

Commentaries and Applied Research for
Practitioners and Educators

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on the Farm - Working
Capital Considerations

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INVESTING AND FINANCING ON THE FARM -

WORKING CAPITAL CONSIDERATIONS

The modern farm faces many challenges in the current economy where finance and commodity markets have had a number of protective and restrictive regulations removed. More than ever modern farmers need to have effective financial management policies in place to ensure that their investing and financing practices enable them to deal with uncertainty and, at the same time, to position their operations to maximise the market value of their farming business.

The following discussion on working capital management provides a number of basic observations from financial management on investing and financing practices. These can assist in dealing with the volatilities of markets and can contribute to the profit seeking goals of the farm enterprise.

Working capital is a farm's investment in short-term assets - cash, short-term investments, accounts receivable, and inventories. Net working capital is current assets minus current liabilities. Working capital management encompasses both current assets and current liabilities and has two main functions.

1. To accommodate changes in the farm's level of trading activity caused by seasonal, cyclical, and random factors.
2. To contribute to maximizing the market value of the farm.

Working capital policy involves two basic questions:

(1) What is the appropriate investment in current assets, both in total and by specific accounts? (2) How should the required level of current assets be financed?

A. CURRENT ASSETS AND CASH CYCLE

Current asset investment requires estimates of the effects of such investments on profits. It is different to fixed asset investment in two respects:

1. Increasing the farm's current assets, while holding constant expected production and sales, but it may reduce the overall return on assets.
2. Although the levels of both fixed and current asset holdings are related to expected sales, only current assets can be adjusted to actual sales in the short run: hence, adjustments to short-run fluctuations in demand lie in the domain of working capital management.

The level and nature of a farm's current assets depend on the number and variety of enterprises on the farm, their operating cycle, the levels of sales and operating expenses, and management policy. Within a farm's normal operating cycle, seasonal sales and expense patterns cause the level of current assets to vary. Credit and inventory policies and the efficiency of current asset management will affect a farm's working capital needs. For example, a conservative farm may maintain a high level of inventory (trading livestock, chemicals, etc.), to overcome the risk of not acquiring replacement inventory in time. A more aggressive farm, on the other hand, may function with a much lower inventory investment and bear this risk.

Current assets are required to provide the liquidity necessary to allow a farm's long-term assets to generate returns. Cash flows associated with long-term investments are uncertain and irregular, and it is the unstable nature of the cash flows that makes working capital necessary. If cash flows were certain, less working capital would be required. Current assets act as a buffer between cash outflows for operating expenses and the cash receipts generated by sales.

