

Market Structures and Investment Behavior

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1. Some Economics.

It is not enough for an economist to set up an equation set that leads to either some polite equilibrium or to some wild incoherent behavior: we need to relate the behavior of the equations to activity in the economy. In the spirit of Keynes we will concentrate on the investment equation in our simple acceleraerator model:

$$I_t = b(Y_{t-1} - Y_{t-2}).^{13}$$

In this form investment depends solely upon the current observation of a recent change in income. None of the financial and banking relations that are critical to the Keynesian theory of investment in a capitalist economy are overtly included. They are, presumably, buried in the accelerator coefficient, b .¹⁴

13. The "accelerator" coefficient b enters into the determination of u_1 and u_2 in the equation

$$u_1, u_2 = (a + b) / 2 \pm \sqrt{[(a + b)^2 - 4b]} / 2$$

14. As $du_2/db < 0$ any cumulative changes in the financial structure that decrease b will lead to a rise in u_2 . This means that the minimum realized rate of expansion that will

I take as a given the existence of a capitalist economy where the material means of production are typically owned by a firm that is legally organized as a corporation: the material means of production typically were produced. As a result at the time investment outputs became capital assets there was a plus on the asset side, equal to the price paid in the market for this output and there were compensating changes in assets and liabilities to allow for the acquiring of the monies used to pay for these capital assets. Once these assets are fully integrated into the capital asset structure of the operating organization they lose their identity except perhaps as items for sale or as scrap value. The total capital stock of the organization is now valued by the market valuations of its liabilities and of the assets that are not used in the firm's production process. On such a mark to market basis the firm's capital assets rise or fall in value as the market prices its debts and equities.

These corporations are the initial recipients of the total revenues of firm and, after allowing for current operating costs, the initial recipients of gross capital incomes. Gross capital income is distributed to claimants as determined by the firm's tax bill, liability structure and business style.

There is a modern complex financial structure which passes claims to income streams generated by capital and

sustain further expansion increases. This could be taken to imply that the new initial conditions to sustain economic expansion will need to accept ever increasing rates of increase in the price level.

household and government indebtedness from the firms and financial institutions that are the initial recipients of capital income and income on account of non-firm indebtedness to the ultimate beneficiaries from and recipients of capital income.¹⁵

Furthermore there is a well established system of laws which not only enforce financial claims but also allow for the wiping out of claims as a result of a recognized inability to perform. Bankruptcy law is a necessary adjunct to property rights in a well structured capitalist economy. There are also various financial institutions with functions that range from those of investors of other peoples money to pure brokers who bring various classes of buyers and sellers together.

A fundamental aspect of capitalist economies is the existence of two classes of prices and two price levels: one of financial and capital assets and the other of current output. I take the liquidity preference function to be the statement of the factors that enter into the determination

15. As I have argued in Stabilizing an Unstable Economy, New Haven, Yale University Press, 1986 the fundamental concept is a gross capital income which is not linked to the productivity of capital in a production functions sense but to the scarcity of capital, as determined by the levels and composition of demand and the spending patterns of the different recipients of income. In particular interest paid by firms is a disposition of capital income as are certain types of performance compensation of managers: corporate style spending is also a disposition of gross capital income as is the internal funding of research and product development as well as advertising. Taxation at the corporate level, aside from taxes that are linked to the wage bill, are also a disposition of gross capital income.

of the price level of assets. One of the principle conceits in what I do is to assume that there is meaningful price level of assets as well as a meaningful price level of current output.

1a. Pro Formas

An investment theory for a capitalist economy needs to be grounded in the practices and institutions of financial markets and the behavior of investors. Any market needs market makers and market makers are Smithian profit seeking organizations.¹⁶ Similarly, the private institutions that act as intermediaries, whether they function as dealers (position takers) or as brokers, are Smithian operators seeking "only his own gain". Recent experience in the United States indicates that when the complex of financial institutions that characterize modern capitalism partake of market activity, the proposition that unconstrained Smithian operators "are led by an invisible hand to promote an end (the common good) which was no part of his intention." is apparently falsified. Furthermore it is apparent that in modern financial institutions the "private agendas" of the members of an organization can lead to behavior that deviates from that which furthers the goal of the organization.¹⁷

16. Reference to Clower and Kregel.

17. James B. Stewart "A Den of Thieves" 1992

A key concept in any investment theory that aims to gather threads from practice is the pro forma, the prospectus prepared by or for a seeker of financing which makes precise the assumptions that underlay the answer the potential recipient of financing gives to the provider of financing when the provider raises the basic question "How are you going to get the monies you are promising to pay later in exchange for the monies you expect me to provide now?" These pro formas are what is on the table when negotiations between financing organizations and organizations that seek financing take place.¹⁸ Investment takes place as a result of negotiations between bankers and business men that lead to prospective internal and committed external funds being combined into a financed project.

