the aftermath of the Asian financial crisis in 1997; finally, in the great recession that began in 2008, millions of people in America and all over the world lost their homes and jobs - all these have uncovered fundamental flaws in capital market liberalization. Money should flow from rich countries to the poor by the principles of capital market liberalization. However, year after year, exactly the opposite occurs - America, the richest country in the world, is seemingly unable to live within its means, borrowing more than a billion dollars a day. One would have thought that the rich, being far more able to bear the risks of volatility in rate of interest and ex-ante, would bear those risks, especially when they lend money to the poor. Yet, Wall Street prides itself for its ability to shift risk from those more able to bear to those less able to bear it. Finally, the poor nations are left to bear the burden in the name of capital market liberalization. Despite the evidence of the inherent risks of free capital flows, the Wall Street-Treasury complex is still proceeding on the self serving assumption that the ideal world is indeed one of free capital flows, with the Fund and its bailouts at the apex in a role that guarantees its survival and enhances its status. However, the weight of evidence and the force of logic point in the opposite direction, towards restraints on capital flows. Enormous research is still forthcoming to shift the burden of proof from those who oppose to those who favour unfettered capital flows.

The second line of research explores capital market liberalization as a two-edged sword, with one edge far sharper than the other. When markets are optimistic, when there is excessive exuberance, capital flows in, and even though only a fraction of it goes into productive investments, growth is enhanced. But irrational exuberance is often followed by herd externality and irrational pessimism, consequences of which for developing counties are far more serious - countries lose far more as capital flows out than they gain as capital flows in. These problems are not just minor or weak aspects of the economy's character to be glossed over in the praise of the virtues of capitalism. New policy frameworks need to be developed based on this new behavioural macroeconomic modeling. In reality, the features of behavioural macroeconomics - irrational exuberance, herding externality, and so forth help explain the significant departures of real world economies from the competitive general equilibrium model of capital market liberalization. The research implication of the present study, to our mind, is that the theory of capital market liberalization must be based on such behavioural considerations. Even such a small change towards reality will be a good beginning. The stakes are great and the costs of those who paid excessive attention to economists' flawed models of capital market liberalization have been enormous.

Those working in financial markets argue about efficiency, which can only be achieved by driving globalization. What the researchers really have in their mind is something else - a set of rules that benefits them and increases their advantage over workers. The threat of capital outflows (as a result of capital-market liberalization),

should workers become too demanding about rights and wages, keeps workers' wages low. Competition across countries for investment takes on many forms, not just lowering wages and weakening workers' protections. There is a broader "race to the bottom," trying to ensure that business regulations are weak and taxes are low. Moreover, financial market integration entails not just the free movement of capital across borders, but also the free movements of financial institutions across borders. This adds to a problem of "financial contagion"- a particular problem in one country can rapidly spread to another. Notwithstanding the diversity of macroeconomics, the problem of "financial contagion" points to the need for a fundamental re-examination of the models- and a reassertion of the lessons of modern general equilibrium theory that were seemingly forgotten in the years leading up to the crisis. In terms of general economic theory, there are a variety of conditions under which markets create their own noise, and this is typically the case when there are non-convexities, which are pervasive, whenever there are problems of informational imperfections, R&D, learning, externalities, or bankruptcy costs. The scope for further research is to "rethink the theory of financial integration: what failed and how to repair it," so as to isolate or "quarantine" volatile movements of capital across borders just like "effective circuit breakers in the design of electric networks".

Limitations of the Study and Concluding Remarks

All these theoretical expositions confirm that capital market liberalization has two related consequences - one, it leads to the increasing financialization of the economy with all the associated distortions and inequities; second, it shifts risk towards the poor and towards the taxpayers of our economy when things do not go as the policy designers predict, and therefore, others have to bear the hard consequences [12]. It is also clear from the theory that the policy of increasing financial integration does not help individuals diversify risk; rather, it exaggerates risks and economic volatility. An economic downturn in one country might rationally bring fear about the prospects of others who are linked to it through the network of finance. Analogous impacts may arise in the presence of a positive shock in any country. The recent wave of optimism in the U.S. can spread among lenders and borrowers to undertake high level of lending and borrowing in the U.S., with untoward consequences in India, when the animal spirits of capital-market liberalization become tamer following huge outflow of short-term capital from India. Since so much of the current volatility in exchange rate and consumption in the Indian economy is associated with the excess of the financial sector liberalization, it is a natural and appropriate time to begin a second-generation programme in our economy by curbing excessive risk taking and too-interconnected-to-fail-financial-institutions. Restrictions on leverage and cheap foreign liquidity flows are key for the Indian policy designers who somehow believe that they can create resources out of this air by the magic of leverage. It cannot be done. What they create is risk and volatility. Policy makers in our country should design interventions in the capital market, which ensure counter-cyclical movement of capital.