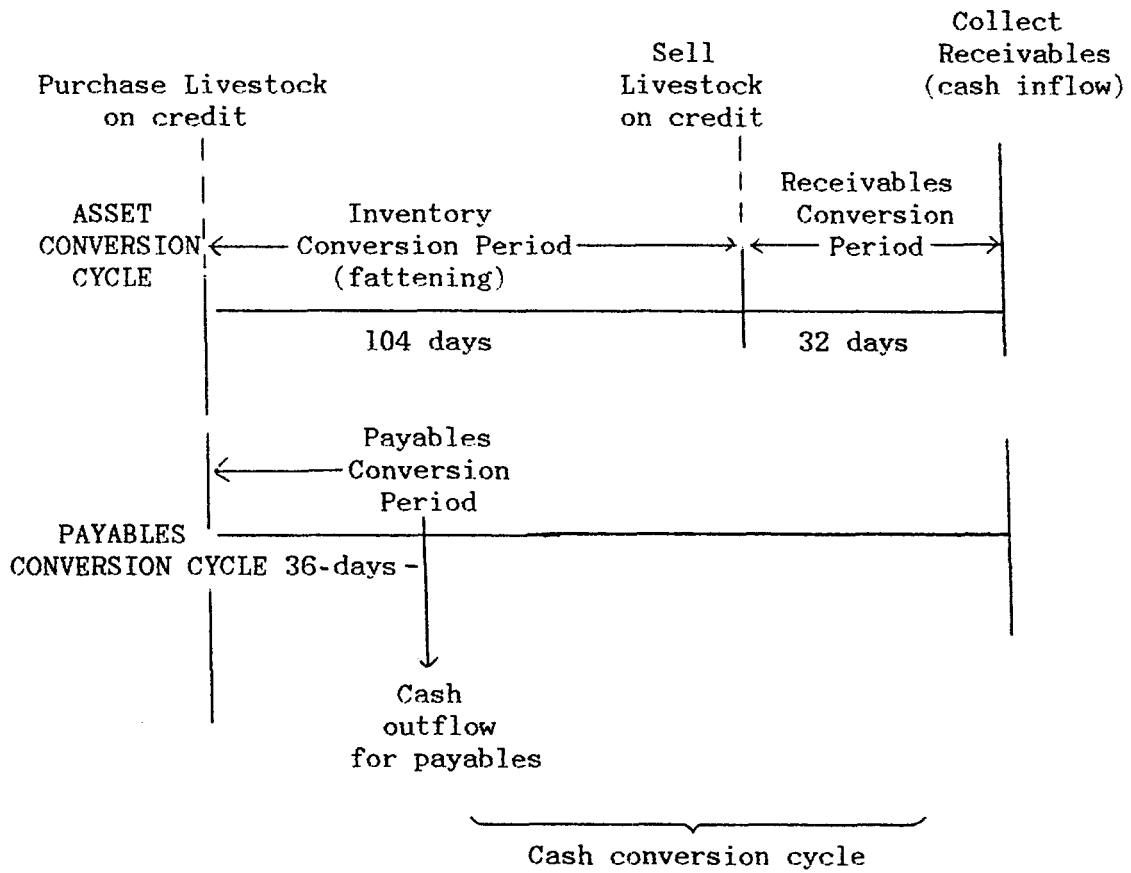
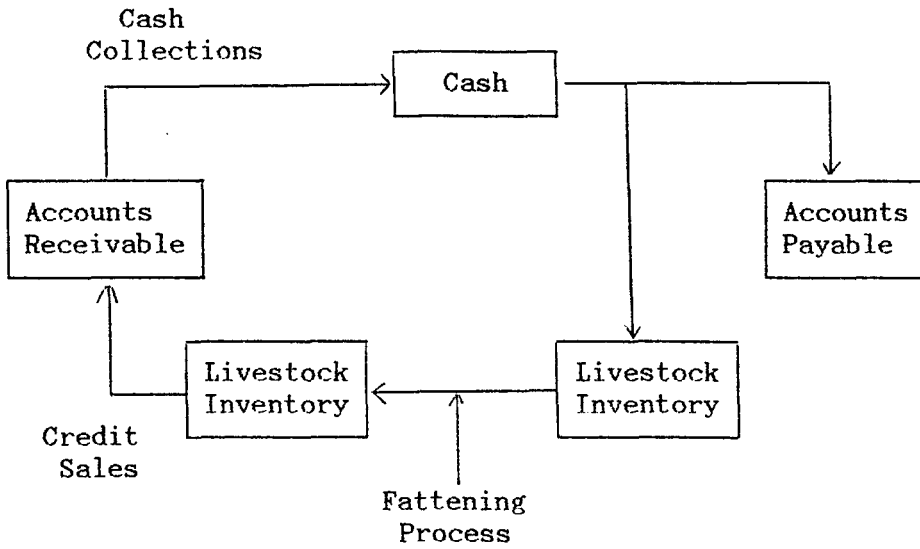
OPERATING CASH CONVERSION CYCLE

A farm's operating cash flow problem can be described in terms of the operating cash conversion cycle.