18. A cliché among bankers is "I've never seen a pro forma I did not like": that is no one seeking financing paints anything but a rosy prospect for the operation seeking financing. It is the duty of the "banker" and the other financiers to be the skeptic - to reveal the shaky or heroic assumptions and also the unwarranted inferences. All of the Crashes, Manias and Panics (I am referring to Charles Kindleberger's notorious book) of history are associated with a radical suspension of disbelief on the part of portfolio managers, asset holders, business men and bankers. If one wants an understanding of rational behavior one needs to examine the determinants of scepticism. The promotion of organizations that institutionalize scepticism has been one of the threads in the emergence of novel financial institutions and usages in the aftermath of great fiascoes.

The term junk bonds became prevalent in the 1980's. The term referred to bonds which were deemed so likely not to fulfill the contract that fiduciaries such as savings banks and pension managers were not allowed to hold such instruments in their portfolios. The subverting of legally enforced skepticism was one of the contributions of the Reagan administration to the financial troubles that are now so evident.

1b. Cost Curves

The family of total, average and marginal cost curves that is the used in elementary price theory can be considered as the model of a pro forma. The finance for a project is transformed into a series of payments due each relevant time period: these payments become individual items of the constant costs of the total cost curves from which the family of average cost curves are derived. Thus bond issue A, bank loan B, rented space (or planes) C, officers salary, etc., are each entered upon the spread sheet for each period of the financing horizon as given by the term to maturity of the longest of outstanding instruments. At every date assumptions need to be made about interest rates of financing contracts: this becomes especially important if refinancing is built into the pro forma.

The sum of the spending upon maintaining productive capacity (what Keynes called user costs) and out of pocket costs for producing whatever yields the revenue need to be added to the fixed overhead and contractual costs because of the form financing has taken place to determine the pro formas. The degree of belief to be attached to the various sets of data used in pro forma cost curves is one focus of the negotiations between bankers and businessmen.

Projections of revenues are the other focus of the negotiations which aim to arrive at a concensus about the pro formas. The negotiations about the projections of the

expected revenues naturally center on three issues: the expected performance of the economy, the expected performance of the particular markets where the firm operates, and the advantages and disadvantages of the particular firm in the essential capitalist competition: that among firms for profits. Essentially business men and financial agents need to agree that that funding the investment project is warranted because the prospects that the prospective revenues will fund

the sum of {the prospective out of pocket costs, the prospective costs of maintaining the ability to produce profits and the committed payments on the debts} and leave a margin to spare

are good. This margin to spare is either to be retained within the firm or dispersed as dividends to the owners of equity. Not only does current and recent performance of the economy and the firm under examination enter into financing decisions but present views about the future of the economy as a whole, the industry of the firm, the firm's special attributes and the evolution of financial markets also enter into decisions to finance, to proceed with investment plans.

The above argument with respect to the pro forma for an investment decision visualized as a decision to build a plant or extend operations to a new line of commerce is the argument that the leveraged buy out financing of the 1980's firmly implanted on the financial markets of the world. A firm, or an investment opportunity, is envisioned as a cash

flow machine and the liability structure and operating costs are viewed as dispersals of the cash flow. Note that in the representations of the firm in the pro forma cost curves only the out of pocket costs for producing output and the costs of sustaining the production plant have anything at all to do with production function ideas. The payments during the period of analysis that are due on account of the liability structure as well as the tax costs reflect laws and financial market conditions at various dates.

1c. The function of current output prices.

In the structure of orthodox economic theory prices are the terms upon which alternatives are available and are generated in the process by which the equality of supply and demand is achieved. A conclusion of the argument in price theory is that markets work in such a manner that in regimes of perfect competition the ratios of product prices equals the ratios of marginal utilities for all agents.