In conclusion, we wish to take note on export promotion policy as India's salvation and on the distributional consequences of the policy rate-cut of the monetary authority to boost the Indian economic growth rate. Indeed, ex-ante, there is an argument for export diversification, and because of macroeconomic externalities, societal benefits from such diversification exceed private benefits, so government might wish to encourage it. If exports create jobs, then imports destroy jobs. So, continuing trade deficits is an impediment to achieve full employment in India. Exchange rates are determined largely by capital flows, and finance pays little attention to its consequences. As capital now seeks a safe harbor in the U.S., the exchange rate in India is driven down, exports should be encouraged, imports are hurt, Indian trade balance should get reduced, and jobs should be created in the Indian economy (Bhanja, Samantaraya, & Dar, 2013). Despite the rapid devaluation of the rupee, Indian exports are still lagging behind the costlier imports, leading to worsening of the current account balance. So, we have to look into the basic three assumptions of an export-based salvation : (a) a week rupee, which makes Indian goods competitive, (b) strength in India's major trading partners, and (c) India producing goods that others want. Each of these has come under question now, however, given the limited space of this paper, we cannot spell them out here.

Secondly, the central bank in our country intends to focus on the rate of interest in the mistaken belief that change in the rates of interest is a simple 'lever' by which it can control the economy and rescue the economy from

the current tailspin. Its argument that lower the rate of interest and the economy expands, raise the rate of interest, and it slows down- is not as simple as perceived. Very often, the links are at best weak, and other instruments might be more effective. When sales are plummeting, lowering the interest rate, say, from 2 p.c to 1 p.c., will not induce firms to build a new factory or buy new machines. Excess capacity typically increases markedly as the recession gains momentum. Given these uncertainties, even a zero interest rate might not be able to resuscitate the economy. Above all, the central bank can lower the interest rate the government pays, but it does not determine the interest rate firms pay or even whether banks will be willing to lend. More important is the credit availability and the terms at which credit is made available to firms, following the new monetary theory of Greenwald and Stiglitz (2003). On the contrary, there is a huge cost associated with the lowering of interest rates - all those retired individuals who intend to invest prudently in government bonds suddenly experience their incomes disappear. Hence, the distributional consequence of lowering interest rates is simply a large transfer of wealth from the elderly to the government and from the government to the bankers, with little recovery in productive investment.

Today, in the Indian economy, the real problems remain unemployment and a lack of aggregate demand. Capital market liberalization exacerbates the economic declines and ultimately, worsens the exchange-rate with the follow-on effects in our country. Monetary policy has reached its limits: Policy rate cuts either are impossible or would not have much effect in stimulating the economy. We must then rely on fiscal policy to help restore the economy to health [13]. The structure of taxes can change, leading to higher growth and lower deficits. Raising corporate income taxes for corporations that do not reinvest in their business and lowering them for those that do (through say, investment tax credits), is one example. Increased investment leads to higher growth, and higher growth leads to more tax revenues. Raising taxes on high-income individuals and lowering them on lower-income individuals is another effective fiscal policy. Unfortunately, Indian policy makers intend to follow the "Hooverite" view to restore the confidence of the economy, so that the economy can again be flooded with hot money flows from foreign institutional investors and be brought back to good health. However, the "confidence fairy" is more likely to make its appearance with Keynesian policies that can restore Indian growth than with austerity measures (like, inviting short-term U.S. dollars) that destroy it [14].

Notes

[1] There are solid econometric evidences (Honohan, 2001; Wyplosz, 2002).

[2] "Of course, modern economics has increasingly turned to questions of political economy- of the relationship between political process and public policies- and these outcomes were, accordingly, perhaps not surprising, given the governance structure of international economic institutions, like the International Monetary Fund (Fund)", Stiglitz (2004). Though such an analysis might be appropriate to understand government failure at the national level, it is not pertinent in this context to discuss it in detail.

[3] The term "conventional wisdom" is due to Stiglitz (2011).

[4] Understanding changes in the supply of and demand for credit is at the heart of understanding economic fluctuations and financial crises, and understanding how monetary policy, as a regulatory instrument, affects the supply of credit should be at the heart of monetary theory. In normal times, money and credit may be highly correlated, but in times of crisis, the link is broken (Greenwald & Stiglitz, 2003).

[5] There is a huge body of research on how the introduction of fancy financial assets may alter the investment decision, cost of risk sharing, and intertemporal consumption smoothing.

[6] Using a variety of mathematical formulations, economists of the IMF showed that when production technologies exhibit decreasing-return-to-scale (DRS) in capital, the optimal investment decision is an interior solution, and the corner solution of the optimal investment decision is the outcome in a specialized case where the capital share in output is unitary and the production technology is linear in capital.

