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FOREIGN SAVINGS, FINANCIALIZATION AND MINSKY: HOW EXTERNAL  
CAPITAL FLOWS PAVE THE WAY FOR FINANCIAL INSTABILITY IN THE  
FACE OF INCREASING RISK

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Master of Arts

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by

Marcus C. Fresques

August 2012

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Title: FOREIGN SAVINGS, FINANCIALIZATION AND MINSKY: HOW  
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## ABSTRACT

Minsky's *Financial Instability Hypothesis* has not come without its fair share of criticism. Much ado about Minsky's endogenous business cycle theory stems from a model where boom-time profit opportunities indelibly encourage firms to finance investment by leveraging their fixed capital assets against their internal liquidity. Opposition to Minsky often points to two distinct circumstances that might discourage the external finance of investment: a rise in effective demand and increasing risk. A rise in effective demand can increase the retained earnings of a firm providing more capital to internally finance investment and investment financed from retained earnings is less risky than investment financed with debt. This has fueled criticism of Minsky's framework as having controversial assumptions that discourage rather than encourage financial instability.

This paper examines Minsky's Financial Instability Hypothesis from a savings and debt point of view in order to determine whether or not Minsky's financial crisis theory holds up to its critics. It looks at the peculiar role of foreign savings in creating an incentive for financialization and how that engenders financial instability. Moreover, I hope to display a theoretical argument that unifies much of the criticism of Minsky with the valuable contributions he has made to economic theory.

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## **Introduction.**

The recent financial crises of the United States and Europe have brought Hyman Minsky's landmark ideas of endogenous financial instability to the forefront of many academic and professional discussions. The model of rising debt to equity ratio during an economic boom period that Minsky pioneered in his *Financial Instability Hypothesis* has regained traction after the housing crisis in the US and sovereign debt crises in the European Union have revealed a period of economic growth buttressed by household, firm and government debt finance.

My interest in Minsky is a product of his rebirth in the media as financial markets showed considerable signs of weakness and fragility in the fall of 2007. An article in the *Wall Street Journal* by Justin Lahart (August, 2007) declared the financial market turmoil in late 2007 as Minsky's moment to shine after years of obscurity. In 2008, an article in *The New Yorker* by John Cassidy aptly titled "The Minsky Moment" lauds the prescience of this little known economist whose discussion of endogenous financial instability is changing the discussion from the political wrangling over tax-cuts and stimulus to financial sector reform. The newfound interest in Minsky and his ideas on endogenous financial instability are what motivated this paper.

Nowadays the discussion of Minsky finally having his 'moment' does not eliminate an ongoing debate that has criticized the theoretical integrity of Minsky's contributions to the theory of endogenous business cycles. Some of Minsky's most staunch supporters in the Post-Keynesian school of economics have criticized his *Financial Instability Hypothesis* as having "an obvious missing macroeconomic link in his formal exposition" (Lavoie and Seccareccia, 2001, p. 77 and 83) and Minsky's

relationship between economic growth and rising leverage ratios displays some “controversial assumption” (Delli Gatti and Gallegati, 1990, p. 368). Most of the controversy that has encircled Minsky’s theories on financial fragility comes from a perceived lack of integration with Kalecki’s *Principle of Increasing Risk* (1937), which on the surface appears to contradict Minsky’s *Financial Instability Hypothesis*. Minsky’s theory states that economic growth and recent success on business ventures promotes greater risk taking by leveraging the fixed capital assets of business against its internal liquidity in order to exploit profits opportunities. However, Kalecki explains that higher leverage ratios (what he calls the *gearing ratio*) increase the marginal risk of investment by increasing the danger of substantial losses on bad business ventures, it compromises their ability to borrow at lower risk premiums and it increases the illiquidity of the firm as more financial capital is tied up in fixed business capital. During economic growth, critics of Minsky contend that higher effective demand conditions will increase the retained earnings of the firm and investment finance will come for the entrepreneurs’ own capital rather than external finance. Therefore, economic growth can occur without necessitating an aggregate increase in the proportion of debt to equity of a national economy.

A unification theory that integrates the ideas of both Minsky and Kalecki might put to rest some of the controversy behind Minsky’s theory on financial fragility. However, in order to reconcile this idea of a firm’s assets rising proportionately greater than equity without increasing the perceived risk of the firm runs into a seemingly indelible contradiction. Economic growth fueled by an increase in effective demand boosts the level of business savings and discourages the Minsky process from happening.

Firms that possess large amounts of entrepreneurial capital are likely to prefer internal finance of investment due to the increasing risks associated with external finance.

Approaching the Minsky process from a savings and debt point of view unveils some important insight to the theoretical arguments the buttresses his endogenous business cycle theory and what it might mean for financial sector stability. In a world that is open to a high volume of financial capital that moves between countries, total outside savings (foreign savings *plus* domestic savings) must be absorbed into domestic capital markets as liabilities raising the proportion of an economy's total assets to equity. In order for this to happen total outside savings must be relatively more elastic than business savings with respect to economic growth. This runs contrary to most studies where domestic outside savings appears to be inelastic. There must be something about foreign savings, the inflow of external capital from foreign financial markets, which increases the elasticity of outside savings to business savings. Therefore, the Minsky process must not only be examined through the filter of a closed economy, but it must be opened up to allow for external capital flows.

Furthermore, equity markets can absorb large amounts of capital without increasing the proportion of business capital to equity of the firm. Large firms can issue new shares in equity markets to raise money for investment as an alternative to debt finance. As total outside savings is merged with equity the market price of shares can surge creating an incentive for firms to issue new shares. During periods when investor confidence is high, share capital will have a tendency to rise proportionately greater than replacement value of the existing capital assets of the firm effectively increasing the firm's degree of capitalization. The issuance of new shares is not necessarily the result of

a rising demand for fixed capital assets as it is intended, but rather an increase in the demand for financial assets. The ability to earn capital gains on these assets motivates the financialization of firm diverting capital from productive investment to financial investment. As we will see, Jan Toporowski's theory of capital market inflation will play an important role in this shift to financial capitalism.

It is my belief that the conflict that underscores Minsky and Kalecki can be reconciled by the role total outside savings plays on the financialization of firms. Financial instability arises as the ratio of share capital to retained earnings increases as a result of financialization. In effect, the capital market liabilities are increasing relative to liquid assets. However, the rise in financial fragility is concealed by the peculiar role share capital plays as financial capital. Share capital much like debt is a capital market liability, but it is designated as a *type* of entrepreneurial capital. This can overstate the financial stability of a firm since they often use the ratio of debt to equity to measure their financial integrity essentially ignoring the inter-indebtedness of businesses. Moreover, with financialization there is a tendency for marginal rate of profit to fall in future periods. The dangers associated with unexpected excess capacity and the ability to earn capital gains on financial assets act to slow real fixed investment. A portion of productive investment is replaced by financial investment translating to a fall in the marginal rate of profit in future periods.

The paper begins with a detailed description of the Minsky process. I review Minsky's work on investment fluctuations and the determination of profits in an economy. I then turn my attention to Minsky's analysis of the cash-flow-to-payment mechanism in an economy and the various financing units that permeate different periods

in the business cycle. I end the chapter by emphasizing the conflict that arises when critiques of Minsky look to reconcile the *Financial Instability Hypothesis* with the Kaleckian analytics.

I begin Chapter 2 by reexamining the Minsky process from a savings and debt standpoint. It compares the elasticity of domestic outside savings with respect a change in real capital accumulation in a closed economy under the conditions of a rising gearing ratio and a constant or falling gearing ratio. Section 2.01 delves a bit deeper into the elasticities of different types of domestic outside savings and foreign savings. By introducing foreign savings I make the transition from a closed economy to an open economy. In particular, attention is paid to economies that rely heavily on imports and/or have relative weak domestic capital markets so their dependence on foreign capital markets for domestic finance exaggerates the impact of foreign savings on the elasticity of total outside savings. Section 2.02 examines how total outside savings impacts firms of differing size within a national economy. Here I aim to see how total outside savings is distributed among firms of different sizes and how financing constraints influence the position of various firms. I introduce how equity markets impact investment and what that might mean for financial stability, i.e. how elastic foreign savings can lead to the financialization of joint stock companies. Finally, section 2.03 reveals the destabilizing effects of financialization. I argue that financialization lowers the marginal rate of profit overtime that eventually leads to a fall in real fixed investment and increasing financial instability. Moreover, here is where I unify Minsky with Kalecki via the peculiar nature foreign savings has on the elasticity of total outside savings during economic booms and busts.

## **Chapter I.** *Minsky's Financial Instability Hypothesis*

For Minsky, the ability to finance current output and investment using various debt instruments leaves a legacy of past and current liabilities. The various structures of cash flows yield profits from operations, spur investment decisions and administer to existing or inherited liabilities. It is the past residue of existing debt obligations, the firm's ability to meet those obligations today and the fundamental uncertainty associated with meeting future obligations with the acquisition of new assets that breeds from within financial instability.

The endogenous movement from financial robustness to fragility is in a large part due to profit opportunities associated with relatively serene times that change the overall sentiment of an economy from passive to euphoric. This moves the economy from predominately internally financed investment to externally financed investment on a wave of speculative behavior. Margins of safety from borrowers and lenders are diminished as financing units move to more leveraged positions increasing their debt-to-earnings ratios. As an increasing number of firms pursue speculative financing arrangements where short-term debtors hold long-term assets in search for profit opportunities, they become vulnerable to any increase in interest rates. A rise in interest rates makes liability payments more expensive. The most leveraged firms will be among the first to require additional loans to simply meet their interest payments on outstanding debt obligations. Financial institutions will look to clean up their balance sheets of excessive risk and the margins of safety for lenders will rise. As defaults become more

prevalent due to tighter credit standards a vicious cycle of illiquidity, massive debts-to-earning ratios and falling capital asset prices trigger a financial crisis.

The brief summarization of a Minskyan crisis just brought forth is hardly satisfactory to make the transition from a closed economy to an open economy. Therefore, there are three important features of Minsky's economic theory that justify further elucidation: (1) how do fluctuations in investment affect the prospective yields i.e. profits and (2) how do the cash-flow-to-payment of the various financing units (households, firms and financial institution) engender financial instability.

### **Section 1.01** Investment fluctuations and expected profits

Profits, in Minsky's mind, are the root cause of financial instability that is built into the capitalist economy itself:

[T]he pattern of interest rates (short-term rates being significantly lower than long-term rates) are such that profits can be made by intruding speculative arrangements...Profit opportunities within a robust financial structure make the shift from robustness to fragility an endogenous phenomenon (Minsky, 1986, p. 234).

In essence, profits are incomes or cash flows from operations less payments on existing liabilities, dividends, taxes, and the costs of doing business. They are determined by investment and consumption patterns, which are, in turn, financed by internal (retained earnings) and external funds (borrowing). Therefore, any decrease in financing will lead to lower investment activity translating to a fall in the rate of profit and a greater likelihood of not meeting past debt obligations. Since the level of investment is what inevitably determines the level of profits in an economy, it is important to understand what determines the level of investment or the supply and demand for investment.

