3.1.1   Interest Payments by Firms

We have suggested that the banker will expect compensation for the organisational and physical effort involved in his part in enforcing the repayment of the loan issued to initiate the circuit, along with the ultimate risk of default. Yet, as various writers have pointed out, the account of the Monetary Circuit given so far leaves no room for the payment of interest in monetary form (Bossone 2001, Schmitt 1996, Graziani 1989). As we have described it all of the money issued in the production loan contract is spent as wages and then exchanged for production, held as deposits or used to purchase bonds. There is no additional money with which to pay interest. There is no such barrier to the bank being paid in kind, since as long as the additional utility arising from the production process exceeds the compensation the bank requires there will still be a benefit to be divided between the other agents in the production process. But on the face of it there is no way of converting this additional output into money, since the firm cannot acquire more money from sales than it pays its workers. Since the only money existing in the market is the money that banks have lent to the firms they can only repay in money the principal and are unable to pay interest. They must therefore transfer part of their product to banks. Some circuitists such as Bossone (2001) and Schmitt (1996) regard the interest problem as insoluble. The interest must be paid from money sales from workers, and so there must always be a repayment shortfall at the end of each circuit.

There is, however, an alternative solution to the interest problem, once it is understood that production and the monetary transactions that it involves do not (as indeed they cannot) occur instantaneously. The final destination of banks' net income is the payment of wages and dividends and to invest in fixed capital (Graziani 2003). Thus directly or indirectly this money eventually returns to production firms. If there

is a positive time interval between issuing of the initial loan and the payment of the final wage and/or a positive time-interval between the first instalment of sales receipts and the last of any particular circuit, then a firm can pay interest to the bank in the form of money, receive it once more in money, use it again to pay its suppliers, and so use it to repay its loan in the usual way. Of course the bank or those to whom it transfers its interest payments may opt not to spend this money, which will leave a repayment shortfall for the firm, in the same way as money-holding by consumers.

The final effect of the dual passage through the firm of interest payments is in fact exactly the same as if there had been simply a transfer of goods in kind from the firm to the bank as compensation for loan provision.

> Firms must either sell part of their output and/or physical assets to the banks, or ask for extension in the form of new loans' (Seccareccia 1996, p411).

In the case of loan extensions firms become increasingly indebted to the banking system. In an economy with multiple consumer-goods firms, however, the interpolation of additional transactions means that the final recipients of goods purchased with money paid as interest will not generally be households employed by the firm that paid it. But the principle of the procedure is unaltered. In the final analysis, the payment of interest represents a transfer of real goods away from wage-earners. There is an issue of timing; if extra money is not to be required, then interest payments must be recycled back to firms within the production period.

We show the flow of interest payments in **Figure 3.6.** At **Time 0**, a £100 loan has been paid and this money is seen as a deposit belonging to Firm F. At **Time 1**, an interest payment of £10 is due, and is transferred to Bank A. Bank A can simply represent this as a transfer from the firm's deposits to households deposits where in this case the households are employees of the bank. When these households spend to

purchase goods from Firm F, the process is reversed and the balance sheet position at **Time 2** reverts to that at **Time 0**.[1]

3.2 The Nature and Role of Profits

One of the fundamental issues in linking monetary flows with the real economy is the issue of profit – the excess of firms' revenue over their costs. In the era of corporations with widely dispersed ownership, the term profits is not necessarily a helpful one. It requires careful definition. Dividends are paid out as part of a 'quasi-contractual' obligation to the household sector, at the discretion of the executive of firms. Their macroeconomic importance is in terms of distribution, not activity level. What is left as 'retained earnings' represents the firms' discretionary cash flow for investment and growth of the national productive base (Eichner 1987, p545). It is this discretionary fund that we are mainly interested in for the economic analysis of the firms sector.

