

# The Relationship between Credit Expansion, Inactive Balances, and the Capital Stock

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August 10, 2004

Abstract:

This paper examines the inter-temporal association between capital assets, financed through credit expansion, and the stock of inactive balances. It is the opinion of the present author that Keynes's disavowed Say's Law because of a fundamental imbalance between the use of capital assets and monetary savings. Further, because of this disjoint, current economic activity is dependent upon demand injections financed through credit expansion. If debt financed demand is not forthcoming, then the economy will contract. Within this construct, the primary constraint is the ability *to hold prior period income in an inactive state*. The interest rate is the price of the constraint.

Key Words: Credit Expansion, Investment, Saving, Capital Stock, Inactive Balances,

## Section I Introduction

I doubt if many modern economists really accept Say's Law that supply creates its own demand. But they have not been aware that they were tacitly assuming it. ...The explanation is to be found, I suppose, in the tacit assumption they every individual spends the whole of his income either on consumption or the buying, directly or indirectly newly produced capital goods. But, here again, whilst the older economists expressly believed this, I doubt if many contemporary economists really believe it (Keynes, 1937b, 223).

In the Keynesian model, bank credit money is a bookkeeping entry that ‘does not absorb or exhaust any resources’ (Keynes, 1937a, 247). Furthermore, ‘it employs no savings’ (Keynes, 1937c, 666). Expansion in the level of bank-credit money is a flow, which enables investment to create saving.

If the banking system chooses to make the finance available and the investment projected by the new issues actually takes place, the appropriate level of income will be generated out of which there will necessarily remain over an amount of saving exactly sufficient to take care of the new investment (Keynes, 1937a, 248).

However, credit expansion is never a substitute for current saving;

Dishoarding and credit expansion provides not the alternative to increased savings but a necessary preparation for it. It is the parent, not the twin, of increased saving (Keynes, 1939, 572).

Further, saving never pre-dates or creates investment.

Savings at a prior date cannot be greater than the investment at that date. Increased investment will always be accompanied by increased saving, but it can never be preceded by it (Keynes, 1939, 572).

Finally, the real resource saving does not feedback into credit expansion:

Each new net investment has new net saving attached to it. The saving can be used once only. It relates to the net addition to the stock of actual assets (Keynes, 1937a, 247).

The argument’s causal structure is linear: the flow of new bank-credit enables investment to create an equal and compensating flow of current saving; but, the increase in the stock of savings does not feedback into future credit expansion (Snippe, 1985, 266).

The unconditional independence of credit-expansion (finance) from the real resource

savings was according to Keynes, his most fundamental conclusion in the field of economics. Keynes stated that:

The investment market can become congested through a shortage of cash. It can never become congested through a shortage of saving (Keynes, 1937c, 669).

In support of this ‘fundamental conclusion’ Keynes clearly, and with purpose, separated the legal process ‘credit expansion’ from the real economic processes through which credit expansion is transformed into the real resource: saving. The objective was to expose and clarify the independence of the supply and demand for money from the supply and demand for savings. (Keynes, GT, 183; 1939, 574) The key transaction is the acceptance of newly issued bank credit money in exchange for surplus resources. At the moment of acceptance, money created by the banking sector through a ‘mere bookkeeping entry’ is transformed into the real resource: income not consumed. The mode of transformation is the market mechanism (Snippe, 1985, 258).

If the grant of credit to an entrepreneur additional to the credits already existing allows him to make an addition to current investment which would not have otherwise, incomes will necessarily be increased and at a rate which will normally *exceed* the rate of increased investment. Moreover, except in conditions of full employment, there will be an increase in real income as well as money- income. The public will exercise “a free choice” as to the proportion in which they divide their increase of income between saving and spending; and it is impossible that the intention of the entrepreneur who has borrowed in order to increase investment can become effective ... at a rate faster than the public decide to increase their savings. The savings which result from this decision are just as genuine as any other savings. No one can be compelled to own the additional money corresponding to the new bank-credit, unless he deliberately prefers to hold more money rather than some other form of wealth. Yet employment, incomes and prices cannot help moving in such a way that in the new situation someone does chose to hold the additional money (Keynes, GT, 82-83).

The spanner in the system is the increase in the stock of money balances held as a long-run store of value in the wealth account. It follows that if credit expansion is independent of savings, credit expansion is independent of savings held in bank credit money. Thus, a critical and binding assumption in the Keynesian model, is that bank credit money, held as a long run store, are hoards. Hoards are by definition, money income that is unavailable for current consumption or the preparation of future consumption.