A Minsky crisis is grounded in the analysis of two sets of prices that permeate different time horizons: the supply price of investment or the price of current output that pervades the profit expectations of the short run; and the demand for investment or the price of capital assets that pervade the profit expectations of the long run (Minsky, 1982, p. 102). Decisions to utilize existing capacity in order to produce either consumption output or investment output are derived by the prospective yields businesses expect to earn in the short-run. Conversely, the price of capital assets is a function of future profit flows and liquidity preferences; that is, the expected profitability of capital assets and the uncertainty that is bound to money or money-like assets. These decisions are based on the prospective yields an investment good are expected to earn over a lifetime. Let us first examine the supply price of investment.

Aggregate demand (consumption and investment demand) largely determines the level of output and employment in an economy. Consumer demand directs businesses to utilize or lie idle their existing capacity. When consumer confidence is high and their decisions to spend on consumption increase, producer confidence increases as inventories fall and production is ramped up. The marginal profitability of existing capital increases as capital becomes increasingly scarce due to the increase in prospective yields. The supply price of output (albeit consumption output or investment output) is estimated from the cost of production plus markups on a technologically determined labor cost in the short-term time horizon. The supply price of investment is what Keynes defined as an assets *replacement cost*. Minsky interpreted the replacement cost of a capital asset “as a schedule in which higher demand prices for capital assets will yield greater output of investment goods” (ibid, p. 95). Provided that prices and wages are relatively sticky in

the short-run, the supply price of investment ought to be fairly stable during the relevant time horizon. Essentially, the supply price of investment is determined by the current utilization of existing capacity, which is in turn determined by the aggregate demand condition in the near term. Conversely, the demand price for capital assets is a decision to increase existing capacity and that implores long-term considerations. Let us now turn our attention to the demand price of investment.

Capital assets are valuable only because they are expected to earn profits. The idea behind the profitability of capital is not some abstraction about the marginal productivity of capital, but (as briefly mentioned above) it is the relative scarcity of capital that makes it profitable. Keynes says,

It is much preferable to speak of capital as having a yield over the course of its life in excess of its original cost, than as being *productive*. For the only reason why an asset offers a prospect of yielding during its life services having an aggregate value greater than its initial supply price is because it is *scarce* (Keynes, 1936, p. 213).

When capital is sitting idle it has not lost its productivity in the physical sense, it is merely over abundant as lackluster demand conditions lead to excess capacity. However, as aggregate demand conditions improve, the existing stock of capital assets become increasingly scarce and the capitalization of these assets are realized. Where current productive capabilities are determined by the existing level of the capital stock in a shorter time-horizon, the decision to increase the stock of capital assets is undertaken in a longer time-horizon to address the issues of scarcity when production is near full-capacity.

Since the decision to invest in capital assets is determined in the current period, then businesses must expect the additional capital asset to provide a yield above its cost

over the lifetime of the asset. In other words, decisions to increase the stock of capital assets is dependent on the confidence of the producer that it will be profitable in future periods of production. Hence the current price of capital assets, much like financial assets, are the income cash flows of the asset over the life of the assets less its carrying cost plus a liquidity premium (ibid, p. 226). The income is the expected yields of the assets or cash flows it is intended to produce to the owner of the asset; the carrying cost of the asset is the cash flow that is necessary to make cash payments on outstanding liabilities (or simply the opportunity cost of owning other assets); and the liquidity premium is the cash flow that is implicitly found in the asset pertaining to its ease of disposal and subsequent transformation into money.

The liquidity premium is determined by the relative price risk of the asset (the certainty of the value of an asset) and the transaction cost of converting the asset to money. The more liquid the asset the more it behaves like money (the ‘moneyness’ of these assets have greater certainty in value and low transaction cost). An increase or decrease in the liquidity premium placed on money like assets will have a contradictory effect on the price of more illiquid assets. Therefore, the quantity of money must play a role in the determination of the price of capital assets since a rise in the quantity of money will supply an abundance of liquidity in an economy.

Aside from the capitalization of expected profits determining the price of capital assets, the money supply acts as an upward impetus in similar respects. Minsky explains that “in determining asset prices, the fixed point is that the price of a dollar is a dollar, one dollar is like another, and each dollar in existence supplies liquidity. When...the dollar is plentiful relative to the stock of assets, then the price of assets will be high”

(Minsky, 2008, p. 202). How is this so? Minsky follows Keynes' lead when he describes this phenomenon: if the money-rate of interest falls relative to that of other assets and to the carrying cost of those assets, then the liquidity premium must decrease for money and money-like assets; this has the tendency to increase the price of capital assets that cash flow profits and increase the liabilities that cash-flow cash payments (Minsky, 1975, p. 90). Therefore, during normal times the price of a capital asset increases with the quantity of money. There are two important caveats that accompany this statement: this is not the case when an economy has fallen into the clutches of a liquidity trap (when money demand becomes infinitely elastic) and high inflation (hyperinflation) corrodes any value money might have as an insurance policy.

The level or pace of investment in an economy is directly related to the demand and supply for investment where the demand price for capital assets is equal to the supply price of investment. According to Keynes the marginal profitability of capital is equal "to the rate of discount which would make the present value of the series of annuities given by the returns expected from the capital-asset during its life just equal to its supply price" (Keynes, 1936, p. 135). In essence, the pace of investment is directly related to the changes in the expected cash flows on capital assets i.e. the capitalization of prospective yields, changes in the cash flows on debts i.e. the interest rate, or a feedback mechanism resulting from a combination of both. From this it is clear, since the supply of investment is assumed to remain relatively stable in the short term, then it must be that the price of capital assets influences the fluctuations in investment. This is not surprising given that the decision to increase the current stock of capital is based on today's confidence of the uncertain realities of tomorrow.

It would be short sighted to simply believe the pace of investment is merely the equality between the demand and supply prices of investment. This would only hold in a world where financing is not relevant. However, the role finance plays in the pace of investment is profoundly significant. Firms not only use retained earnings to internally finance investment, but they externally finance investment by borrowing.

When expected profits are capitalized justifying past investment decisions, the demand for capital assets rises leading a firm to determine whether an investment decision is worth undertaking. At this point the demand for capital assets is greater than the supply price of capital assets and the subsequent level of investment is contingent on three factors: (1) the level of retained earnings or gross profits available for internally financed investment, (2) the level of risk both borrowers and lenders are willing to endure in their liability and asset structure, and (3) the current utilization of capacity.

Investment out of gross profits will yield a level of investment that is dependent on the amount of entrepreneurial capital or the internal accumulation of reserves available to the firm for the purchase of fixed capital assets. If retained earnings increase with the rate of profit, then investment might look more desirable as prospective yields of additional fixed capital assets rise. An increase in real fixed investment from retained earnings increases the capital of a firm available as collateral for external financing. Therefore, at certain point a rise in the retained earnings of a firm will increase the desirability of investment to a point where actual investment occurs.

Given the sentiment of the investing firm and the prospective yields associated with additional investment, a firm can use financial markets to debt finance the acquisition of fixed capital assets. The investing business is aware of the inherent costs

of issuing more debt to finance investment given the uncertainty of fully capitalizing its prospective yields. This is not really an objective cost, however it is more of a subjective cost based on the current sentiment to risk that pervades a certain point in time. It is reasonable to say that borrower's risk will rise sharply beyond a certain amount of investment spending. This is because the rise in externally financed investment-spending increases the amount of debt-to-equity of the firm on top of a greater productive capacity. Firms will look to maintain a certain desired level of utilization of capacity so any additions to the capital stock beyond this will raise the risk of unplanned excess capacity. Underutilization of capacity will make covering the existing liability structure of the firm more cumbersome.

In addition to the borrower's risk, lenders require a margin of safety that arises out of the possibility a borrower will be unable to fulfill contract arrangements. This can occur when borrowers overestimate their prospective yields or in the event of voluntary default. The lender's risk is reflected in the terms of the loan agreement and interest rate.

In a world where finance is relevant the pace of investment will reflect the intersection of the supply price of investment adjusted for lenders risk and the demand price for capital assets adjusted for borrowers risk. The margins of safety underscore the current sentiment of both borrowers and lenders and the point where investment will take place. Given that the margins of safety are the subjective valuation regarding the appropriate levels of borrowing and lending in an economy, the level of investment is largely dependent on the state of confidence at any given time in a business cycle.

Minsky argues that business cycles occur endogenously because of the relationship between higher levels of investment during an economic recovery and higher

rates of profit in subsequent periods. The following period will show levels of actual retained earnings in excess of anticipated earnings. The unexpected rise in retained earnings will raise the demand for investment effectively increasing the demand price for capital assets at each output; thus, reinforcing the firms sentiment toward additional external finance. The capacity to issue more external finance will rise as the equity of the firm rises relative to its level of debt. In other words, the unexpected increase in profits improves the balance sheet of the firm as its debt to equity ratio falls. Flush with unanticipated unused borrowing power the firm's subjective view of borrower's risk will drop. The firm's sentiment to additional investment will be more favorable than in the previous period.

Lenders will see the capitalization of prospective yields by businesses as a signal to increase lending as the firms ability to service its debt improves. In effect, the prior margins of safety might be thought of as excessive. The subjective way in which businesses and lenders evaluate risk is changing as overall sentiment changes from pessimistic to optimistic.

A greater pace of investment, however, creates more productive capacity and increases the overall level of debt in the economy. This subjects the economy to the increasing risks of unanticipated excess capacity and exposure to debt. Over the course of an economic boom the higher than expected retained earnings early on induces additional investment raising the productive capacity in subsequent periods. The rise in productive capacity will force the price of capital assets down as their abundance ceases to make them scarce. Investment will drop as undesirable levels of excess capacity begin to surface. A fall in the level of investment demand will lower retained earnings in the

later stages of the economic boom. If the actual level of retained earnings falls below expectations, then investment will fall along with the rate of profit. The economy is on precarious grounds as the proportion of debt begins to rise relative to equity.

In short, unexpectedly high profits today raises the desirability of investment in subsequent periods, but this also creates more capacity and more debt that puts the economy into a state where risk has risen sufficient enough to threaten further expansion leading to a period of stagnation or contraction. This is the general premise behind Minsky's endogenous business cycle theory.

The pace of investment in a society is so important because it is what drives the level of profits. However in a world with highly developed financial markets the level of investment is not only influenced by internal accumulation of capital, but the overall sentiment both borrowers and lenders place on their perceptions about the future. Minsky formulates an endogenous business cycle theory from the evolution of various financing units during the course of the trade cycle. His ideas originate from a 'Wall Street' perspective as he unearths the endogenous movement of a firm from financial robustness to fragility. Financial stability is threatened as debt finance transforms the financing units from a hedged financial position to an ever-more speculative reliance on the normal functioning of the financial market. As Keynes famously said,

[T]he position is serious when enterprise becomes the bubble on a whirlpool of speculation. When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill-done (Keynes, 1936, p. 159).

Minsky builds on this notion of speculative capitalist development in his *Financial Instability Hypothesis*. The following section will examine in depth how the financial

structure of the firm undergoes a fundamental change throughout the course of the business cycle.

### **Section 1.02** Cash-flow-to-payment of various financing units

As we have said, Minsky approaches the *Financial Instability Hypothesis* by looking at the financial unit from a Wall Street perspective. Thomas Murphy, long time CEO of General Motors, best describes this point of view when he was quoted as saying “General Motors is not in the business of making cars. It is in the business of making money.” Wall Street is not concerned with the physical productivity of capital assets nor the tangible asset being produced, but their concern lies only in the *profitability* of capital assets. As previously discussed, the expected profitability of the stock of capital assets determines their value and the greater the price of capital assets the greater the pace of investment that can be financed. Thus, in a society where external financing determines the pace of investment there must be an examination into the implications of servicing a growing debt burden.