'Profits' play an important role in the firms sector of the economy. They are generally regarded as the barometer of a successful and socially useful business. Presumably this is partly a view of the ability of the firm to produce desired output. Economically the importance of profits is that they allow firms a certain discretion in their future path. The additional resources acquired allow the firm to choose and purchase capital goods to enhance its future production as it sees fit. Assuming a knowledge advantage of the firm as it operates day-to-day in its own market, this should represent an efficient use of society's scarce resources. There is a conflict here with the strict neoclassical view that all resources excess to immediate consumption needs are available on a perfect 'capital market' ensuring their direction to where they

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[1] To avoid complication we have not in this diagram accounted for the fact that some production must have taken place, and therefore households employed by the firm have also received deposit transfers. This causes no additional problems as long as all wage payment is not made instantaneously.

will produce the greatest return. In this case, the retained earnings part of corporate profits would be of no significance as the direct use of saved financial capital would have a direct cost exactly equal to the opportunity cost of using retained earnings. This assumption allows neoclassical models to assume an identity between the savings of households and the economy's capital resources for investment and growth. This is an assumption with uncertain theoretical foundation:

> … [W]hat is being talked about is not a market for capital – the term connotes the set of markets in which investment goods industry sell their output – but rather a market for capital funds, or long-term credit….Once one begins to think in terms of a capital funds market rather than a 'capital market,' one must recognise that what firms must pay to obtain funds through that market is not the same as the return that can be earned by supplying it with funds. (Eichner 1987, p495)

This difference between the cost of finance and its return is because the established firm can earn quasi-rents from its intimate knowledge of its own technology and market position.

The automatic equation of household saving with the source of investment in firms' capital base in neoclassical models would appear to derive from the traditional picture of the sole trader whose income from his trading or manufacture is the excess of revenue over costs, and so in this sense is the same as his 'profits'. Any expenditure from this income devoted to building up his business would be directly at the expense of his potential income, and so it is quite correct that for such traders as a whole, their level of investment in their business is dependent on their saving. Even in this case unconsumed income might be held as gold in vaults rather than being invested in the business, so it cannot be said that saving and investment are equal in any finite time period.

In modern economies, with a clear distinction between the corporate and wage-earner sectors, the saving of wage-earners diminishes current consumption without leading automatically to increased physical capital. The holding of deposits may, at the margin, allow the issue of more loans by banks if they are short of reserves, but the deposits themselves cannot be used by the corporate sector. Other destinations for household saving include; government securities, where the money simply goes to reduce the deficit between government spending and taxation with no impact on productive capital; and the purchase of corporate bonds and shares which occurs mainly in secondary markets so that only the initial purchase price is available to firms.[2] According to monetary circuit theorists the main part of the motivation for the issue of corporate securities is actually to make up for the shortfall in loan repayment left by the holding of deposits by wage-earners. Funding of new investment for firms is mainly from retained profits.

3.2.1   Profits in a Monetary Theory of Production

If our balance sheet view of the monetary economy is the correct one, then we are faced with a puzzle in explaining the ability of firms in aggregate to earn profits. In the model of monetary flows described up to now, the most in monetary receipts that any firm or aggregation of firms can earn in any production period or complete set of production periods is that quantity which they have borrowed and subsequently expended on wages and/or capital goods. It seems that under these circumstances the firm cannot earn a monetary surplus. But does the inability to earn a monetary surplus also imply the inability to earn a profit?

> Firms employ workers and pay them money wages.
> In spending their money wages, workers gain access to a
> fraction of the output, the size of that fraction varying

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[2] Although functioning bond and stock markets are of benefit to firms in that they enable efficient trading of such securities and so may raise the value of new issues.

> according to the price they pay for goods in markets. Symmetrically, firms earn profits formed by the surplus of the price received for the goods sold over the wage-bill the firms paid out, allowing them and their backers to appropriate the complementary part of the output (Gnos 2005, p2).

In fact many proponents of the monetary circuit approach treat profit as additional real wealth acquired by firms, and it is not clear that this implies a monetary surplus.

> If we consider firms as a whole, their only external purchase is labour force. All other exchanges being external transactions, no further monetary payment is required. Only at the end of the production process firms buy capital goods to be used in the following period (Graziani 1989, p4).