The cycle highlights the fact that current asset and current liability accounts have different life cycles and are transformed into cash flows at different rates. Referring to Figure 1 (after Rao), assume that an investment in livestock facilities is used to expand livestock trading activity. Before cash inflows from this expenditure are received, cash outflows for labour and materials must be incurred to fatten the livestock. This product may remain as inventory for months before it is sold. And, if it is sold on credit, the original cash expenditures will remain tied up in accounts receivable. Only when payment occurs does the farm finally receive a cash inflow from its fixed investment. The imbalance in cash outflows and inflows necessitates current-asset investment.

In many farming contexts, the absence of an accrual accounting system frequently means that cash conversion problems are not formally recognised. Although payables and receivables exist, they are not captured by the cash accounting system. Under such circumstances cash problems cannot be quickly identified and managed in a timely fashion.

FIGURE 1



Residual Time = (136-36=100 days)

Residual time in Figure 1 indicates that there is a deficiency in cash flow equal to 100 sales days and must be financed or a liquidity crisis will occur after 36 days. One solution is to use spontaneous sources of financing further by deferring payments to trade creditors. Most farms, however, are limited in the extent to which they can do this without adversely affecting their credit standing. One typical solution is to arrange further short-term credit, such as a bank loan, to finance the remaining current assets. This financing need could be reduced if farmers were able to use current assets more efficiently (e.g., by increasing asset turnover).

Where the asset conversion period becomes greater than 136 days without simultaneously extending the payables conversion period, additional financing over an even longer period would be required. Therefore, a longer cycle will reflect a greater investment in current-assets and an increase in the need to finance these investments with current liabilities.

Attention to reducing the cycle is critical for farms where the production process is protracted. Specialising production (e.g. fattening only) and diversifying production activity (livestock, grain, market gardens) are tactics used to reduce the average length of the cycle. Just in time strategies (supply, distribution, delivery) can also materially reduce the asset conversion period. These latter strategies require excellent trading relationships with suppliers, customers, transportation and marketing operators. Just in time supply has been successfully used by small aggressive stock and station agents who have scheduled and coordinated farm clients to obtain supply of farm inputs at the appropriate time in the production cycle.

Further elaboration of the cash cycle and its relation to other cash flows on the farm are shown in Appendix.

FLUCTUATING CURRENT ASSETS

Each current asset has a base level and this level of investment fluctuates with the rate of cash inflow and outflow. At any point in time, a minimum level of investment will always be needed if the farm is to continue its operations. This continuous level of current assets is referred to as permanent current assets. A portion of the current assets, however, will be temporary and will fluctuate over the farm's operating cycle. The degree of fluctuation will depend on the rate of change in sales and expenses.

The division between temporary and permanent current assets has important implications for deciding a farm's working capital policy.

B. RISK AND RETURN IN DECISION MAKING

The uncertainty and irregularity of a farm's cash inflows requires a margin of safety in liquidity. This margin of safety can be provided by increasing the proportion of liquid assets and or lengthening the maturity schedule of its financing sources. Both strategies affect liquidity risk and returns. More current assets lead to greater liquidity but normally represent lower-yielding investments. Long-term debt usually has a higher explicit cost but lower risk than does short-term debt, which involves some debt sources (trade and other creditors) with zero interest cost.

A main consideration in developing an overall working capital policy is the risk-return trade-off associated with:

1. The appropriate mix between current and fixed assets.
2. The appropriate mix between short and long-term financing required to fund the current-asset investments.

ASSET MIX DECISION

Table 1 (after Rao) shows a farm with two different working capital plans. They differ only with regard to the level of current assets.

The higher investment in current assets is financed by owners' equity. (this allows reported income to be unaffected by how the investment is financed). Referring to Table 1, it can be seen that as the percentage of total assets invested in current assets decreases from 33.3% to 20%, the various measures of liquidity indicate that the farm becomes less liquid. The net working capital position falls from \$30,000 to \$10,000, while the current ratio drops from 4:1 to 2:1 providing a higher risk of illiquidity because net working capital and the current ratio are relatively lower.

The conservative policy provides a 37.5% return on equity, while a more aggressive stance gives a 50% return on equity. Therefore, a relatively higher level of current assets produces a favourable effect on liquidity, but only at the expense of reducing the rate of return on equity.