Such considerations are foreign to the negotiations between business men and bankers over the proper estimation of the expected cash outflows and revenues that enter the pro forma. To bankers and business men output prices are the vehicle by which the operating costs included on the pro formas are to be recovered and the cash accumulated to meet the financing and overhead costs that were noted. Prices

are the way costs are recovered and the carriers of profits which validate the liability structure.

Operating costs are largely the direct costs of labor and purchased goods and services. The costs of purchased goods and services breaks down into labor costs, material costs and the markup of the producers. Such reductions lead to the proposition that the price level for current output is keyed on wage rates and markups: any process which leads to rising wages and rising mark ups per unit of output will lead to higher prices. The course of prices in time is made up of the course of wages, the efficiency of labor and the course of mark ups. In particular events which adversely affect labor morale or which lead to a rise in mark ups will lead to a rise in the price level. Inflation that look as if they may be the result of "cost pushes" because the course of money wages may well be a reaction to a prior "push" in the form of increased mark ups.

After the fact all prices can be divided into the portion that recovered per unit operating (or production) costs and a markup that led to per unit profits. In the construction of the pro formas the costs that need to be recovered are defined by the out of pocket costs. The cost of maintaining the productive capacity of the organization, overhead costs and the commitments on account of the liability structure are all allocations of a capital income that is defined in a very gross manner.¹⁹

19. This way of looking at costs and prices means that profits in the normal accounting sense are but a part of the

- 1d. The prices of investment output and the prices of capital assets.

The supply prices of investment output are as sketched above: they are built up by expectations of labor and purchased material costs and the mark up needed to validate the financing contracts and overhead spending of the firm. These prices will move as labor costs move and as the ability of the suppliers of investment outputs to maintain discipline in determining mark ups changes.

The price of capital assets in place is determined by their ability to generate cash either by using the capital assets in production or by being sold for the scrap value of their materials. The importance of the ability to generate cash is that it leads to a valuation of the liability structure that the assets are committed to support. As the take overs and buy out regimes of the 1980's showed, the market value of a liability structure that a firm can support may be significantly higher than the market value of the existing liability structure and the "firm" can be taken

gross capital incomes. I believe this way of looking at prices and the allocation of the revenue of firms is consistent with the manner in which the leveraged buy outs looked at revenues and costs. The gross cash flow, which can be taken to be the total revenues minus the direct costs of producing outputs, is the cash flow concept that the leveraged buy out players had available to cover the payments due on the liability structure. The squeezing of overhead costs and the containing of direct costs - even to the extent of product deterioration - are measures that are taken to increase the cash flows available for liability servicing.

over by those who are able to put together financial packages with the greatest market values based upon the expected cash flows that the firm is "expected" to generate.

1e. Time Linkages in Finance

It is worth noting that even as present views of the future affect present investment financing, financing engaged in the past determines payment commitments that are coming due now. The willingness and the ability of banks and other financing organizations to commit to fund at any particular time depends upon the performance of the assets they own - i.e. whether commitments made in the past which are falling due today are being honored.

One reason a modern economy has to be viewed as a time dependent system is that virtually every unit in our modern economy is making financial decisions today which will come due in the future, the ability to make such decisions depends upon the performance of the economy "now", and financial decisions made in the past are maturing today. These considerations mean that for almost all units a part of their spending at any time is prior determined by their liability structure.

Almost all decisions to finance and to acquire positions in capital assets and financial instruments are made by agents who know that they lack "perfect foresight".

What happens during any today can more than validate, barely validate or not validate decisions made in the past.

An implication of the lack of perfect foresight and the interpretation of the rationality of agents as implying that agents always know that they may be wrong is that the acceptability of particular types of assets in portfolios or of particular types of funding of operations is subject to quick revision. When past investment and funding decisions are on the whole strongly validated then the belief in the model of the economy that guides the decisions of financiers and their clients is reenforced. When on the whole decisions taken in the past are barely validate today, then either no revision or a reenforcement of the belief of agents in the validity of the model that guided action will be forthcoming. When the cash flows are on the whole insufficient to validate all liabilities that defensive steps are taken by firms, financiers and the funding institutions. The argument needs to shift to the determinants of the validation of liability structures.