Any addition to real wealth for a firm must involve pricing labour and capital inputs at lower than its output.[3] It does not necessarily follow that these price differentials are without the consent of wage-earners and capital goods suppliers. If they want to reap the social benefits of entrepreneurship and the risk-bearing services of the banks, then they have to accept the diversion of some part of output to reward at least the opportunity costs of those providing them. In this case the portion of real output retained by firms (or their owners) and banks is simply the economic profit required to keep them operating.

This leaves open the question of how it is possible for firms to purchase capital goods for money (as happens in a modern monetary economy). It can only be possible if there are both goods that are produced by the labour of wage-earners but not purchased by them, and firms have access to money to purchase them with. The pricing of goods above their wage costs (mark-up pricing) or the holding of money in the form of deposits by wage-earners will result in the first of these conditions, but not the second, since this money does not return to firms. To obtain the money to purchase goods additional to those purchased by consumers, firms must apparently

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[3] There is thus the necessity for the firms sector as a whole to enjoy market power.

undertake further borrowing without having repaid their original loan in full; a situation that if repeated will result in ever-increasing debt levels for firms.

Following from the assumption that the only expenditure of firms in aggregate is wages, and following the model of Kalecki in which consumption is determined as a residual of firms' investment (capital goods purchases) decisions, Graziani regards as the profit of firms the value of capital goods obtained in the way described above.

> [The] basic assumption [of neoclassical theory is] of an economic equilibrium determined by individual choices, with the consequent acceptance of the principle of consumers' sovereignty. In the circuit approach it is rather producers' sovereignty which prevails. (Graziani 1989, p13)

In an economy where only firms can borrow, any money received by firms must have been borrowed by firms. Thus in any period that includes both the issue and repayment of the loans that give rise to all money used in transactions considered, nominal expenditure must equal nominal receipts. Under these assumptions it is therefore not possible for firms as a whole to make a monetary surplus.

Yet capital is required to increase future output and is purchased from capital goods firms. Because of the nature of capital goods and the long-term consequences of their purchase they are undertaken in quite a different way from the purchase of labour and intermediate goods. These goods are characterised by their long planning phase, production to order, indivisibility (there is no point in building part of a new factory) and the fact that their purchase is funded for the most part from retained profits. Thus we can make the alternative assumption that their purchase is not part of the cycle in which their funding is obtained, and so retained profits are seen as a monetary surplus at the end of the current production cycle.

The picture is complicated by the fact that capital goods firms too wish to expand, and indeed they must do if the growth rate of the consumer goods sector and

the economy is to increase. So, in this case, capital goods firms *too* must accumulate a monetary surplus. What are the possible solutions?

3.2.2 The Overlapping Time-periods Explanation of Profits

Gnos rejects the Kaleckian explanation of Graziani.

> One can rightly suppose that firms borrow money from the banks and spend in advance the profits they expect to make. But this is not sufficient to solve the problem under discussion: being anticipated, the formation of profits is not explained but presupposed. (Gnos 2003, p333)

His explanation of the profits of firms (both real and nominal) is that they can arise because production processes overlap each other, although he does allow the possibility that '…although profits are gained from sales firms can spend them in advance thanks to bank loans.' (Gnos 2003, p335) The implication must be that in the real world we can never go back to the beginning of each series of transactions, and so that at any arbitrary point in time we will find firms already in possession of funds from previous circuits over and above that which they require to pay their wage bill. But as we have already argued, it should be a test of any candidate theory of money that it is able to explain the coming into being of money, and we cannot do that for the money that appears as profits. A further objection to Gnos's explanation is that it cannot account for how any given level of aggregate profits can increase over any observed period. In fact the only way they can do so if they are the only recipients of bank loans is to borrow the funds they require to purchase capital goods from other firms.