Different financing units can be broken down into individual entities that generate cash flows. Minsky breaks down the different types of cash flows in to three distinct groups: income cash flow, balance-sheet cash flows and portfolio cash flow.

Income cash flows are determined by the every day operations of a firm. This includes the labor costs such as wages and salaries, accounts payable and receivable, payments for final and intermediate products, and total profits after tax. As we will see, income cash flows play a crucial role in the financial integrity of a financing unit. They

are what Minsky describes as “the foundation upon which the balance-sheet and portfolio cash flows rest” (Minsky, 2008, p. 226).

Balance-sheet cash flows<sup>1</sup> are generated from servicing a legacy of existing or acquired liabilities. Past decisions to expand the stock of existing capital assets using some sort of external financing require the payment of interest and principle based on the terms and conditions per some agreed upon contract.

Portfolio cash flows are the product of exchanging the capital or financial assets either by acquiring or selling assets or putting new liabilities into circulation. The sale of an investment good generates income cash flow to the producer of the good, but the purchaser of the investment good is generating a portfolio transaction with the acquisition of a capital asset just like when an investing entity acquires a financial asset to diversify their portfolio. Portfolio transactions can be used to raise money via the liquidation of the current stock of assets.

Everyday financial units ranging from firms and households to financial institution generate a combination of income, balance sheet and portfolio cash flows to conduct business. Under the modern capitalist mode of production financial instability rests on the role all three cash flows play during any given economic epic. The movement from relative economic tranquility to speculation-led capital development that engenders financial instability is largely based on the financing of positions in assets and

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<sup>1</sup> Different types of balance-sheet cash flows can be described as demand, dated and contingent. Demand deposits are the characteristic balance-sheet cash flows associated with banking. They are the short-term financial instruments such as checking and savings deposits that underscore the traditional functions of the banking sector. Dated cash flows are no more than our traditional home or car loans that divide a certain monthly contract into partly principle and interest payments. Another typical type of dated contract is the bond. Finally, contingent cash flows are claims due to the endorsement by a third party of a note, insurance policies and the common stock of a corporation.

associated cash flows that support these positions. Minsky (2008, p. 230) categorizes these different financing units identified in the financial structure of modern capitalism as hedge, speculative and Ponzi financing units. The movement from financial robustness to instability can be described by the evolution of financing units through each of these financial structures.

When an economy emerges from economic crisis there are *periods of tranquility*<sup>2</sup> where an economy is growing more smoothly. This period can be defined by a temporary economic state that lies in between the periods of crisis -- such as financial and monetary crises or debt-deflations -- and euphoric booms periods where irrational psychology drives speculation-led capital development. According to Minsky, this purely transitory state in capitalist development is dominated by hedge financing units.

Hedge financing units are characterized by their ability to meet present and future contractual payments on liabilities (interest and principle) from the income cash flows they generate from operations. Internal and long-term financing as well as minimal amounts of demand debt are attributes of a firm that hedges its finance of capital assets. During periods of economic tranquility, margins of safety of both lenders and borrowers reflect the risk-averse state of confidence that underscores this class of financing units. Often times, emerging from an economic crisis carries the memory of the not-so-distant hardships of the recent past. Households, firms and financial institutions having been burned by the shortfalls of the previous period of financial instability proceed with contractual agreements that reflect their sentiment toward uncertainty. Hedge financing

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<sup>2</sup> This term is borrowed by Hyman Minsky from Joan Robinson in an effort to avoid using the misleading idea of a *general equilibrium* in economics.

units are only vulnerable to unfavorable changes in their expected income cash flows or real sector developments whereas speculative and Ponzi financing units also display vulnerability to unfavorable changes in financial sector developments.

Speculative financing units rely on income cash flows and the performance of their portfolio cash flows to pay the interest on cash payment commitments, but shortfalls arise on payments to the principal of maturing debts. This situation requires the rolling over of maturing debt in order to meet financial obligations. Essentially, speculative financing units rely on the normal functioning of the financial system to sustain *current* operations with the expectation that *future* cash receipts will be sufficient to meet the cash payments on debts being refinanced *today*. Commercial banks, for example, are a good example of speculative financing units in that demand debt is a key attribute of their day-to-day operations. Traditional operations of a bank involve the short financing of long positions a defining characteristic speculative finance. It is important to note that when short-term debt is used to finance positions in long-term assets a window of vulnerability is opened to increases in the short-term interest rates. A large increase in the short-term rates can move speculative financing units to Ponzi financing units, the third and most unstable class of financing units.

Ponzi financing units differ from speculative units in that they must increase debt in order to make cash payments on outstanding liabilities. The cash flows from income are not only insufficient to make payments on the principal, but the cost of financing existing liabilities is greater than the cash receipts from operations. Ponzi financing units not only have to roll over existing debt, but they also have to borrow additional funds or liquidate financial assets to make cash payments on interest.

The evolution of the financial system from robust -- where hedge finance predominates -- to instable -- where speculative and Ponzi finance becomes increasingly abundant -- is associated with the capitalist drive for profit opportunities. During periods of tranquility, the economy is dominated by hedge finance. This period is characteristic of low debt to equity ratios as high margins of safety drive investing units to fund the purchase of additional capital assets predominately with retained earnings. Large interest rate spreads between short-term and long-term rates feed speculative arrangement as financing units look to profit on financing position in capital assets.

Minsky develops his *Financial Instability Hypothesis* from this profit seeking behavior of the different financing units that arise out of an economy that is financially robust. This period is characterized by short-term interest rates that are much lower than the yield from owning capital. The conditions are primed for hedge financing units to exploit interest rate differentials in order to ‘make on the carry.’<sup>3</sup>

The movement toward financial instability rises as the margins of safety wane with the memory of past financial crises. An environment is forming where the state of confidence and credit is growing as debt leveraged speculative development ensues. The profits that are expected by firms drive up the price of capital assets further increasing in the pace of investment. National income increases as an investment boom ensues driving up profits on the existing stock of capital assets. As expected profits are capitalized, firms find that their existing liability structure is compatible with a previous stage of confidence. Minsky writes,

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<sup>3</sup> Minsky often used this term to describe the speculative arrangement of issuing short-term liabilities to finance positions in long-term assets.

[Firms] find themselves with an unused margin of 'borrowing power.' This margin is as good as retained earnings in providing a basis for expansion of ownership of capital assets. Thus an increase in confidence and in the state of credit is equivalent in its effect upon the potential for debt-financing of investment to an improvement in current yield (Minsky, 1975, p. 120).

If the banks are willing to meet the demand for finance with an ample supply of credit (that is, if the state of credit increases with the state of confidence), then the level of external financing of investment is likely to increase as well.

The period of expansion where profits increase with debt paves the way for financial instability where balance sheet cash flows become increasingly burdensome. The necessity to refinance or roll over existing liabilities becomes dependent on the normal functioning of the financial sector. Firms that participate in speculative financing are especially vulnerable to an increase in short-term interest rates. A large enough increase in the interest rate without the corresponding increase in the income cash flows can move hedged firms to speculative financing and speculative firms to Ponzi financing. The financial stability of the system erodes as more and more firms succumb to speculative and Ponzi arrangements. Financial instability is characterized by a period of increased indebtedness with a corresponding drop in profits.

A rise in interest rates increases the carrying cost of capital assets that were financed using short-term liabilities. When it comes time to refinance or roll over those debts the higher interest rate decreases the present value of the future profits the capital asset is estimated to earn. In addition, the total cost of the investment project will increase with a rise in interest rates. Essentially, when speculative finance is involved, the rise in short-term interest rates decreases the price of capital assets both by raising discount rates as well as lowering expected profits which raises the price of investment

output as total cost of production increases. Investment will be perceived as misplaced or excessive leading to an overabundance of capital. If capital ceases to be scarce, then the marginal profitability of capital can fall considerably. As firms fail to capitalize expected profits the state of confidence can collapse. As firms look to position themselves into more liquid assets to insure against contingencies, liquidity preferences are likely to rise. This can only exacerbate financial instability as firms' propensity to hoard puts additional upward pressure on interest rates.

Minsky purports that the events that trigger a crisis are not unusual; however, they are a "normal result of the financing relations that lead into and take place during an investment boom" (Minsky, 2008, p. 242). Moreover, he explains that there are common features of a speculative led investment boom that add to its inherent instability:

[d]uring investment booms material and labor costs also rise. Furthermore, shortages -- or bottlenecks -- develop, delaying the completion of projects. As interest rates, costs of inputs, and delays increase the costs of the investment, the ratio of available internal funds to the cost of the project will decrease, even if the flow of internal funds remains constant (ibid.).

Thus, the endemic nature of the modern economy is its endogenous movement to financial instability that leaves it vulnerable to economic shocks that lead to a collapse in confidence and the state of credit. If the price of capital assets falls below that of the supply price for investment, then a situation arises where both debt and profits fall leading to a possible debt-deflation characteristic of the one famously theorized by Irving Fisher.

Minsky's theory does not, however, predict a specified amount of time in which hedged finance transitions into more speculative financing arrangements. There are a number of barriers that initially stand in the way of exploiting large interest rate

differentials. Minsky describes five ways how profit opportunities might not bring about the immediate movement to financial fragility<sup>4</sup>; however, it is the fifth barrier that I would like to point attention to:

endogenous increases in money and liquid assets raise the price of capital assets relative to money and current output prices...so that investment will rise, increasing the yield of the existing stock of capital assets. This means that the internal financing through retained earnings is greater than anticipated, and the push toward a greater use of short-term debt in liability structures is frustrated (Minsky, 2008, p. 237).

This particular barrier is interesting because it describes a scenario where internal finance of investment is preferred to the external financing due to the perceived increase of risk associated with issuing additional liabilities. This reflects Minsky's understanding of Michal Kalecki's *Principle of Increasing Risk* (1937), however he downplays the significance of Kalecki's theory in his *Financial Instability Hypothesis*. Minsky believes that as time passes and the previous period of economic woes fade from recent memory, sentiments change.

Success, Minsky explains, breeds a disregard of the possibility of failure; the absence of serious financial difficulties over a substantial period leads to the development of a euphoric economy in which increasing short-term financing of long positions becomes a normal way of life (ibid.).

Success breeds the expectation of future success amid an environment conducive to risk-taking motivated by capitalists' drive for profits.

The failure to unify Kalecki's *Principle of Increasing Risk* with Minsky's *Financial Instability Hypothesis* has not gone unnoticed and some economists have made this a cornerstone of their critiques of Minsky. Delli Gatti and Gallegati (1990) and

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<sup>4</sup> For a complete list of the barriers to exploiting interest rate differentials see Minsky, H. 2008. *Stabilizing an Unstable Economy*, New York, McGraw Hill, pp. 235 - 237.

Lavoie (1986, 1995, 1996) question whether or not higher growth rates necessarily translate into higher ratio of debt to equity. By and large their conclusions point to the possibility of something quite different than the Minsky process thus stated. When effective demand is taken into account a Minsky boom need not to lead inevitably to higher levels of debt to equity.

Lavoie and Seccareccia (2001) argue that Minsky's microeconomic model of endogenous financial fragility has a missing link at the macroeconomic level. When applying the Minsky process to the macroeconomic level, they believe Minsky has subjected himself to a "fallacy of composition" that undermines the integrity of his theory:

...it is controversial because it was initially derived from a macroeconomic model that was built on the loanable funds approach and which ignored the principle of effective demand, and because it was later heuristically justified on the basis of a microeconomic construction (Lavoie and Seccareccia, 2001, p. 85).