Moreover, no amount of anxiety by the public to increase their hoards can affect the amount of hoarding, which depends on the willingness of the banks to acquire and dispose of additional assets beyond what is required to offset changes in the active balances (Keynes, 1937a, 251).

Further, because savings is a real resource and credit expansion ‘does not absorb or exhaust any resources’ a second and equally critical assumption is that credit expansion does not transfer savings held in the financial asset— bank credit money. Consequently, inactive balances are neither directly nor indirectly available to finance *future* investment or the alternative, *future* consumption.

The inactivity of savings held in bank credit money is an absolute: credit-expansion does not transfer savings nor is credit expansion a substitute for current saving. It is this elementary fact that allowed Keynes to substitute the savings constraint by the liquidity constraint, advance the casual structure investment creates saving and to state without reservation that supply cannot create its own demand when money can be held as a long-run store of value.

The purpose of the following text is to examine the influence of inactive balances on

current economic activity. The focal point is the inter-temporal association between the stock of capital assets, financed through credit expansion, and the stock of inactive balances. It is the opinion of the present author that Keynes disavowed Say's Law because of a fundamental imbalance between monetary savings and the capital stock. Further, because of this disjoint, the flow of current economic activity is dependent upon demand injections financed through credit expansion. If debt financed demand is not forthcoming, then the economy will contract. Within this construct, the primary constraint is the ability *to hold prior period income in an inactive state*. The interest rate on money relative to debt is the price of the constraint. A favorable interest rate environment minimizes the limit on current economic activity, but does so by constricting future economic activity. The process is cumulative and unfolds through time.

## Section II Credit Expansion, Investment and Inactive Balances

In a monetary economy, all market transactions are conducted through the offer and acceptance of money; all income is paid in money, and all saving is initially held in the liquid asset: money (Davidson, 1986, 105). Further, because money fills the gap between the receipt and disbursement of money income, money in the hands of the non-bank public is the real resource income not consumed. Finally, monetary expansion enables real investment and is made effective through real saving.

One of the most complex relationships in economics is between money, credit expansion,

investment, and saving. All credit is funded in money and all money in circulation is by definition, saving. However, credit is not saving. Credit must be transformed into saving. The conduit is real economic activity. It is current economic activity, mediated by the multiplier, that transforms the ‘legal process’ credit expansion into the fully differentiated and asset specific resource— monetary savings.

In all cases, the ability to hold money is limited to the available supply. If we abstract from the government and foreign sectors, then the flow of new bank credit money offered to the marketplace is dependent upon the joint obligation between the bank and the entrepreneur. Banks create money in the process of financing investment. Consequently, increases in the stock of monetary savings are coincident with increases in the capital stock and ‘payment commitments’ (Minsky, 1986, 177) to the banking system.

The one-to-one relationship between the liabilities due to the banking sector by entrepreneurs, and the liabilities due by the banking sector to the wealthholder is a balance sheet identity. The identity bears witness to an inter-temporal association between the bank, the entrepreneur and the wealthholder. The relationship is set in motion through credit expansion and finalized through debt repayment. Debt repayment is a contractual obligation, which encumbers profits and unfolds through time. Its real economic counterpart is the transformation of the capital stock into a flow of goods, i.e. disinvestment. Disinvestment creates profits; profits fund debt repayment. By these facts alone, the finance of capital assets through monetary expansion is a short-run phenomenon which engenders subsequent economic activity.

The short-run is defined through the liquidity preference of the banking sector and the non-bank public, the causal structure investment creates saving and the expectations of entrepreneurs. If finance is made available on reasonable terms, then the entrepreneur will transform current surplus resources into capital assets. The demand for real resources is mediated in the aggregate by the multiplier together with financial market activity.

The multiplier will ensure that the entrepreneur's current demand for real resources will be met by an equal and compensating demand to forgo current consumption. All current income not saved is consumed. The primary constraint is the demand to hold inactive balances relative to the available supply. Within this domain the quantity of money held inactivity influences real economic activity through market interest rates. For a full discussion of the correspondence between the liquidity constraint and investment see (Davidson, 1986, Kregel, 1984-85, 1986 and Snippe 1985).

Future economic activity is defined by the liability structure of firms, the disinvestment of capital, profits, and the time preference of the wealthholder. In the long-run, money's use as a store of value directly competes with money as a medium of debt repayment. The entrepreneur requires money income to honor its commitments to the banking system. The wealthholder holds money income in an inactive state. The competition for liquid resources established in the period of credit expansion revisits the economy in the periods of debt repayment. The singular difference: the demand for finance is a demand 'for a particular class of financial asset' (Snippe, 1985, 264) – the demand for money as a medium of debt repayment is a demand for the real resource— money profits.