3.2.3 The Graziani Model of Profits

Graziani (1989, 2003) insists on a clear distinction between the *financing of production* and the *financing of investment*. Firms' initial finance for production must cover all the labour *and* capital costs of their plans, whether their production is of

consumer or capital goods. Once all payments have been made this finance returns to firms via the commodity or financial markets and so is destroyed as firms repay their initial debt to the banks. As it returns this money is transformed into the 'final finance' that allows firms to repay their debts, irrespective as to whether the final finance has been obtained from the sale of commodities or of securities.

Investment is only financed by the sale of newly produced capital goods. This can occur in two ways: either by the direct exchange of capital goods among firms, which they purchase with their production profits; or indirectly by the sale of securities to savers on the financial market. In this way investment always finds its final finance in saving.

The resulting distribution of income is based on the 'Keynes-Kalecki' principle, by which firms are monopolists in the market for consumer goods. As a consequence they can set their own profit margin and determine the distribution of income between wages and profits. Prices of consumer goods are set at the level that ensures that the quantity of these goods demanded are equal to the amount firms wish to produce and sell. While wage earners can spend no more in aggregate than the total wage bill, the expenditure of firms is only limited by the amount of bank credit they can obtain. We must adopt a model of the firms sector in which rather than viewing it as an integrated entity, there are multiple firms exchanging capital goods among themselves. Wage earners do not consume all of their income but save some of their income in the form of securities.

Graziani states his assumptions as follows:

> If we consider firms as a whole, their only external purchase is labour force. All other exchanges being internal transactions, no further monetary payment is required. Only at the end of the production process firms buy capital goods to be used in the following period. (Graziani 1989, p4)

This 'wage postulate' we assume to be partially true in the sense that we can regard the consumer goods and intermediate goods sectors as an integrated unit where with in the production cycle all costs end up as wages for workers within the combined sector. If only the money used to pay the wage-bill is considered, any monetary loss incurred by a single firm must be balanced by an identical profit earned by some other firm. Thus firms as a whole don't make losses or profits.

Graziani (2003) describes his model in formal terms as follows. There is a single product used both for consumption and as the capital used in production. Aggregate supply is given by

$$X = \pi N , \tag{3.1}$$

where X is the total production output of both consumption and capital goods, π is the average productivity of labour and N is total employment. Aggregate real demand Y is given by

$$Y = C + I , \tag{3.2}$$

where C is aggregate real consumption of wage-earners, and I is aggregate real investment. Since

$$C = c(wN + iB) , \tag{3.3}$$

where c is the propensity to consume of wage earners, w the money wage rate, i the percentage yield on securities (bonds and equities), and B the nominal amount outstanding of securities issued by firms; and I is given by

$$I = b\pi Np , \tag{3.4}$$

where b is the fraction of aggregate product firms decide to acquire as capital, and p is the market price of production.

Given an equilibrium between demand and supply,

$$\pi N p = c(wN + iB) + b\pi N p ,$$ (3.5)

this equation can be rearranged to give the equilibrium price

$$p = \frac{c}{1-b}\left[\frac{w}{\pi} + \frac{iB}{\pi N}\right].$$ (3.6)

Since the term in square brackets represents the total monetary cost of production (wages plus interest costs per unit of product), the factor $c/(1-b)$ represents the ratio of receipts to expenditure. This shows how, by having the power to set the price of goods, the firms sector as a whole can acquire for itself a proportion of output. Profits are thus totally independent of the abilities or performance of entrepreneurs. Profits are only due to the fact that firms as buyers with unlimited purchasing power are able to acquire the share of real product satisfying their production and investment plans. This shows that money prices do not depend on the quantity of money, but on the propensities to save and invest and on the level of money costs (wages and interest on securities) (Graziani 2003).

The average real income of wage-earners is

$$\frac{1-b}{c}\pi ,$$ (3.7)

and real consumption is

$$(1-b)\pi .$$ (3.8)

Thus both depend on the average productivity of labour and the share of total output firms wish to acquire for their own use (investment).