Minsky's model is incompatible with Kalecki because ultimately it fails to explain why greater debt ratios are an inescapable consequence of economic expansion.

The following chapter will delve a bit deeper into this controversy by examining the Minsky process through a Kaleckian lens. Approaching Minsky from the alternative perspective of savings and debt in an open economy might reveal some insight into the veracity of endogenous financial fragility.

## **Chapter II.** Savings and Debt, Firm Size, and Financialization

In the aggregate, Minsky suggests that profit opportunities entice firms to ‘gear’ their productive capacity in such a way that the proportion of business capital to equity -- that is, their *gearing ratio* -- is essentially increasing over time. Formulating this model is unequivocally dependent on the euphoric sentiment permeating the financial markets during a period of unbridled success. Increasing the gearing ratio is in effect leveraging the fixed capital assets against internal liquidity or equity of a business.

In a positive economic climate where the capitalization of expected profits prevail, a higher gearing ratio translates to an exceptionally high rate of profit on equity; however, the opposite is also true when investment falls short of expectations. When the prospective yield on these capital assets fall short of the rate of interest, then losses of profits on equity is also amplified and particularly severe. This presents Minsky with the problem of ‘increasing risk’ associated with greater investment in relation to equity. When outside savings is relatively elastic in the upward direction -- the proportion of entrepreneurial capital falls in relation to outside savings -- the increase in the net gearing ratio increases the overall risk of the firm. The decision to invest is strained by declining levels of internal accumulation relative to its degree of indebtedness.

For Minsky, the increasing risk associated with a higher gearing ratio must pale in comparison to the euphoric sentiment that success is all but certain. A higher rate of profit from being leveraged in such a way as to exploit the opportunity to make on the carry is the driving force behind Minsky’s theory. However the increasing risk associated with augmenting one’s exposure to debt suggests that given the opportunity to

do so, firms would pay particular attention to their gearing ratio for fear of failure in the event of unsuccessful business ventures.

A rising gearing ratio is pivotal to Minsky's *Financial Instability Hypothesis* and I would like to proceed with a discussion of what this might mean with regard to savings and debt. Here I want to begin with the fundamental economic identity that equates investment and savings. In addition, I am going to use Josef Steindl's (1982) definition of savings by distinguishing between household savings and business savings. Now a simple investment-savings identity can be established and verified from the national accounts: Gross business real investment *plus* exports *plus* government spending *plus* household real investment *equals* gross business savings (entrepreneurial capital) *plus* household savings (outside savings) *plus* imports *plus* government tax revenue. That is,  $I + X + G + H = S_b + S_h + M + T$ , where the left hand side of the identity are defined as *active ones* -- they are predetermined by past decision based on past expectations of the current economic reality -- and the right hand side of the identity defined as *passive ones* -- they adjust themselves passively to the active ones. In other words, the sum of the former is financed by the sum of the latter. This is merely Steindl's more specific definition to the Keynesian problem of adjustment of savings to investment.

I would like to begin with a hypothetical case of a closed economy with no government (or it can be assumed that the government maintains a balanced budget). This conceptually simple case aligns with Minsky's original framework and it will provide the foundations that will remain when we move to a more complicated open economy. In this simpler case I assume that household real investment is zero, i.e. there is no investment in housing purchases assuming all dwelling units are built by businesses

and leased to households. Furthermore, we are examining the impact of a rising *net* gearing ratio on economic development so we can ignore all inter-indebtedness between businesses. We can now assume that all savings outside of those internally accumulated by the firm are claims of households against businesses.

Now our new simplified investment - savings identity can be written in stock terms as follows. The stock of real capital assets (K) is equal to the sum of the wealth claims against it, which are  $W_b$  and  $W_h$ , that is, business wealth and household wealth respectively.  $W_b$  is equal to equity (E), and all outside savings is assumed to take the form of debt and are accumulated by firms as claims of household wealth,  $W_h = D$ . So the ratio of debt to equity for the economy is equal to the ratio of household wealth to business wealth,  $D / E = W_h / W_b$ . Similarly, the gearing ratio (g) is the proportion of the total stock of real capital assets to that of it owned by businesses. Therefore we have  $g = K/W_b = [(D + E)/E] = [(W_b+W_h)/W_b]$ , or  $g = 1 + (W_h/W_b)$ .

Let's move on to the impact of a rising gearing ratio on savings and debt as implied in Minsky's *Financial Instability Hypothesis*. In this simplified economy,  $Y = C + I = wL + \Pi_h + \Pi_b$ , where  $wL$  is wage income, and  $\Pi_h$  and  $\Pi_b$  are profits going to household and business respectively. The decision to invest by business is  $(dK/dt)/K = I/K = (S_h + S_b)/(W_h + W_b) = [(dD/dt) + (dE/dt)]/(D + E)$ , where S is the flow of each type of savings. Household savings ( $S_h$ ) is equal to the household propensity to save ( $sh$ ) out of household wages or profits *times* the level of wages *plus* profits. Business savings ( $S_b$ ) is equal to business profits since all retained earnings are saved by definition. Thus we have  $S_h/S_b = (shwL+sh\Pi_h)/\Pi_b$ . The  $S_h/S_b$  ratio is determined by the mark-up, which determines the distribution of income between wages and profits; the dividend

payout rate, which determines the distribution of profits between businesses and households; and the household propensity to save. Since all of these tend to be relatively stable in the short-run, the debt to equity ratio of an economy is likely to be determined by the current sentiment toward investment. If  $I/K > \Pi b/K$ , then the ratio of debt to equity will rise in an economy.

For Minsky, at the beginning of a boom period when the state of confidence among households raises consumer demand and the current sentiment among entrepreneurs towards the capitalization of expected earnings is positive, firms will want to respond to an increase in the rate of growth of output by expanding the existing stock of fixed capital assets. That is, in the middle of an economic upswing the desire for real fixed investment will rise in response to a rate of growth of output that is greater than the rate of growth of capacity. Actual investment spending will raise profit inflow, but before this occurs external finance will have to increase to order to finance the rise in desired investment, and the net gearing ratio for the economy will have to rise (See Mott 2010, pp. 129-1312).

If the contributed proportions of the business and household wealth are adjusted to the desired levels of internal and external finance in accordance to a rising net gearing ratio, then Minsky's *Financial Instability Hypothesis* implies that the proportion of outside savings is accumulating more quickly relative to entrepreneurs' capital. This statement suggests that the proportion of outside savings to internal business savings is relatively *elastic*; its accumulation adjusts itself more readily than internal accumulation to a change in real fixed investment. Under this circumstance, the net gearing ratio for the economy as a whole must have a tendency to rise with any increase in the rate of

growth of real capital assets. External finance takes precedent over internal finance and financial market conditions lay the groundwork for speculative financial arrangements to become the norm.

If the proportion of household wealth accumulates more readily than entrepreneurial capital, then any initial rise in real capital accumulation that raises the net gearing ratio of the economy would be met with increasing risk. When the rise in debt to equity seems too risky to a firm, real fixed investment will fall and household savings will fall as income falls. Faced with falling consumer demand, businesses will scale back additional investment projects as actual earnings fall below expected earnings precisely when firms will desire to lower their ratio of debt to liquid assets even further; a fall in the rate of profit will prompt entrepreneurs to reduce their net gearing ratios. This would lead to an additional fall in the rate of investment.

In order to avoid an economic downturn from spiraling out of control, the proportion of outside savings must accumulate less readily than entrepreneurial capital with a fall in investment. An argument might be made that owing to a large fall in the effective demand, falling prices and interest rates would discourage households from saving. The level of consumption would actually increase thus creating the necessary amount of household dissavings necessary to prevent the disequilibrium from spiraling out of control.

A relatively elastic outside savings seems to create a situation in which the economy is inherently stable! Any disequilibrium brought forth by the animal spirits of men sets in motion a self-correcting mechanism that returns the economy back toward its original equilibrium level of production and consumption. In this case the proportionate

rise in outside savings to internal accumulation puts a halt to any upward disequilibrium. Conversely, when the economy begins to slump the subsequent fall in accumulation of outside savings to internal accumulation provides the spark in consumer demand to reignite investment.

Of course reality suggests something quite different. The economy appears to transit from this self-corrective state to something more tumultuous. As before, let us imagine that a falling rate of profit provides the impetus for firms to lower their net gearing ratio. In their attempt to lower the proportion of outside savings to entrepreneurial capital, firms will be inclined to reduce the rate of investment. It stands to reason that at this point the firm has no control over its degree of indebtedness. When the accumulation of real capital declines (i.e. real GDP decreases), if the proportion of household savings doesn't fall more readily than business savings, then firms will be forced into a greater degree of indebtedness. The dissavings required by households to accommodate the desire of firms to lower their net gearings ratio comes face to face with a rising tide of unemployment. As Steindl writes in *Maturity and Stagnation in American Capitalism*,

Whatever elasticity of outside savings there might be...is dependent on unemployment. If therefore the real capital accumulation decreases, and it becomes necessary to reduce the rate at which outside savings accumulate in order to prevent a growing disequilibrium, then a considerable increase in the degree of secular unemployment is practically the only means to this end (Steindl, 1976, p. 118).

The illiquidity of specific fixed capital assets such as factories or specialized equipment compels firms to dispose of variable capital such as labor.

However, as the level of unemployment raises the uncertainty of a steady income flow to households in future periods, spending is likely to collapse with consumer confidence. This compels the entrepreneur to address the concerns regarding the solvency of his or her enterprise as the proportion of outside savings is being reduced less readily than internal accumulation. Firms are being forced to borrow more in order to make payments on the principle of maturing debt, or worse, to make cash payment on existing liabilities. This is analogous to Keynes' paradox of thrift. In this scenario outside savings appears to be relatively inelastic!

Kalecki offers two ideas that seem to verify the prospects of an inelastic outside savings. The first resides in his idea that the existence of monopoly capital allows firms a certain degree of price fixing that is determined by a mark-up on prime cost. It is unlikely businesses will be able to lower their net gearing ratio without falling prices relative to money wages that bring about the required level of household dissavings to offset lackluster investment demand.

The second is found in Kalecki's "The Principle of Increasing Risk" (1937). There are two reasons why marginal risk rises with an increase in investment. First, the greater the investment the more wealth is tied up in the firm increasing the risk of substantial losses to the entrepreneur in the event of unsuccessful business. The degree of losses incurred by the entrepreneur is magnified by external finance. The greater the proportion of business capital to equity, the greater the risk and more severe the penalty in the event of failure. In the event that an entrepreneur fails to make a return on business, the level of debt will determine his or her net loss on income. Moreover, a greater proportion of borrowed capital to equity will require a higher risk premium for

credit. The higher risk premium increases the magnitude of the net losses in the event of unsuccessful business ventures. Eventually, access to the credit market will be eliminated when a firm's ability to make payments on its liabilities come into question.

It seems reasonable to believe that firms will wish to use entrepreneurial capital rather than outside savings to fund investment due to the increasing risk associated with a rising net gearing ratio. Investment from entrepreneurial capital circumvents the hurdles associated with a limited capital market while simultaneously expanding the firm's capital making it possible to acquire new loans at a lower risk premium if need be.