Common to all periods is the dependence of the banking sector and the entrepreneur on the liquidity and time preference of the non-bank public. It is the non-bank public who transfers surplus resources to the entrepreneur and it is the non-bank public that willingly substitutes current and future consumption in favor of bank deposit liabilities. *Ipsa facto*, it is the behavior of the non-bank public which is the principal bridge between the short-run activity— credit expansion— and the subsequent requirements of the bank and the entrepreneur.

The credit relationship between the bank and the entrepreneur is a joint obligation— both agents are debtors. The bank provides purchasing power to the entrepreneur by releasing a demand debt against itself in exchange for ‘payment commitments’ from the entrepreneur. Surplus resources are transferred to the entrepreneur when the entrepreneur offers and a non-bank agent accepts, the demand deposits in a market transaction. Let an entrepreneur enter a bank in period (t) and request a loan to finance an increase in the stock of capital assets. Upon receipt of the demand deposits, the entrepreneur offers the money to the marketplace and in return receives surplus resources. The use of bank credit to produce capital assets creates an imbalance between the level of current income available to bid on consumption goods in the marketplace and the level of consumption goods produced for the marketplace. The difference is the real resource, saving. At the end of the period, current saving in bank deposit liabilities are equal to the increase in debt repayments to the banking system. The activity is reflected in the bank’s balance sheet as a debit to loans and as a credit to non-transaction deposit liabilities.

In the classical paradigm, an increase in non-transaction deposits signals the transfer of real resources to the banking system by the non-bank public. The role of the banking system is to lend these resources on behalf of the surplus units. Within this construct, banks transfer resources from period (t) to willing borrowers in period (t+ $\xi$ ). The causal structure is deposits create loans and savings enables investment.

In the Keynesian paradigm, when an agent saves in money, he converts demand deposits into savings and/or time deposits and in so doing, releases required reserves. The increase in net free reserves enables the banking sector to legally engage in future credit expansion; nonetheless, future credit expansion is wholly independent of prior period savings. Bank credit does not transfer savings. Bank credit enables current investment to create an equal and compensating flow of current saving —the causal structure is reserves to loans and loans to deposits.

Let us define the future as (t+ $\xi$ ) and introduce a new entrepreneur. The new entrepreneur, like that of his counterpart in period (t), requires bank credit money to finance investment. The bank provides finance through its balance sheet; the bank debits required reserves and loans and credits excess reserves and demand deposit liabilities. The ‘bookkeeping entry’ transfers to the entrepreneur current rights to current purchasing power. When the entrepreneur offers the newly issued purchasing power to the marketplace, he draws upon *current economic activity*. The agent that holds the liability at the end of the period has substituted *current consumption* in favor of a credit relationship with the banking system.

In all cases, investment is derived from current production and is made effective through current saving. Prior period savings does not enter into the equation. Prior period saving is inactive with respect to current economic activity. It is not however without purpose. Its role is to support the *existing asset structure* of the banking system. It is the surplus units from period (t) which allows the bank to hold the financial asset, loans to entrepreneurs, on its balance sheet at the close of period (t). This having been said, banks do not intermediate prior period saving. Banks release credit then purchases current saving through the offer of interest.

Keynes stated that supply could not create its own demand when money was a rational store of value in an uncertain world. He also stated that money held in saving and/ or time deposits in the commercial banking system were inactive. Inactive balances are created when the banking system engages in the finance of capital assets. What we learn from this is that the balance sheet identity established in the period of credit expansion serves to hinder future economic activity. The source of the constraint is the quantity of income held in an inactive state. The object of this constraint is the capital stock.

### III The Capital Stock and Inactive Balances.

Keynes stated that, ‘...capital is not a self-subsistent entity existing apart from consumption’ adding that:

Consumption is satisfied partly by objects produced currently and partly by objects produced previously, i.e. by disinvestment. To the extent that consumption is satisfied by the latter, there is a contraction of current demand, since to that extent a part of current expenditure fails to find its way back as a part of net income (Keynes, GT, 105-106).

The disinvestment of capital is the transformation of capital assets into a flow of current goods and is equivalent to the economic depreciation reported in the NIPA and captured in the Flow of Funds Accounts as a non-financial source of funds.