The rate of return on expenditure r is given by the ratio of the monetary surplus to the monetary cost of production:

$$r = \frac{\pi N p - (wN + iB)}{wN + iB} \tag{3.9}$$

$$\Rightarrow r = \frac{(c-1)(wN+iB) + b\pi Np}{wN+iB}.$$

$$\Rightarrow r = \frac{c}{1-b} - 1 = \frac{b-s}{1-b}$$

So we see how this depends on the level of money prices, but not on the interest rate for securities. As the firms aim to extract more output their rate of return increases. Thus the limit to firms' rate of return is not an economic one, but a socio-political one of how much they can enforce a lowering of workers' real wage and consumption.

For the vast majority of firms, the acquisition of a portion of their own output is of no benefit in increasing their own future output. Not only do firms generally need to exchange these 'surplus' goods with other firms for the most part the goods they wish to acquire themselves are of a particular nature. These 'capital goods' are manufactured for the most part by a particular sector of firms; the 'capital goods' sector. Parguez (2004, pp 264-266) accounts for the acquisition of capital goods by the firms sector similarly to Graziani, although he gives more emphasis to the role of banks in insisting on a particular real rate of return that the firms must adhere to this follows from the nature of firms, which exist to grow capital, and thus must make money profits. Firms borrow from the banks in two tranches or 'rounds'; one for the payment of wages which workers can exchange for a pre-determined output of consumption goods, thus allowing the firms to extinguish this debt, and one for the purchase of additional output of capital goods by the firms themselves. This allows capital goods firms to repay their debt, and leaves firms holding an additional amount of real wealth in the form of new capital goods.

Borrowing for Investment

Most circuitist writers do take the view that capital goods too are purchased with borrowed funds.

> In order to buy finished goods, firms need finance as much as they need finance for paying the wage bill in the labour market.' (Graziani 2003, p99)

Once the capital goods purchases are made, loans can be repaid by the sector as a whole. This is the source of firms 'purchasing power which is in principle unlimited.' (Graziani 2003, p100). Aggregate profits are predetermined by investment expenditures, and firms as a whole receive as profits the amount of money all of them have individually borrowed from banks as credit to carry out their bids on the future as they are embodied in their acquisition of equipment goods (Parguez 1996). The nature of the payment system in a modern monetary economy requires that initial bank finance must go toward the purchases of all types of production, both of consumption and of capital goods (Seccareccia 1996). The discrepancy between the consumer and capital goods sectors in their ability to earn a monetary surplus in the circuit means that

> The only satisfactory solution must be one in which bank loans to firms are extended so as to include the money profits to be realised in *both* sectors. (Seccareccia 1996, p407) (Our italics.)

3.2.4   The Statistical Evidence for a Monetary Surplus

There is a variety of empirical evidence that confirms that internally-generated monetary surplus is of prime importance for firms' investment. First we must examine how such surplus is calculated. For the UK national accounts, gross operating surplus for the non-financial corporate sector is derived by adding subsidies received and subtracting the compensation of employees and taxes payable on production from

value added by the sector.[4] Since it is clear that subsidies, employees' compensation, taxes and property income involve monetary transfers, we can restrict further analysis to the elements of value added. Value added is determined in the national accounts by subtracting the value of intermediate consumption from output. Since the value of intermediate consumption is determined from annual purchases inquiries we can see this too is a monetary transfer. Output includes sales of own production, changes in inventories and work in progress, output not sold on the market[5] and output retained by firms for their own final use. It is only in the latter three categories that any doubt arises as to whether monetary transfers have taken place. In the case of inventories, the national accounts specifically exclude gains from appreciating prices of inventories by calculating their value not on historic cost, but on replacement cost at the time they are used or sold. Thus we are left with the conclusion that only within the categories of output not sold on the market and output for own final use will we find 'profits' of firms that are not matched by monetary transfers.