Second, there are dangers associated with the illiquidity of fixed capital assets. Kalecki points out that the sale of specific capital assets such as a factory or specialized equipment are almost always connected with a loss:

...the amount invested  $k$  [capital] must be considered as a fully illiquid asset in the case of sudden need for 'capital.' In that situation the entrepreneur who has invested in equipment his reserves and taken 'too much credit' is obliged to borrow at a rate of interest which is higher than the market one (Kalecki, 1937, p. 442).

The inability to liquidate the amount-invested capital without incurring a substantial loss underscores the dangers associated with over capacity.

Steindl (1976) points out that the increasing risk associated with over-capacity dampens the influence a higher degree of utilization has on real fixed investment. He notes that the more monopolistic industries not only have the power to influence prices, but the dangers associated with excess capacity are likely to diminish their inducement to invest associated with higher rates of profit. Increasing the stock of capital too much will lower the degree of utilization of capacity. In essence the capital stock of an industry becomes relatively abundant leading to a decrease in its marginal profitability -- it ceases

to be scarce. By weakening the influence on their decision to increase the level of real fixed investment at higher rates of capital utilization, the largest firms that make up the local economy will be discouraged from expanding too fast. This will detract from their demand on capital markets to provide external finance<sup>5</sup>.

Moreover, Steindl (1990) argues that during times of success it seems all the more likely for firms to take the higher yields they receive from their existing stock of capital assets and invest a portion of the additional income and save the rest. The level of investment out of a change in income is based the firms' marginal propensity to save and this is likely to differ with the size of the firm. For example, we may presume that the capitalization of expected profits by larger more monopolistic industries would result in a greater proportion of income going to replenish their equity; hence, the monopolistic industries can be said to have a higher marginal propensity to save than the more competitive industries. Thus, for certain industries a rise in real capital accumulation has the effect of increasing internal accumulation providing additional finance for investment without increasing the firm's relative indebtedness. In this case, the accumulation of outside savings is proportionately *smaller* than internal accumulation effectively reducing the net gearing ratio. As before, this implies the use of outside savings by firms is relatively *inelastic*.

In our simplified case of a closed economy with no government, Kalecki's *Principle of Increasing Risk* appears to be in conflict with Minsky's *Financial Instability Hypothesis* by its implicit determination of the relative elasticity of outside savings. This

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<sup>5</sup> See Steindl, Joseph (1976). *Maturity and Stagnation in American Capitalism*, New York: Monthly Review Press, Ch. 10 for a detailed analysis on the 'The Consequences of Undesired Excess Capacity' in monopolistic and oligopolistic industries.

doesn't dismiss Minsky's theory as irrelevant; however, if the capital market can absorb a large portion of outside savings without necessitating an increase in the net gearing ratio for the entire economy, then the *Principle of Increasing Risk* could be unified with the *Financial Instability Hypothesis*. In fact, as soon as we open up the economy to include both domestic savings and *foreign savings* the situation becomes much more interesting. Therefore, the apparent contradiction begs the following questions in our analysis of endogenous financial instability: (1) what constitutes the different types of savings and their respective elasticities in an open economy, (2) how are the outside savings distributed among firms of differing size i.e. how do financing constraints influence the position of the various firms and (3) how does the level of outside saving affect the stability of financial markets.

### **Section 2.01** Outside Savings

Firms' savings are the profits generated by operations less payment on existing liabilities, dividends, taxes and methods of doing business. They are the portions of profits that are retained by the business as reserves. For a private business, this is merely the retained earnings from operations also known as the entrepreneurs' private capital. For corporations or joint-stock companies, they are a combination of retained earnings plus share capital more generally known as entrepreneurial capital. Some economists simply refer to this process as internal accumulation.

Internal accumulation of a firm, to some degree, will induce investment. As expected earnings are capitalized and the expansion of a firm generates some savings out of profits, then the additional investment can be financed from retained earnings to the

advantage of avoiding additional balance sheet cash-flows and a limited capital market. A firms' savings will be held as our point of reference when comparing the relative elasticities of outside savings. As discussed earlier, we are concerned with how the accumulation of outside savings adjusts itself with respect to internal accumulation with a change in investment.

In an open economy total outside savings consist of domestic outside savings and foreign savings. First, let us examine the various components of the former. Domestic outside savings can be divided into three categories: (1) savings of wage earners, (2) savings of professional and high salary earners and (3) rentiers' saving.

#### *Saving of Wage and Low Salary Earners*

Of household savings the savings of wage and low salary earners is negligible. Most wage earners spend most or all of their income on wage goods. In addition, the level of exploitation is generally more pronounced in developing and emerging market economies. Therefore, I assume the savings from this demographic to be zero.

#### *Saving of Profession and High Salary Earners*

Savings of professional and high salary earners will make up a significant portion of household savings. At a glance, it seems plausible to believe that this portion of household savings would be relatively elastic. During a boom, when unemployment falls to levels nearer to full employment, the level of savings is likely to rise to an extent. Rising share prices might influence more participation from households in the equity market. Furthermore, during a downturn when unemployment is rising, an increase in

competition among job seekers within this demographic might force some recently unemployed professionals into a period of dissavings.

On the other hand, penalties associated with private pension and retirement accounts lead to a disincentive to tap into private pension funds and retirement accounts. This will dampen the effect of unemployment on savings. Plus, an economic downturn can actually cause a rise in savings as a safety net for increased uncertainty. Households that have not been laid off might increase their savings today for fear of being unemployed tomorrow. It seems to me that this would make household savings somewhat inelastic with respect to income.

### *Rentiers' Savings*

Rentiers' saving is the least elastic form of savings. The inelasticity of rentiers' saving is not to be underestimated since -- like the savings of professional and high salary earners -- it makes up a significant portion of outside savings. Kalecki (1943) and later Steindl (1976) point to the inelasticity of rentiers' saving as having a pernicious effect on the accumulation of capital during periods of economic stagnation. As Steindl points out,

...the long-term rate of interest can hardly be reduced below a certain level; the interest paid...on corporate bonds...includes a risk premiums which are themselves not very elastic...[t]hus rentiers' saving will change only very sluggishly, and will prove completely inelastic below a certain minimum (Steindl, 1976, p. 115).

Therefore, during periods of economic stagnation rentiers' income is not likely to be effected very much and a persistently high propensity to save will weigh heavily on the price of capital assets i.e. the necessary dissavings required to meet the firms desire to eliminate debt is inadequate or nonexistent.

The accumulation of outside savings in excess of the demand for investment leads to a fall in retained earnings relative to the existing stock of capital assets thus depressing investment further as debts continue to rise. Essentially what we have is Irving Fisher's debt-deflation theory of great depressions.

So just as before we arrive at the same conclusion that domestic outside savings appears to be relatively inelastic. Kalecki and Steindl both observe that in a closed economy this aligns with the principle of increasing risk; however, with financial liberalization there is a massive injection of foreign savings that inundates the domestic economies in additional savings that must be borrowed by businesses or households. How does foreign savings come to influence total outside savings?

### *Foreign Savings*

For most countries foreign savings is the most significant source of total outside savings. Market friendly economic policies that integrate and deregulate their domestic financial sectors open the floodgates for substantial external capital inflows originating from the large financial hubs in the developed world. The sheer size of these external capital flows relative to the size of the domestic financial sector is of considerable importance when we consider the elasticity of total outside savings. Countries that rely heavily on imports and/or those countries with relatively weak capital markets will face a large deficit in foreign balances with a rise in national income. Often times these countries are vulnerable to large inflows of external capital because of the size and volatility of the foreign capital flows relative to their respective financial sectors.

For the countries that rely heavily on imports, the flow of foreign savings is likely to move with great flexibility to a change in national income. When GDP increases, higher demand for imports -- either as intermediate goods in production or luxury goods or for whatever reason -- increases the domestic economy's deficit in foreign balances (Steindl, 1988 [1990]). The increase in lending from the outside world will continue to rise as the inflow of external capital acts to appreciate the domestic currency driving a surge in domestic demand for imported goods. This inflow of foreign savings must be absorbed by local businesses or households as a form of debt financed production or consumption. The internal accumulation of the firm is likely to increase proportionately less than total outside savings; thus, foreign savings would push the elasticity of outside savings to a point that is greater than firm's savings.

Those countries that rely on the foreign capital markets due to the 'backwardness' of their own weaker capital markets can benefit from financial liberalization in order to relieve financing constraints for investment. In orthodox economic theory, liberalized capital markets ameliorate 'savings constrained' underdeveloped economies with access to the world financial markets in order to finance investment; these economies suffer from the 'backwardness' of their own underdeveloped domestic financial sectors. The premise of this economic doctrine is based on the idea that the imperfections that permeate the domestic capital markets create financing constraints that block real fixed investment and -- when the appropriate policies and reforms are implemented with care -- capital market liberalization is the key economic fix to low savings and financially constrained economies. In orthodox economic theory domestic outside savings is

inadequate to finance the desired level of investment so access to foreign savings can make up the difference becoming a significant portion of total outside savings.

So long as the domestic economy is savings constrained, then the majority of foreign savings would be directed at real fixed investment. Domestic borrowers would be looking to foreign capital markets to finance their domestic investment at lower interest rates. Domestic banks would lower their lending standards in order to lend money to the domestic economy at rates that exceed their borrowing costs abroad. The net gearing ratio for the domestic economy would increase as the initial injection of foreign savings is used to externally finance the initial demand for real capital assets. The higher levels of investment domestically will increase the rate of profit in the economy and retained earnings will begin to rise. Although domestic outside savings might not change vary much during the expansion in real capital assets, foreign savings will move enthusiastically to the higher returns. The positive returns on the savings of foreign investors will embolden their remise as they seek to thrust additional savings into the developing markets in search for additional (speculative?) investment opportunities in various assets. Foreign savings would be relatively elastic in this regard; hence, financial instability would progress in accordance to Minsky's theory.

Alternative ideas suggest that the lack of investment in underdeveloped economies is not merely an issue of financing or savings constraints, but a wide variety of economic issues that affect the expected returns on investment. Rodrik (2009) suggests that such an economy is not necessarily savings constrained as orthodox theory purports, but rather investment constrained. The culprit is not the fact that domestic outside savings is inadequate to provide the necessary savings for real fixed investment i.e. the

high costs associated with borrowing domestically reduce the expected returns on investment to a point where price of capital assets falls well below its potential. Rather, if the expected returns on additional investment are low or nonexistent due to inadequate demand, then importing additional liquidity from financial liberalization will not spur investment either by lowering domestic money rate of rate of interest or from the ability to borrow at lower interest rates abroad.

On the other hand, domestic banks would still like to exploit international interest rate differentials and their inability to lend to domestic businesses in such an environment will shift their lending from firms to households. As domestic banks drop their margins of safety in an attempt to profit from borrowing low internationally and lending high domestically, consumers will find they can borrow at lower credit standards. Foreign savings is initially used to finance domestic consumption by issuing credit. Since the inflow of foreign savings puts upward pressure on the currency, demand will rise for the non-tradable segment of economy -- at the expense of hurting exports -- inflating domestic assets prices (i.e. real estate and equity markets). A portion of household's savings is diverted to household investment in dwelling houses. A housing boom can materialize that stimulates other sectors of the economy such as construction and home furnishing. The increase in demand from the influx in foreign savings can translate to higher expected returns for domestic firms as excess capacity falls and the marginal profitability of capital rises. Eventually, an increase in retained earnings and a higher rate of profit will push firms to invest in real capital assets. With countries that are initially investment constrained, higher consumption financed by financial liberalization increases the internal accumulation of firms leading to an increase in investment that can be

financed from retained earnings. Real fixed investment does not have to increase the net gearing ratio of firms under this circumstance. Therefore, it appears that the elasticity of outside savings is negative as dissavings supports economic development; however, this is merely an illusion!