2.The Determination of Profit Flows

In the aggregate the profit flows that are available to service the liabilities of firms (including dividends on common stock) and to be the source of retained earnings that may be used as the base for the financing of investment demand are determined by the composition of aggregate

demand. The basic framework is the Kalecki equation

$$1 \quad I = Pfts$$

with the addenda that

$$2 \quad I \rightarrow Pfts.$$

The theme is that as investment decisions and execution are forward looking and are based upon current views about the future which are such that business men, bankers and asset managers make current decisions which commit future cash flows: these decisions are presumably binding over a reasonable horizon. Therefor investment and the other variables that determine profits call the tune. In the 1930's, when Kalecki first argued his case, it was not too far fetched to assert that workers spent their entire income and capitalists invested their entire income so that the simple identity was valid. Because of the proliferation of various pension plans and because of the greater scope of both government as a provider of cash flows to units and a debtor on financial markets the simple 1930's Kalecki relation does not hold. In the 1980's when capital gains and incomes from the financial services industry loomed large it became evident that not all of capital income was saved and that not all of workers income was spent.

A more inclusive view of the determination of gross capital incomes GCY may well be

$$5.1 \quad GCY = I + cGCY - sW + Gov \text{ Def} - Bal \text{ Tr Def}$$

where GCY is the fund available for covering all of the cash needs of firms except the cash needed to validate out of

pocket operating costs. GCY is the fund, generated by the performance of the economy, that is the subject of the competition among firms for profits, i.e. the competition among firms for the funds that will validate their liability structure.

If the items of the right hand side of equation 5.1 are leading to increases in cross capital income that exceed the increases in funds required to service debts then in the aggregate firms are finding their debt burdens lightened even as their capacity to carry debt increases. Furthermore the limits on the ability of firms to carry debt were set by the scepticism of bankers at the time the present liability wstructure was put in place. Repeated success in achieving cash flows in excess of expectations leads to a willingness to engage in greater debt financing of the inherited stock of capital, the value of which rises with the increase of the aggregate gross capital income.

Thus the price level of capital assets is related mainly to the gross incomes earned by capital and the changing concensus about the uncertainties of committing future cash flows. The willingness to be in debt, the willingness to see bank (financier) clients highly indebted are determined by the prevailing views of the future course of gross capital income and the market valuation of capital assets as collected in firms.

A second element in determining the valuation of capital is the possibility of increasing profit flows. In

the aggregate profit flows are not determined by the action of individual firms, but a general increase in "monopoly power" can lead to a rise in mark ups. If this occurs in an expanding economy then an increase in the gross profits share can take place. Undoubtedly something like this happened in the United States in the 1980's and this change in the distribution of income fueled the increasing burden of the debt.

If workers save then a decrease in the savings rate of workers will increase gross capital income. The huge increase in household debts over the 1980's resulted in an increase in interest income without any compensating increase in corporate indebtedness. The low savings ratios out of disposable income in the United States may be a result of the easy availability of debt as well as a rational response to the belief in continuing prosperity.

Thus the two price level view of a capitalist economy is a way of making sense of liquidity preference and the way the willingness of agents to become illiquid and the sometimes incoherent rush to become liquid, or to adjust portfolios, calls the tune for bouts of prosperity and depressions.

3. Factors determining investment:

The integration of I and L(M).

Given that P_k , the price level of capital assets and P_i , the price level of investment outputs, are based on quite different sets of variables we can expect them to behave somewhat differently through time: in particular we can expect P_k to be more volatile than P_i . Inasmuch as P_k reflects the value of the financial instruments that the cash flows that the firms that operate the capital stock can support, the P_k that enters the investment determining relation as a determinant of the demand for investment output is a quite explicit statement to the effect that the expected cash flows from investment output can sustain the payment commitments on liabilities with an aggregate value of P_k .

For investment to take place the expected cash flows from operating the investment outputs as capital assets have to be able to carry liabilities that exceed the value of P_i with a margin of safety. $P_k > P_i$ is the condition for investment to take place. The gross expected retained earnings of firms (A sum of the individual expected retained earnings) is a constant: it is a rectangular hyperbola in $P_k - I$ space which tells us the amount of investment that firms expect to be able to finance internally. The status of financial markets - whether robust or fragile - and the attitude towards portfolio composition that dominates in the negotiations between business men and their (investment) bankers leads to an agreed upon leveraging of the internal funds available for investment. The risk aversion of the

investing units leads to the demand for external finance falling away from the P_k line, the risk aversion of bankers and portfolio managers leads to the supply price of external finance rising from the P_I line so that the price of investment goods, as a debt financed addition to the capital stock of a unit, rises from the P_i line. The intersection of the two determines both the amount of demand for the current output I and the liability structure (leverage ratio) used to acquire the increment to capital.