We also find that in the UK and the US, total discretionary wealth frequently exceeds total spending on investment. For 2004 the internal funds[6] of US non-farm, non-financial corporations amounted to $940.9 billion, whereas capital expenditures were only $861.0 billion.[7] For the same year the gross disposable income[8] for the UK private non-financial corporations sector was £123.8 billion, but gross fixed capital formation only £100.3 billion.[9]

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[4] According to *UK National Accounts Concepts, Sources and Methods* (Office for National Statistics 1998).
[5] Includes sales to units within the same enterprise and payments to employees in kind.
[6] Profits + capital consumption allowance – taxes and dividends
[7] *Federal Reserve Board 2005, Z1 release, table F102*
[8] Gross operating surplus + property income – interest, dividends, taxes and transfers
[9] *National Statistics 2005, National Accounts, tables K1 and K2*

In 2003, the most recent year for which these figures are available, market output for the UK economy was £1,723.6 million (84% of total output), output for own final use £79.3 million (4% of total output and mainly produced by the household sector) and other non-market output calculated at £259.0 million (13% of total output and mainly produced by the government sector). The nature of non-market output means that for corporations it is more or less matched by costs that are subtracted from profits, but own final use must be balanced by an entry for fixed capital formation as corporations have no final consumption. Thus if we subtract output for final use from gross disposable incomes for non-financial corporations we have a measure of their monetary surplus. For 2003 this gives a monetary surplus of £108.1 billion. We are left with the conclusion that the *non-financial* corporate sector, at any rate, does indeed realise a monetary surplus at some time *before* purchases of capital goods are made in each period, which means that the funds to do so may have been held over from the previous period or may circulate more than once. This is not to say that the total monetary surplus of any period is necessarily held in money form at any time.

Moreover, it is an empirical fact (Corbett and Jenkinson 1997) that firms do not generally spend their profits in the same period as they acquire them, and they may indeed accumulate funds for several periods before making a major investment.

3.2.5 The Dual Circulation Explanation

The best explanation of monetary profit is that money is recycled to be spent on capital goods in the period between its receipt by firms and its use by the latter to pay off their debt to the banks. In theory this is possible, because any money spent by firms on goods purchased from other firms returns to the firms sector via wages of the employees of capital goods firms and so is available to repay debts. This a similar

solution to that of interest payments. In the real economy, however, there is bound to be a delay in the return to firms of the money they have spent on capital goods, and so in effect they are extending the period of their bank borrowing – which is precisely equivalent to taking out a new loan of the same quantity.

If we follow Parguez (2004), Renaud (2000), Seccareccia (1996) and Nell (2004) and divide firms into consumer goods and capital goods firms, then it is possible to account for the profits of consumer goods firms from the wage bill of capital goods firms. We can show this formally as follows. If the money borrowed by the consumer sector is M_c and this is equal to the wages of the consumer sector W_c, then assuming no saving on the part of wage-earners, then the total receipts of the consumer sector are $W_c + \pi_c^m$, where π_c^m is the monetary surplus earned by the consumer goods sector. The capital goods sector borrows M_l, and pays this out in wages W_l. Again assuming no saving, these wages are spent on consumer goods, thus forming part of receipts for the consumer goods firms. Thus

$$W_c + \pi_c = W_c + W_l,\tag{3.10}$$

and so

$$\pi_c = W_l.\tag{3.11}$$

This can account for the profits of the consumer sector in theory, although there remains an issue of timing; given the nature of capital goods as described above, how can capital goods firms start their production process *before* the consumer goods sector has realised a monetary surplus? The profits of the capital goods sector remain in any case completely unaccounted for. If consumer goods firms' profits π_c are spent on capital goods then it is clear that the capital goods firms can repay their borrowed wage bill.

To understand the role played by lending or a flow of money from a particular source, we must understand that we are dealing with a monetary economy i.e.: an economy where virtually all transactions of significance are carried out using money, and so for those transactions to take place money must be in the hands of the purchaser of a real good *immediately preceding* that purchase. This only makes sense if transactions are considered sequentially in the way that the monetary circuit approach does. The real economy consists of overlapping transactions and circuits which have started at different times, so it may seem unhelpful to isolate individual circuits. But unless we do this it is difficult to analyse how the flow of money – where it comes form and where it goes - affects the economy.