Although the dissavings of individual consumers are financing additional consumption, it is the increase in foreign savings that is subsidizing the dissavings. The economic boom rests on the shoulders of giant international institutions as pension fund managers become enamored with the higher rates of return in developing and emerging market economies. The rise in domestic asset prices will encourage additional foreign investment and external capital flows will continue to rise.

Of course, not all of the foreign savings will find its way to consumers pocket in the form of cheap credit -- only a fraction of the foreign savings that is flowing into the country will find its way to the domestic economy in the form of household dissavings or credit. There is still a level of borrowers and lenders risk associated with even the most bullish economies determining a limit to the amount of consumption that can be financed by capital markets. Furthermore, domestic firms will be competing with foreign producers to sell their products just as rising tide of external capital is appreciating the domestic currency. Credit is often used to buy big-ticket and high tech imports -- both of which have a higher income elasticity of demand than manufactured goods and primary product produced at the periphery. A portion of the increase in demand will be lost to foreign markets at the expense of the internal accumulation of domestic firms. Therefore, with capital market liberalization foreign-savings is likely to have a more elastic respond to changes in investment than internal accumulation.

Just as with the savings-constrained economy, foreign savings appears to be relatively elastic in an investment-constrained economy. If foreign savings are relatively elastic, then their accumulation adjusts itself more readily than internal accumulation to a change of real capital accumulation. Given the size of external capital flows to the domestic financial sector of developing economies, the massive inflow of foreign savings will raise the elasticity of total outside savings relative to firms' saving.

The rise or fall of the net gearing ratio, however, does seem to be associated with an economy that is predominately savings constrained versus investment constrained. If a national economy is savings constrained, then it will utilize foreign savings to externally finance investment raising their net gearing ratio; conversely, if a national economy is investment constrained, then consumers will utilize foreign savings to finance their consumption spurring demand and leading to an increase in retained earnings effectively lowering the net gearing ratio. Given the rate of external capital inflows, in the former the firm will absorb a large portion of foreign savings increasing the financial fragility of the firm in accordance with Minsky. In the latter, firms will opt to use internal funds to finance investment leaving the capital market to absorb a large portion of foreign savings. This aligns itself more with the principle of increasing risk associated with Kalecki. Therefore, the factors limiting the expansion of firms are either domestic financial constraints such as underdeveloped capital market (i.e. a savings constrained economy) or the limitations of the domestic market (i.e. an investment constrained economy).

Whether or not the domestic economy strongly relies on imports and/or -- in the case of weak domestic capital markets -- it is savings constrained or investment

constrained is of no importance to the relative elasticity of foreign savings. Financial liberalization leaves the door open to all types of external capital flows and those flows are likely to push the elasticity of total outside to a point where internal accumulation adjusts itself less readily to a change in real fixed investment.

The addition of foreign savings appears to support Minsky's *Financial Instability Hypothesis* in that it raises the elasticity of total outside savings above the elasticity of internal accumulation with respect to a change in real capital accumulation. In Minsky's framework, there is now sufficient outside savings to support a rising gearing ratio without necessitating a rise in household savings. If firms have the desire to speculate, they could increase the ratio of their debt to liquid assets in order to reap higher profits on equity without the undesirable consequences of a fall in consumer demand. Essentially, with the addition of foreign savings to outside savings, euphoric sentiment could conceivably lead to speculative financing arrangements becoming the norm as theorized by Minsky.

What does not fit, however, is Kalecki's *Principle of Increasing Risk*. The domestic capital market must find a way to absorb the inflow of foreign savings in such a way that it does not ostensibly increase the risk of the firm, but nonetheless pushes the economy toward greater financial fragility. In order to see how this might come about, we must spend a bit of time discussing some of the fundamental differences between various sized firms and the distribution of outside savings among them.

## **Section 2.02** Firm Size and the Distribution of Outside Savings Among Businesses

Various firms run into a multitude of hurdles that limit their expansion, but as Kalecki (1971) explains the amount of entrepreneurial capital available to the firm can pose a significant financial barrier towards growth. The more oligopolistic firms that possess the most amount of entrepreneurial capital will not face the same financial constraints as their smaller more competitive counterparts. The relative size of firms and their market power will distribute the majority of aggregate firms' savings to businesses that hold the greatest share of their respective markets. Oligopolistic industries will be more resilient to changes in income because of their innate ability to influence the price (relative to their costs) and they have greater control over the level of capacity by limiting new entrants to the industry. Thus at a given degree of utilization of capacity the oligopolistic industries have a tendency to see their marginal profits and internal accumulation rise relative to the more competitive industries.

Steindl (1976, p. 124) finds that the growth of oligopoly in the modern economy creates a *misdistribution* of profits and business savings from the competitive industries to the oligopolistic ones. If the rate of capital growth rises, then the more competitive industries will gain additional firms at the margin increasing the capital stock for the industry thus reducing the marginal rate profit and retained earnings. This will result in a falling rate of profit for the competitive industries relative to the oligopolistic industries redistributing profits from the former to the later. This underlines an important point with respect to the net gearing ratio between the various firms and industries within an economy. If we assume the small to midsized firms make up the more competitive industries and largest firms make up the oligopolistic industries, then the net gearing ratio

for the smaller firms that make up the competitive industries must rise relative to the largest firms that make up oligopolistic industries with the redistribution of profits. The equity of the latter is rising faster than the former to a given rise in the real capital stock. In fact, new entrants to the more competitive industries will increase the capital stock relative to the more oligopolistic industries since the influence on utilization of the latter would be proportionately smaller than the former for fear over capacity. What we have is a rising proportion of real fixed capital to equity for the competitive industries in effect increasing the financial constraints on firms that are already likely to have little entrepreneurial capital. Conversely, a falling proportion of real fixed capital to equity for the oligopolistic industry has the opposite effect of lowering the financial constraints on the largest firms in the economy. It may well be that the only thing limiting the growth of the largest firms in the economy is domestic issues that affect the expected returns on their investment.

The consequence of a rising net gearing ratio is an increase in the severity of a loss in the case of bad business ventures as well as a rising risk premium on external finance. Therefore, the distribution of outside savings among firms of differing size and the financing constraints that influence their position seems pertinent to our discussion.

(a) Small to Midsized Firms or More Competitive Industries

Firm size has been commonly used to identify businesses that are savings constrained (see Schiantarelli (1995) for a survey). It has been argued that relatively high informational asymmetries and low levels of entrepreneurial capital are to blame for greater financial constraints incurred by smaller firms. The financial constraints facing

these firms are not only associated with a high (rising) net gearing ratio -- the proportion of capital to equity is likely to be uncomfortably high for most small businesses -- but their inability to access long-term capital markets necessitates a well functioning capital market in order to roll-over or refinance short-term liabilities. This increases the costs of borrowing for small to mid-sized firms in the domestic economy acts as a barrier to their expansion.

Moreover, capital market imperfections can raise the opportunity cost of external finance to a point where many smaller firms in the most competitive industries are eliminated from the capital market altogether. Of the all the firms that make up the domestic economy nascent enterprises and small firms have the least amount of capital to provide as collateral for new loans. The smallest firms that make up the most competitive industries in an economy encounter the lowest marginal profit rates that must translate to a small degree of internal accumulation. These firms often times finance their economic activity from retained earnings or the entrepreneurs' own resources since they do not possess the capital requirements to finance investment externally. Any real expansion in business capital in the most competitive industries will likely come at the margin as changes in rate of profits lead to a rise or fall in the number of firms. This environment where firms find themselves outside the ability to access their domestic capital markets all together seems to be related to the level of their domestic financial sector development. Firms that reside in the least developed countries will be confronted with higher financial constraints than the firms from developed countries. This suggests that the more backward the financial sector, the greater number of firms will be eliminated from the capital market translating to a slower rate of investment.

Inessa Love (2001) argues that the level of financial sector development of a country is related to the degree of financing constraints endured by firms seeking to externally finance investment. She shows that not only do smaller firms suffer disproportionately high financing constraints from their more monopolistic counterparts, but also the level of financial sector development can exacerbate the problem when the capital market imperfections are particularly severe. In a similar study, Kumar, Rajan and Zingales (1999) find that the average size of firms in industries dependent on external finance is larger in countries with better financial markets, suggesting that financial constraints limit average firm size.

Fazzari, Hubbard and Petersen (1988) examined the financing constraints of corporate investment in relation to the firm size. Their conclusion shows that financial factors affect investment since imperfect capital markets create an environment where opportunity cost of internal finance can be considerably lower than external finance. Small-to-mid sized firms who absorb a lesser portion of the aggregate profits in society are more prone to exhaust low-cost internal finance increasing the risk to adverse movements to their income cash flows. External finance can replace internal finance, albeit the two are not perfect substitutes; capital market imperfections lead to differing financial constraints that permeate the risk profiles of smaller firms at a considerable cost disadvantage. For many of these firms, there is essentially no low-cost alternative to investment finance that can supplement their investment demand.

If financial liberalization can improve the financial sector development of a country, then the opportunity cost of external finance will fall and more firms will gain access to local capital markets. To some degree, lower financing constraints can spur

new investment in start-up companies and increase the level of fixed business investment of existing firms. That is, access to foreign financial markets enables the smaller firms to absorb a proportion of total outside savings as fixed business investment in new enterprise or as a source for additional investment to an existing enterprise. Therefore, some small to mid-sized firms that suffered from savings constraints can benefit from liberalized capital markets if they wish to grow their company via external finance.

Of course this scenario seems most plausible during an economic boom period where margins of safety dropped for both lenders and borrowers. For domestic lenders, the combination of a fall in international lending standards, rising international interest rate spreads and increased competition from foreign lenders can lead them to lower their margins of safety and engage in more risky business. This can increase the elasticity of the local supply of credit to domestic firms. Domestic borrowers, such as small to mid-sized businesses, lacking the appropriate reserves to internally finance investment might opt for external finance. Since small and mid-sized businesses absorb a lesser portion of the aggregate profits compared to their larger more monopolistic competitors, building the required excess reserves to internally finance their demand for fixed capital assets might be out of reach (especially those projects that have long gestation periods or investment in large machinery and equipment). Issuing financial liabilities during a speculative boom not only leaves the door open for additional investment via external finance, but it offers additional profit opportunities on the rolling over or refinancing of past liabilities. In this scenario the smaller firms' success may vary well breed speculative finance during an economic boom as predicted by Minsky.

(b) Large Firms or More Oligopolistic Industries

Inadequate demand associated with the limitations of the domestic market act as a governor on the rate of real capital expansion for large firms. Market friendly economic policy alleviates some of this concern by further integrating the domestic economy into the international community providing alternative markets for the larger firms to expand. In addition, financial liberalization eases credit markets for households thus financing a surge in domestic demand. This paves the way for the more oligopolistic industries to increase their demand for real capital assets in accordance with a desired level of capacity utilization. In contrast to the more competitive industries, the oligopolistic industries have more entrepreneurial capital to internally finance investment demand. As the capital accumulation begins to arise out of firms' savings a rising rate of profit will motivate additional accumulation. Investment financed from retained earnings avoids the additional borrowing cost (increasing risk) associated with limited capital markets. Hence the capital expansion of the oligopolistic sector not only experiences a rise in real fixed capital financed out of savings or profits, but the rise in capital increases the borrowing capacity for the industry as a whole.