[7] At the same time, the IMF remained silent about the fact that the United States and Western Europe did not liberalize their financial markets until after 1970, when their markets and the requisite regulatory apparatus were far more developed. While the Ethiopian government was reluctant to accede to IMF's demands on a perfect economic sense, the Fund suspended all of its assistance to Ethiopia on the ground that the Ethiopian government was not serious about reforms. To Ethiopia, such intrusiveness smacked of a new form of "financial colonialism," but to the Fund, it was just a standard operating procedure. Incorrect economic theories, not surprisingly, lead to incorrect policies, but obviously, those (chiefly, the Fund) who advocated them thought that these would work. They were perfectly wrong. Flawed policies not only brought on the East Asian crisis of a decade ago, but also exacerbated its depth and duration, and left a legacy of weakened economies and mountain of debt in the aftermath of the last great financial crisis in 2008.

[8] The neoclassical model also ignores the costs of bankruptcy, because to the economists who created the model, financial structure does not matter at all. So, there is no question of excessive leverage in a changed risk perception, and hence, there is no problem of credit rationing in the neoclassical theory of finance. It provides one of the early criticisms of the the Modigliani-Miller neoclassical analysis by Stiglitz (1969).

[9] We can refer to the example from Kindleberger (2005, pp.268-315): In Holland's tulip bulb bubble in the early 17th century, the price of a single tulip bulb soared to the equivalent of thousands of dollars. Each investor was willing to pay the price, because he believed that he could sell the bulb to someone else at a still higher price. Bubbles were based on a certain irrational exuberance.

[10] In some cases, it is difficult to distinguish between behaviour which is best explained by irrationality, and that, which is best explained by information imperfections (Banerjee, 1992).

[11] This steady-state accumulation in a closed economy becomes the 'golden rule' accumulation where it exactly matches with the country's rate of growth of population.

[12] Top businessmen, corporate CEOs, and the top-flight lawyers - three principal group of "rent-seeking" in our economy- are too worried of the current weakening of the rupee in our economy, not because of our economy's competitive edge being hurt by it, but because only of their own interest (for example, they have to put off their holiday trip abroad or are forced to prefer country holidays as travel costs are higher for a weak rupee against the dollar). Rather, the state should be more worried. The ₹ 80,000 crore diamond cutting and polishing industry of Surat- the world's biggest and locally known as "ghantis"- is going to be shut down with the rupee touching an all time low right now following the flight of dollars from India. They have to buy rough diamonds in dollars, which are very expensive at the moment. After the worst-ever global economic crisis in 2008 (triggered by the collapse of Lehman Brothers), and due to the current outflow of "hot money" from India, more than two lakh diamond workers have become jobless, and many of them have committed suicide as a result of the dollars exiting India. It leaves little doubt of the risks imposed by capital market liberalization on the poor of our country.

[13] China deployed one of the world's largest stimulus packages and had one of the strongest recoveries, in spite of facing significant shocks to its economy.

[14] "Hooverite" view says: To restore economic strength, confidence has to be restored; to restore confidence, deficits have to be reduced; and to reduce deficits, spending has to be cut and taxes increased. The IMF's prescriptions after each crisis following capital market liberalization (in East Asia, Latin America, etc) normally follow the "Hooverite" approach. Following the Keynesian approach, cut backs in spending erode strength in the economy; the weaker economy erodes tax revenues, so that deficit reductions are less than hoped; confidence is not restored, nor are consumption and investment. For a century, there has been a conflict between these two views, and in some countries, such as Germany, the Hooverites seem to have won the day. However, economic modeling has failed to substantiate the "Hooverite" approach- in almost all models, cut backs in spending to reduce deficit lead to lower growth (Stiglitz, 2009, pp.87-114).

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Appendix 1

Proof: $\log(w)$ is a concave function of $\log(1+r)$

$$w(k) = k^{\alpha} - \alpha k^{\alpha} \qquad \frac{d(w)}{dk} = \alpha(1-\alpha)k^{\alpha-1}$$

$$1 + r = f'(k) = \alpha k^{\alpha-1} \qquad \frac{d(1+r)}{d(k)} = \alpha(\alpha-1)k^{\alpha-2}$$

$$\frac{dw \,/\, dk}{\frac{d(1+r)}{dk}} = -k \qquad \frac{dw}{d(1+r)}\frac{1+r}{w} = -\frac{\alpha}{1-\alpha} \qquad \frac{d\log(w)}{d\log(1+r)} = -\frac{\alpha}{1-\alpha} < 0$$

where 'α' is the share of capital in national income. So, elasticity of substitution between labour and capital may be less than or greater than unity, but it is not too large.

Appendix 2

$$(1-p)^2(\alpha+Q) - Q = (1-2p+p^2)(\alpha+Q) - Q = [-pQ + (1-p)\alpha + (\alpha+Q)p^2] - pQ - p\alpha$$

$$= [-pQ + (1-p)\alpha] + [(\alpha+Q)p^2 - pQ - p\alpha]$$

Now $[(\alpha+Q)p^2 - pQ - p\alpha] < 0$, since $\alpha p^2 < \alpha p$ & $p^2 Q < pQ$ *as* $p < 1$.

This follows that $(1-p)^2\alpha - [1-(1-p)^2]Q < -pQ + (1-p)\alpha$