> An account of why money is held does not explain how money is used. An account of the demand by individual agents for (real) cash balances (the average demand over a period) tells us nothing about the sources and destinations of inflows or about their regularity. The approach assumes that balances are attributable to individual decisions, based on preferences, and does not consider the way agents interact with each other as they carry out their duties according to their institutional roles. (Nell 2004, p174-5)

In particular, the problem of accounting for the flow of a particular sum of money arises each time there is an *increase* in the firm's financial input that is converted into an additional profit. While we can account for a greater than one for one productive increase by a firm's position on an increasing returns portion of its production function, no such explanation can suffice to account for an incremental increase in monetary profit.

Nell explains the two-sector solution as follows. The first sector is that of the equipment sector, the second that of the consumer sector. This recognizes that ultimately, the overwhelming expense of the productive sector as a whole is spent on labour; even that of the mining and extractive sector. In the case of two sectors, it can

be postulated that the consumer goods sector earns its profits in the form of the wages paid to the employees of the equipment sector, since these must be paid to the consumer sector to acquire the means of support. Thus the consumer sector borrows to pay its wage bill, but can pay for its supply of equipment goods with the money received in payment from the workers of the equipment goods sector. The problem is thus solved arithmetically, since the initial finance borrowed by the capital goods sector to pay its wage bill passes through both sectors before returning to the equipment goods sector to allow it to repay its debt. Even this leaves the equipment goods sector without profit, so that no increase in the production of equipment can take place. The solution to the problem is that the capital goods sector is further subdivided so that each subdivision provides the profit for another until we reach the machine tools sector (Nell 2004).

A problem with this approach may be that in the real economy it is sometimes difficult to distinguish 'capital goods' and 'consumer goods' firms. Construction firms may build dwelling houses and factories; food manufacturers may supply supermarkets and plant canteens. Because of this the sequence of production is not as clear-cut as Nell suggests. Because of this we cannot be sure that money can always complete the double (or greater) circulation necessary to ensure that the consumer goods firms have their monetary surplus when their wage-bill loans come due. Thirdly Nell's conception of the machine tools sector that 'makes its own capital goods' seems somewhat far-fetched. It is unlikely that machine tools firms actually build their own factories! A more plausible explanation is that consumer firms pay more than cost price to capital goods firms, so as to share the recycling of money across both consumer and capital goods sectors.

We illustrate the dual circulation solution to profit flows in **Figure 3.7**. At **Time 0**, a £100 loan has been paid to consumer goods firm F1, and a £10 loan to capital goods firm F2. A **Time 1**, it is assumed that the capital goods firm has paid out to its employees the full value of the loan. This shows up as an addition to the household deposits of Bank A. At **Time 2**, if Firm F1 has produced enough goods, then these households can purchase consumer goods transferring their deposits to those of Firm F1. At **Time 3**, Firm F1 uses this revenue to purchase capital goods when Firm F2 has finished their manufacture. At **Time 4** Firm F1 has completed its output and sold the rest to its own employees. This allows both firms to repay all of their loans at **Time 5**.

3.2.6   Other sources of cash surplus for firms

Firms may have a cash surplus that fluctuates irrespective of profit flows. Circuit theorists in general ignore borrowing for speculative purposes and borrowing for consumption (including housing consumption) by wage-earners (Fontana 2000). However as we argued in Chapter 1, there is a potential real gain from such borrowing, so that it can fit into the triangular relationship. Clearly the uncertainty involved in speculation and the long timescale and discounting effects in the case of consumption lending mean that the expected income to repay such loans is even more fragile than that for production loans. And when speculative loans are being used to purchase existing assets rather than new ones, there is a strong risk of speculative bubbles developing, as values spiral upwards (Dow 1993). We will come back to this issue in the context of expectational failure in Chapter 6. Speculative borrowing and consumption borrowing are also important because they provide a source of additional money receipts for firms, increasing their chances of making a money

surplus. Other possible sources are zero sum transfers, so that other firms have cash

deficits and so have persisting debt or enter bankruptcy or foreign currency earnings.