The larger firms have considerable more capital than their smaller competitors giving them much greater access to the domestic capital markets. Their ability to use outside savings rises with the amount of entrepreneurial capital the firm possesses; the greater the internal accumulation of a firm the lower the net gearing ratio and perceived risk of the firm. This allows for new loans with lower interest rates decreasing the balance sheet cash flows on the existing liabilities. Moreover, large firms have greater access to bond markets and long-term debt markets to finance investment. Their ability

to utilize long-term capital markets to finance investment eliminates the higher borrowing costs of short-term finance such as the uncertainty associated with necessitating the constant rolling over or refinancing of liabilities.

The question remains, however, if the large inflows of foreign savings can be absorbed into the domestic economy by the means thus stated. Does household demand aided by debt financed consumption for housing and other big ticket items spur enough external finance by the domestic industries to justify an increase in real fixed investment ample enough absorb a rising tide of foreign savings?

Depending on the financial sector development of a national economy, it seems perfectly plausible that a certain percentage small to midsized firms will expand with outside savings accumulating at a greater proportionate rate than internal accumulation. The net gearing ratio is rising with additional real capital accumulation consistent with elastic outside savings. However, the ability for any of these firms to absorb even a fraction of the massive external capital inflows is improbable (or maybe even impossible for those countries with high import coefficients and/or underdeveloped capital markets). This is exacerbated with the inability for many of smallest firms (those at the margins of society) to receive any type of financing whatsoever.

Thus, the largest firms would have to absorb a (large) majority of the external capital flows, but as I previously pointed out this is not going to happen under the current circumstances. Household financed consumption will absorb some of the external capital inflows and increase domestic demand in the none tradable sector of the economy; however, an appreciating currency will negatively effect the trade balance and fear of over-capacity will create a drag on investment. Most importantly, large firms will try to

maintain a constant net gearing ratio or even actively try to reduce it during an economic boom. This implies that the use of outside savings is inelastic for the most dominant firms in the economy. Of course this cannot be with the massive inflow of foreign savings. This brings us to the most important feature of the large firms, their ability to issue shares in a domestic equity market.

Joint-stock companies or corporations can use domestic equity markets to augment their entrepreneurial capital. Of the total entrepreneurial capital at the disposal of firms to finance investment, *share capital* has a peculiar quality in that it draws on total outside savings much like issuing additional liabilities for external finance, but it does so without increasing the net gearing ratio of the firm. The domestic equity markets provide an avenue by which an influx of foreign savings can be absorbed by the domestic economy without impeding upon the desired risk profile of the largest firms. To borrow a phrase from Joseph Steindl, “[the joint stock system or equity markets] *merge a certain amount of outside saving into equity*” (Steindl, 1976, p. 138). The ability to issue new shares bypasses the contradictions of increasing risk with an elastic total outside savings as a large proportion of the external capital inflows transforms into equity. The largest firms in the domestic economy can issue new shares to increase entrepreneurial capital and finance investment without increasing its ratio of debt to equity thereby avoiding the debt trap of smaller to midsized firms. What remains to be determined is the size and frequency of new share issues by corporations.

For equity finance there seems to be no limit to the amount of shares a Joint-stock company wishes to issue. This statement, however, is shortsighted as Kalecki (1971) points out in his essay on entrepreneurial capital. There are indeed a number of factors

restricting the issuance of new shares to finance investment. First, the risk exposure to the majority shareholders is amplified by the necessity for new investment expenditure financed by equity markets to at least equal the old rate of profits. If the new issue of shares does not increase retained earnings proportionately to the increase in share and reserve capital, then dividends are at risk of being 'squeezed' or suspended. The increasing risk associated with this scenario is apparent in the adverse reaction by the market to changes in dividend payouts that translates to a sharp decline in equity prices. Second, the market for new issues is limited to an extent by the size of the market. For example, equity markets in emerging and developing markets are much thinner than those of the developed world, thus there is maximum amount of new shares that can be issued to the public that would make a new issue of shares profitable to majority shareholders. The 'old guard' will not welcome a new-issue that lowers the share price to a level not consistent with meeting the annual dividend payout for reasons stated above. Lastly, the distribution of control between the majority shareholders and the public with any new issuance is undeniably affected as the old guard's influence is watered-down.

Of the factors limiting the issue of new shares the most significant is undoubtedly the size of the market. If the state of the equity market provides the appropriate price to be obtained by a new share issue, then joint-stock companies will find it profitable to increase the number of claims on the firm. In other words, a firm will issue new shares when the increase in profits is proportionately greater than the increase in claims. This suggests that the marginal rate of profit will be closely related to the earnings yield on the new share issue. That is, the marginal rate of profit from the new investment resulting

from a new share issue must be greater than earnings yield of the shares plus the cost of the issue. In order to fully understand what determines a new share issue, we must delve a bit deeper into the meaning and determinants of the earnings yield.

The earnings yield is simply the inverse of the price to earnings ratio. It is the ratio of the earnings per share to its market value per share. The earnings per share are the proportion of net income less dividends (diminished by the amount of outstanding debt) to the average outstanding shares. The market value of shares is simply the current price for the shares ruling in the market. Therefore, the earnings yield is simply the rate of profit on the average outstanding shares divided by the price of the share. It follows that this ratio will rise with either an increase in the earnings per share or a fall in the market price of the shares or both. Conversely, the earnings yield will fall with either a decrease in the earnings per share or a rise in the in the market price of the shares or both. The firm will issue new shares if the marginal rate of profit (expected earnings) is proportionately greater than the earnings yield. To put it another way, if the earnings yield falls by a certain amount, then the price to earnings ratio will raise by the same amount (since it is simply its inverse). When there is a sharp rise in the price to earnings ratio relative to the marginal rate of profit, then the firm will be tempted to issue new shares.

Let us examine how the beginnings of an economic boom can spur a rise in the issuance of new shares by firms in the absence of financial liberalization. For simplicity let's abbreviate the earnings yield as  $E/P$ , where  $E$  = earnings per share and  $P$  = market price of the shares. The marginal rate of profit or expected earnings will be abbreviated as  $\Pi$ . A firm will decide to issue new shares when  $E/P < \Pi$ . It can be realistically

assumed that if E rises then P will rise as well. The rise in P will be determined by the psychological state of market. During bullish times P will rise with more vigor than during bearish times. In fact, if the state of the market is extremely bearish, P can fall with a rise in E, but let's assume that the current sentiment is somewhat bullish since we are beginning this thought experiment at the beginning of a boom period.

If E increases, then  $\Pi$  is increasing since decisions to invest are largely determined by the *current* internal accumulation of capital by the firm. When the accumulation of entrepreneurial capital (retained earnings plus share capital) is rising, then investment will increase. In addition, if  $\Pi$  is rising overtime, then in the period of time considered investment will have an additional stimulus as new investment projects are expected to become profitable. Thus, an increase in total savings of a firm and a rise in expected profits with respect to time will extend the boundaries set to investment by a limited capital market and increasing risk; however, the extension of the boundary determining the level of new investment is muted by the degree of utilization associated with an increase in the stock of capital.

Therefore, in the beginning of an economic boom E, P and  $\Pi$  can all be expected to rise. A rise in E will increase the ratio E/P deterring new share issues from the firm, but the corresponding rise in P associated with higher earnings from the firm will dampen this effect or maybe even reverse it (if the rise in P is greater than E the ratio E/P will fall with respect to  $\Pi$ ). Thus, during a boom period it can be expected that even if E/P is rising, the rise in P will slow the rise *relative* to  $\Pi$ ; that is, the proportionate rise in E/P is less than the rise in  $\Pi$ . Once  $\Pi$  increases to the point where it is greater than E/P by a

proportion corresponding to the cost of the yield, the firm will find it advantageous to issue new shares.

So how do liberalized capital markets and the surge in external capital flows affect the earnings yield?

As foreign savings responds elastically to the economic boom, the surge in external capital flows will need to find an outlet with which it can be absorbed into the domestic economy. The foreign savings that is not absorbed into the financial structure of the domestic households and firms will be merged into equity rapidly increasing the market price of shares. The surge in external capital will create a stock market boom that will dramatically lower the earnings yield -- the rise in P is proportionately greater than the rise in E -- the result of which is a tendency for domestic corporations to issue new shares. Hence, there is a shift in the domestic economy toward financialization. The proportion of nominal share capital to the replacement value of the existing capital assets of the joint-stock companies will rise. This ratio, essentially the inverse of the earnings per share, is the degree of capitalization of the firm. It follows that a surge in external capital or foreign savings initiates a period of *capital market inflation* expanding the equity market incentivizing joint-stock companies to issue shares in excess of the cost of fixed capital assets resulting in a period of over-capitalization.

Jan Toporowski (2000, 2005, 2009) has developed a theory of *Capital Market Inflation*. He believes that in financially developed capitalist economies the issuance of capital market liabilities is not necessarily determined by a demand for fixed capital investment, but rather it is determined by an increase in demand for financial assets. The increase in demand for financial assets is the desire of firms to replenish their internal

liquidity. Since fixed capital investment creates a legacy of debt obligation that must be met by future income cash flows, the opportunity cost for increasing fixed capital investment via debt finance is trumped by maintaining an ample supply of liquid reserves via financialization. Issuing shares in excess of what is necessary to meet the cost of fixed capital investment can ameliorate this uncertainty. Toporowski explains,

if firms do not have sufficient investment projects to absorb the finance that financial investors offer them, then rising securities prices will eventually induce companies to issue new securities (Toporowski, 2005, p. 126).

During a period of financial asset inflation, the rising proceeds from these additional securities can be used to either pay back outstanding liabilities or increase portfolio cash flows by buying up securities in the equity market.

In the former, companies find it advantageous to reduce their balance sheet cash flows and payoff existing debt liabilities by raising money through financial markets rather than banks. This gives the impression of an immediate improvement in profitability by substituting the carrying cost of debt obligations for an increase in portfolio cash flows where dividends payments are not recognized as an expense. The joint-stock companies are actively managing their net gearing ratio to lower their perceived risk to investors. More importantly, however, financial market inflation can give rise to perceived increases in profitability by the purchase and sale of financial assets without any real increases to neither productivity nor tangible assets.

So long as the equity markets maintain their bullish behavior, entrepreneurial capital will be unaffected by the increase in dividend payouts due to the rise in portfolio cash flows. In such an environment, the trade-off of issuing new securities to decrease interest payments has the immediate affect of increasing pre-tax profits resulting in a

positive feedback loop on its stock price. The source of the added profitability, however, comes from the manipulation of the various cash flows mechanisms of the company: capital gains replace retained earnings; financial investment replaces fixed capital investment; and financialization replaces expanding the productive capacity of the company.

Thus, Jan Toporowski's theory of capital asset inflation underlines an important characteristic of modern capitalist development. An elastic total outside savings creates windfall capital gains for large domestic companies by inflating equity markets that incentivize their increase in portfolio transactions (i.e. buying and selling of financial assets). A reduction in real fixed investment from crucial areas such as innovation and productivity can slow real capital accumulation. A falling rate of profit will eventually move an economy to a more vulnerable state. Financialization appears to increase financial instability in much the same way as Minsky theorized.