During a period characterized by robust finance, the effect of the leveraging of internal funds with external funds leads to profit flows exceeding those that went into the negotiations that led to investment demand: as a result the burden of debts in terms of the cash flow allocated to debt validating is lower than expected and the amount of leveraging necessary for the financing of investment is also smaller than expected. A run of such pleasant surprises increases the willingness to lever by both sides of the bargaining table, further increasing investment and aggregate profits.

As a result over a period of good times the leverage ratio of investment grows and in addition the willingness to increase the leverage with which existing inherited capital is carried increases. The indebtedness of the business sector increases at a faster rate than the cash flows. Furthermore the term structure of interest rates during periods of robust finance is such that short term

money market financing of positions in capital assets is cheaper than financing through long term debt. Smoothly functioning financial markets lead to an increase in the ratio of short to long term finance. Unknown to the operators in the financial markets become fragile.

In terms of the accelerator investment function the expansion phase is one in which the accelerator coefficient b increases. This makes the minor root smaller and the major root bigger; the accelerator process may even migrate from one that generates damped cycles to one that generates explosive expansion. As B increases the minimum rates of growth necessary to sustain expansion decreases and the rate of growth that is the "explosive" target of the process increases.

Increasing leverage and the increasing ratio of expected incomes that are prior committed to the servicing of debt leads to a system that is increasingly vulnerable to disappointments. In the ever changing competition among firms for profits some highly leveraged firms will not earn sufficient profits to fulfill their commitments. This imposed losses upon financial institutions and diminishes their cash flows which will hamper their participation in any further leveraging of investment. Once the leveraging ratio on new investment decreases then the increases in income diminish and gross cash flows can even diminish. This will spread the inability to fulfill obligations.

The integration of liquidity preference, in the form of leveraging ratios, with the payment commitments on debts as the determinant of the price of capital assets and of the robustness and fragility of the financial structure integrates monetary and financial variables and institutions of an economy with the behavior of aggregate demand.

When the run of expansion eases, the simple model of the determination of profits indicates that a collapse of profits, investment, debt validation, the price of capital assets is imminent. However in modern capitalism the profit equation is complex: a decrease in private investment leads to a decline in income and profits. In an era of big government this triggers a rise in the government deficit, which sustains aggregate profits.

4. Conclusion

In honor of the bonds that nearly brought the buy out of Reynolds-Nabisco to its feet we can call the model of business cycles that allows for interventions, regulations and constraints that are built into the modern market economy to contain the thrusts to the incoherent behavior of markets and individuals that lead to crises and deep depressions the reset model. This model argues that the observed coherence of market economies is not the result of the operation of some Smithian process by which there are market equilibria and the reaction in markets when out of

equilibrium lead to the establishment of a unique equilibrium. Furthermore this Smithian equilibrium has desirable properties to which we economists attach a fancy label.

The modern view of of an economy as a complex, time dependent set of relations leads to the conclusion that models that abstract from the complexity of an economy in essential ways falsify what happens in an economy. Economics is a discipline in which heroic abstractions rule the roost. We would expect the models that rest upon these heroic abstractions to falsify the behavior of the economy in essential ways. One way the standard models abstract from reality is to allow for only one price level. In truth there are a multitude of price levels, and we must wonder if the simplification to two, the price level of output and the price level of capital assets, is also a heroic simplification that misleads. However it does allow one price level to be the reflection of a slow moving social process in democratic economies, the decline in nominal wages in reaction to unemployment, and a second price level to be the reflection of a rapid moving set of prices in modern financial communities. Changing beliefs in the debt carrying ability of firms canlead to rapid changes in asset values.

A fundamental aspect of the reset model is that it allows for policy and understanding to make a difference. The invisible hand has also been an excuse for holding that

socially determined relations are reflections of a higher law. The reset model is fundamentally an anti laissez faire position. The realization by economists of both the necessity and power of intervention and the significance of institutional design leads to a responsibility for economists to understand the dynamics of that into which it is necessary to intervene.