When capital assets are used to produce goods, each unit of output released into the marketplace embodies some small fraction of the useful life of capital. The portion of current period consumption demand, satisfied through the use of capital assets, leads to an imbalance between current production and current income. Disinvestment increases the supply of current period goods but does not directly augment the current period supply of inter-sector income claims. As a direct consequence, the economy is constrained by an excess supply of goods. The financial counterpart is mark-up pricing.

Minsky wrote that firms use mark-up pricing to recapture the money cost of capital and to honor balance sheet commitments (Minsky, 1986, 142). The practical reference is the operating cycle of firm. In the period of investment, firms emit balance sheet liabilities and create capital.

The decision to invest — to acquire capital assets—is always a decision about a liability structure (Minsky, 1986, 172).

In the periods of debt repayment, firms use capital assets in concert with mark-up pricing to generate cash flows ‘in excess of current out of pocket costs’ (Minsky, 1986, 171).

Cash moves toward the firm when the firm offers and a non-bank agent accepts goods in exchange for money. Money received in excess of current inter-sector factor payments fund the income flow, profits. Profits validate investment and enable debt repayment.

What we discover is that the acquisition of capital assets through the use of balance sheet commitments creates an excess supply of goods in the periods of debt repayment.

Moreover, because all capital assets are fated to be used up in production and the use of capital assets engenders mark-up pricing, we can conclude that this imbalance is the norm rather than the exception. The next step is to reconcile this imbalance with the accounting identity: aggregate income is equal to aggregate output.

First and foremost, current saving neither causes nor does it contribute too the imbalance.

The proof is the multiplier process. The multiplier ensures that all current income not required to validate planned investment is presented to the marketplace in exchange for consumption goods. When investment is rising so is saving. Conversely, if the level of saving is rising independently of the level of planned investment, then income will contract. By these facts alone, all income is active, therefore all saving is active as well.

Keynes wrote:

There is a deep-seated obsession associating idle balances, not with the action of the banks in fixing the supply of cash nor with the attitude of the public towards the comparative attractions of cash and other assets, but with some aspect of current savings (Keynes 1937a, 251).

Current savings in wholly independent from 'idle balances' and all current income not saved is consumed. It therefore must be true that supply cannot create its own demand because agents are holding prior period income in an inactive state.

The fact that aggregate income is equal to aggregate output at each moment in time and through time neither implies, nor infers, that there is a one- to-one relationship between the use of capital assets and the substitution of prior period income for current goods.

Accordingly, while inter-temporal income is sufficient to purchase inter-temporal output, there are no laws of motion to ensure that wealthholders will dis-save inactive balances at the same rate entrepreneurs disinvest. In fact, given the time preference of the wealthholder, the expected result is for disinvestment to exceed monetary dis-saving.

Keynes's theory of inactive balances is logically consistent with, and supported by, the theory of aggregate demand, the multiplier, and the time preference of the wealthholder.

Supply exceeds demand, not because agents save in money, but rather, because bank credit money is held as a stock.

The stock of inactive balances is the missing income flow and it is this quantity variable, which links the real to the financial economy. The linkage is created in the period of bank financed investment.

Money is created in the process of borrowing and lending. Hence there are payment commitments to banks that underlay the money supply (Minsky, 1986, 177).

The linkage binds in the periods of debt repayment. The problem is that the demand to hold non-transaction deposit liabilities displaces the demand for both current and future goods. As a direct consequence, firms will earn profits, if and only if, current income is augmented by debt financed demand. The solution to this problem is the substitution of inactive balances for current goods.

The dis-saving of inactive balances is the economic counterpart for the disinvestment of capital assets. Dis-saving, like disinvestment, is a real flow created from an economic stock. Dis-saving increases the demand for goods, disinvestment increases the supply. When these two stock injections meet in the marketplace, the dis-saving *of prior period income* fills the imbalance caused by the use of capital assets. The activity is signaled to the marketplace by a net reduction in the asset and liability structure of the banking system.

The balance sheet of the banking system is a real time accounting of incomplete economic activity. Bank assets correspond with net capital assets (capital less disinvestment); bank deposit liabilities with income not consumed. The offer of inactive balances in exchange for current goods transfers bank credit money to the entrepreneur in 'excess of current out of pocket costs'. The money, thus tender, is used by the entrepreneur to honor their repayment commitments to the banking system.