### **Section 2.03** Financialization and Financial Instability

As the boom period matures the demand for real fixed investment will come under increasing downward pressure from the rising stock of capital and financialization. There is a desire for oligopolistic firms to control the level of utilization leading to a lower level of investment for fear of over-capacity. So as firms redirect a percentage of their resources from increasing the real capital stock to financialization, the proportion of retained earnings in total entrepreneurial capital (internal accumulation *plus* share capital) will fall overtime. It follows that the marginal rate of profit in future periods will reflect

the downward pressure on the level of fixed business investment by increasing at a decreasing rate.

To reiterate the dangers associated with excess capacity, a sharp rise in the capital stock can have devastating repercussion on the marginal profitability of capital. It is in the interest of oligopolistic industries to actively manage a planned degree of utilization in order to insure against undesired excess capacity. For fear of an unexpected fall in the rate of utilization, the largest companies that make up the oligopolistic industries will lower the influence of utilization on investment when rate of profit is increasing. This means that as capital becomes increasingly scarce during an economic boom the dangers of creating excess capacity will act as a drag on level of real fixed investment. The lower influence of utilization from joint-stock companies on investment redirects resources to be invested in financial assets. So it follows that the rate of profit will have a tendency to fall overtime.

A fall in the marginal rate of profit in modern capitalist development does not necessarily mean that new share issues will cease or fall to a trickle since the earnings yield also has a tendency to fall particularly when market sentiment is positive. We have learned that when bullish behavior pervades the equity market it is likely that the earnings yield will fall at a greater proportionate rate than the marginal rate of profit.

A fall in the earnings yield need not solely rely on exogenous short-term demand conditions fueled by irrational speculation at home or from abroad. There also seems to be an endogenous decline in the earnings yield over time as profit opportunities motivate a repositioning of firms in order to exploit greater capital gains. Financialization offers an alternative outlet to earn capital gains without tying up resources in the less liquid real

capital assets that endogenously acts to lower the average earnings yield effectively widening the equity market as new shares issues rise.

Two short examples can demonstrate how joint-stock companies can purchase the stock of other companies or reshuffle their financial assets in order to increase the perceived profitability of the corporation without increasing the level of fixed business investment. First, Kalecki (1971) and Steindl (1976) shows how *holding companies* are nothing more than another way for large shareholders in joint-stock companies to avoid the limitations associated with issuing new shares. So long as there is not a collapse in the domestic equity markets, the old guard of majority shareholders (with their holdings consisting of at least 51%) can use the creation of a holding company to issue new shares without watering down their influence. Essentially, a new company is created to hold their majority shares. The group can then keep a majority standing in the new company and sell up to 49% of their shares to the public. In the end, the old guard can maintain a majority share of a new company through refinancing their portfolio cash flows at 26% of the capital of old company, with the ability to spend 25% in cash to invest a in new share issue of the old company. It offers additional resources to be reinvested into the business without the increasing risk associated with new share issue. It reduces the risk associated with meeting existing dividend payments as well as inflates the capital market for shares in the company since its influence on the equity market as a whole expands with its relative size.

Second, Toporowski (2000) explains that merger and acquisition activity or management buy-outs offer the acquiring company the option to use its own share issue to reduce financial liabilities of the company being acquired, thus lowering its balance

sheet cash flows by reducing the interest payments and improving the operating profits of the acquired company. Of course, the perceived increase in the profitability of the acquired company has nothing to do with increased productivity, innovation or superior management technique. This is simply a reorganization of the financial assets and liabilities of the two companies. The financial assets of the acquiring company lower the net gearing ratio of the acquired company. Just as with the creation of the holding company, there is a fall in the average earnings yield associated with the drive for joint stock companies to earn capital gains through equity market activity.

The equity markets in itself are a vehicle for funding merger and acquisition activity. The firm that initiates the corporate takeover will purchase the smaller company at a premium using money that has been financed with a new share issue. In the case of a stock market boom being financed by the inflow of foreign savings, the foreign investors are essentially financing the corporate takeover in such a way that newly raised money is used to pay off the old shareholders at premium. This sounds awfully familiar to the Ponzi schemes made infamous by the likes of Charles Ponzi and Bernard Madoff; where new deposits are used to payoff old depositors at a premium.

Out of the complexities of the financial sector something begins to materialize from equity market that is much like the speculative or Ponzi finance that necessitates the small to midsized firms to rollover or refinance their debt. Joint-stock companies must rely on the state of the equity market to constantly 'rollover' their securities. Since a share never really matures in the same sense as a bond, the liquidity and profit structure of the equity market must necessitate the constant reinvestment into new shares. In essence, the market must be willing to constantly rollover the shares in the domestic

stock market in order for it function properly. In the case of developing economies, financial liberalization allows for foreign savings to be merged into equity and the rise in share capital funds a boom in financial and productive investments. But when foreign savings dries up in the case of speculative attack, then the state of market will be such that there will be no one willing to buy securities. Therefore the equity markets behave like the Ponzi financial arrangements proposed by Minsky, however at a much larger scale.

Financial instability lurks below the surface as the ratio of all capital market and bank liabilities to liquid assets increases while the ratio of debt to liquid assets remains constant or falling. This is an important point that Toporowski acknowledges in *The End of Finance*, “[Minsky’s] hypothesis may still be valid if equity is regarded like debt as a liability of firms. In effect, equity finance is not a substitute for internal finance because it is a capital market liability rather than a liquid asset” (Toporowski, 2000, p. 27). It is not merely the proportion of business capital to equity or the net gearing ratio that should concern a firm, but rather the proportion of a company’s *total assets* to equity or gross gearing ratio. When we take into account debt *plus* all inter-indebtedness of firms, Minsky’s *Financial Instability Hypothesis* comes to surface just as he predicted.

As a result, financialization squeezes the internal accumulation of firms increasing their reliance on the inflow of foreign savings to maintain a constant net gearings ratio. The rising proportion of share capital to entrepreneurial capital imposes on the firm the perpetual marketability of its securities to the wider public both foreign and domestic. Demand for its securities must persist in order for the potential sellers of the security to earn a profit. If the price of securities plummets on a collapse of demand

for equities, then the sale of a security may only come at a considerable loss. The fall in the market price for equities will raise the earnings yield on securities and the rate of new stock issues will flat-line or begin to fall. The liquidity that initiated the boom in financial investments is ephemeral as foreign savings evaporates from the domestic financial markets. The fall in share capital will raise the net gearing ratio since the fall in equity prices lowers total entrepreneurial capital relative to existing liabilities. Demand for capital assets will fall as firms begin to try to stabilize their net gearings ratio.

Herein is where lies the peculiar nature of foreign savings. During an economic boom it act to raise the inflow of total outside savings and as growth slows it perpetuates the opposite effect by lowering the inflow of outside savings. As an inflow it plays an active role as it boost the elasticity of total outside savings to a point where it accumulates more readily than internal accumulation to a change in real fixed investment. The Minsky process can proceed without necessitating a rising in the net gearing ratio for the economy as foreign savings finds its way in to the local market by merging itself into equity. Joint stock companies can then use the new share capital financed by foreign savings for investment rather than issuing debt. Foreign savings enters the domestic economy as if it were being generated domestically like household savings as it finds its way in the domestic market as external finance or share capital.

But during a period of economic decline foreign savings disappears or evaporates from the local economy leading to rising ratio of inelastic domestic outside savings to total outside savings. Domestic interest rates will rise in order to slow the outflow of foreign capital, but that only acts to decrease the marginal profitability of capital even further and the rate of real capital growth will continue to fall. Companies will begin

deleveraging as business savings begins to fall proportionately greater than outside savings and the demand price of capital assets will collapse. What follows is a period of forced indebtedness or debt deflation that requires government deficit spending and/or currency depreciation to correct the rising disequilibrium. When the proportion of business savings is falling faster than total outside savings, then budget spending can offset the fall in business savings by replacing inadequate household spending or dissavings. In a flexible currency market the evaporation of foreign savings will depreciate the local currency, increase exports and lower the deficit in foreign balances. The government and foreign sectors of the economy can act as a buffer against a rising proportion of domestic outside savings to foreign savings. Without the built in stabilizer the economic situation is likely to become much worse as the inelasticity of outside savings forces the national economy into a self-perpetuating vicious circle of economic stagnation.

Competition-coerced profit-seeking by various financial units, the euphoric sentiment associated with the rapid rise in asset markets and equities, and an overwhelming flow of short-term capital from abroad has advanced the capital development of an open economy teetering atop a bubble of financial-asset and -liability speculation. The situation becomes sustainable only on an ever-increasing flow of foreign savings in order to perpetuate a continual rolling over of shares in the domestic stock market. On the event that investor confidence turns to a more pessimistic outlook of the domestic economy, capital inflows can slow or even reverse leading to widespread macroeconomic problems. Therefore, efforts by local authorities must act to maintain a favorable environment for foreign investment.

## **Conclusion.**

The role of total outside savings has on the financialization of business disguises the financial instability of a national economy. Foreign savings increases the elasticity of outside savings to a point that satisfies the crucial Minskyan assumption that during an economic boom the accumulation of total capital market liabilities must rise proportionately faster than equity. The common misinterpretation of Minsky that generates the crux of the criticism from economists is the role equity markets play in absorbing an elastic outside savings as share capital begins to rise proportionately faster than retained earnings. Share capital is often times mislabeled as a capital market asset when in fact it should be considered a capital market liability. This misconception of share capital as a capital market asset is buttressed in its definition as a proportion of total entrepreneurial capital. This allows for the financial robustness of a national economy to be overstated as financialization understates the leverage ratio for the national economy. Ignoring the inter-indebtedness of businesses can result in constant or falling *net* gearing ratio when in fact the *gross* gearing ratio is rising.

Examining the peculiar nature of foreign savings removes the shibboleth that shrouds the endogenous rise in financing fragility. What becomes apparent is the tendency for financialization to become a *tour de force* of financial capitalism. Extraordinarily high profits realized through capital gains allows for an unprecedented amount of leveraging of assets and risk taking while the financial stability of the national economy becomes increasingly reliant on the state of the equity market to constantly ‘rollover’ their securities. Joint stock companies look to equity markets to diversify their portfolios in an attempt to hedge risk, but their demand for financial investment redirects

capital from real fixed investment. Retained earnings become squeezed by share capital and the marginal rate of profit will begin to fall.

It appears as though both Minsky and Kalecki are essentially saying the same thing from two distinct perspectives. For Minsky, firms increase their capital market liabilities in order to reap greater profits either by issuing more debt to make on the carry or by issuing more share capital to earn capital gains. In fact the latter can be used to justify the former when a rise in the share capital lowers the net gearing ratio effectively expanding the firms ability to take on more debt. For Kalecki, when the state of the market increases the incentive to issue new shares, there is a period when expanding the share capital of a firm looks less risky than issuing debt since the former increases the total entrepreneurial capital of the firm. In similar fashion to retained earnings, share capital can expand the ability to issue debt without increasing the net gearing ratio of the firm. Capital gains provide profit opportunities without the dangers of unexpected excess capacity; however, a fall in real fixed investment will decrease the marginal rate of profit in future periods. There is a parallel between the two theories, only that the approach to explain endogenous business cycle theory comes from two different perspectives; that is, from the *Financial Instability Hypothesis* and the *Principle of Increasing Risk* and commonality of these to theories revealed in the peculiar nature of total outside savings.

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