Just as the finance of investment through bank debt creates a one to one increase in the stock of inactive balances, the use of inactive balances—prior period income—to purchase goods sets in motion a one- to- one reduction in the level of money owed to the

banking system. There is perfect symmetry between investment and saving, disinvestment and the dis-saving of inactive balances. If inactive balances are substituted by goods at the same rate entrepreneurs disinvest, then the level of income (current and prior) offered into the marketplace will be identically equal to the value of current output. If inactive balances are not offered into the marketplace, then either the economy will contract or the excess supply of goods will be realized through debt financed demand.

Debt financed demand is an alternative to the dis-saving of inactive balances. It is not however, a perfect substitute. The use of credit to purchase consumption and/or investment goods is, in all cases, a zero sum game. Income borrowed from the future must be repaid in the future. Consequently, aggregate demand rises in the period of credit expansion and falls in the periods of debt repayment. That said, demand injections financed through monetary expansion creates an even greater necessity for demand injections —financed through bank credit—in future economic periods. The process is measurable and cumulative.

Contrastingly, demand injections financed through the substitution of inactive balance for current goods eliminates the excess supply of goods, and in so doing, leads to a net reduction in the level of indebtedness to the banking system. The holder of inactive balances, unlike the current period dis-saver or investor, has a pre-existing right to offer bank credit money in exchange for current goods. The wealthholder's right to current money stems from their credit relationship with the bank. For the bank to remain a viable going concern, they must honor all requests to convert non-transaction deposit liabilities

into demand deposits. The wealthholder's right to draw upon current goods is derived from their association with the entrepreneur. In the period of investment, the entrepreneur's claim to surplus resources was made effective by the non-bank public's willingness to set aside current claims to current goods. At the end of the transaction, the entrepreneur secures the right to transform the newly produced capital assets into a flow of goods, the wealthholder, the right to demand the future output from capital. If the money wealthholder exercises these dual rights, then real goods replace inactive balances, inactive balances fund profits and profits enable debt repayment. *Ceteris paribus*, the use of bank credit money to pay bank debt, leads to a one-to-one reduction in the asset and liability structure of the banking system.

#### Section IV The Conclusion

The *General Theory* and subsequent articles is a logically consistent treatise dependent upon the unfailing application of the theory of inactive balances: because prior period income can be held in an inactive state; the liquidity constraint binds; the causal structure investment creates saving supplants the savings constraint, and supply exceeds demand. The liquidity constraint and the relationship of saving to investment are well documented in the current literature. Notably absent is Keynes's analysis of the inter-temporal correspondence between inactive balances and the stock of capital assets financed through credit expansion. It is through this venue that we are able to document the clearly identifiable imbalance between the demand to hold prior period income in an inactive state and the use of capital assets. It is this imbalance—this relationship—that is the cornerstone of the *General Theory*. The consequence of investment is disinvestment. The consequence of holding inactive balances is that *ex-ante* supply will exceed current demand. The level of the imbalance is given by the rate of dis-investment relative to the

rate of monetary dis-saving. The economy is subject to a quantity constraint —the constraint is binding— the constraint is cumulative.

The source of the constraint is the use of capital assets. The constraint is binding because of the time preference of the wealthholder. Keynes stated that the demand to save was a demand for a prospective yield, saving is not the demand for future consumption. This statement was a direct challenge to Fisher's inter-temporal model of consumption and is one of the most important links in Keynes's repudiation of the Classical method. For supply to create its own demand it must be true that all saving(s) are offered either directly or indirectly in exchange for goods. This condition will hold if deposits create loans and/or saving is the inter-temporal substitution of current consumption for future consumption. The existence of inactive balances effectively nullifies the indirect channel. Deposits cannot create loans because banks cannot transfer the real resource. The direct channel is also without merit. If the demand to save was in fact the demand for future goods, then there should be a clear correlation between the transformation of capital assets into a flow of goods and the substitution of monetary savings for current goods. This association would be signaled to the marketplace through a growth rate in debt which lagged the growth rate in the capital stock. If the growth rate of debt exceeds that of the stock of capital assets, then we must conclude that agents do in fact express a final demand for money.

When the theory of inactive balances is fully incorporated into the Keynesian paradigm we discover a clear and consistent accounting of the inter-relationship between the real and the monetary economy. The stock of inactive balances is the quantity variable that links the two economies; the interest rate on money relative to debt is the price. Money matters not simply because of its influence on the rates of interest but also because money in the hands of the non-bank public is in all cases—income not consumed. If earned income is not offered into the marketplace in exchange for goods we have the necessary and sufficient condition to create an excess supply. What is true of current period activity is true for inter-temporal activity. Monetary savings must be offered into

the marketplace in exchange for current goods or the economy will be subject to an excess supply of goods.

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