Trends in asset management have also concentrated on the problem of ownership of and level of investment in fixed assets. The challenge is to use (not necessarily own) assets to generate cash flows. Many balance sheets have literally shrunk as firms rent, lease, hire, co-venture production assets and pledge cash flow not assets as collateral. Such strategies impact on return on equity but reduce risk exposure to costly assets that are frequently subject to low and/or sporadic utilisation. These

strategies have been employed by many farmers who see great advantages in low commitments to asset ownership. Frequently the implied rate of interest in asset leasing, renting or hiring deals are below rates currently offered in the market and help to reduce funding costs.

Current asset management, as previously noted, has benefited from just in time strategies which have lowered investments in receivables and inventories. More efficient trading relationships with produce agents and dealers have also improved the cash conversion cycle.

TABLE I

	Conservative Asset Policy (Lower Risk; Lower Return)	Aggressive Asset Policy (Higher Risk; Higher Return)
Balance Sheet Effects		
Current assets & trading livestock	\$ 40,000	\$ 20,000
Fixed assets & breeding livestock	80,000	80,000
Total	<u>\$ 120,000</u>	<u>\$ 100,000</u>
Current liabilities	\$ 10,000	\$ 10,000
Long-term debt	30,000	30,000
Equity	80,000	60,000
Total	<u>\$ 120,000</u>	<u>\$ 100,000</u>
Income Statement Effects		
Net income	\$ 30,000	\$ 30,000
Measures of liquidity	Decreasing Liquidity	
1. Percent current assets	33.3	20.0
2. Net working capital	\$ 30,000	\$ 10,000
3. Current ratio	4:1	2:1
Measures of profitability	Increasing Profitability	
Rate of return on equity (book value)	37.5%	50.5%

FINANCE MIX DECISION

A farm's overall working capital policy is also determined by the mix of short and long-term financing used to finance current assets. Normally, the cost of using short-term credit is less than the cost of long-term debt. Trade credit often has no explicit cost and the interest rate on short-term debt such as bank loans may be less than the interest rate on long-term debt. The level of short and long-term rates will depend on market movements of interest rates - recent times have seen short term rates higher than long term rates.

More reliance on short-term debt and supplier credit has a greater risk of illiquidity. There is always the possibility that a farm may not be able to refinance its short-term debt and/or access further credit. Also, short-term and penalty interest rates vary more than long-term rates. and therefore cash outflows for interest expenses will be more variable.

Table 2 (after Rao) shows the effect of the farm's financing mix on its risk and returns, using the conservative asset policy in Table 1 but holding constant the investment decision (i.e., the percentage of current assets to total assets is fixed). As Table 2 shows, the conservative financing policy uses 16% long-term debt to support the current-asset investment, while the aggressive policy calls for an increase in short term bank loans (20%) and more supplier credit. The table indicates that the more conservative policy has a higher level of liquidity, as evidenced by a higher net working capital position (\$30,000) and current ratio (4:1). However, because this policy uses more costly (overall) debt, net income is less and hence return on equity is lower than under the aggressive policy. The aggressive approach exposes the farm to loan and credit renewal problems and the risk of having interest expense rise quickly if interest rates rise.

The frequent financing problem faced by farms is that their level of debt (leverage) is inappropriate to the riskiness of the assets commonly employed in farm enterprises. The variability of cash flow from these assets cannot sustain high leverage positions. Comparable operations in servicing and manufacturing (i.e. for the same risk class of assets) reveal leverage positions of 30%, not 30%-50% commonly found in New Zealand farms. A quick test to establish whether a farm's finance structure is sustainable is to compare its ratio performance to the following ratios which indicate a highly-rated commercial business operator (as set by a credit-rating agency).

Interest Coverage Ratio	5 times
Fixed Charge Coverage Ratio	3.5 times
Cash Flow/Total Debt	55%
Long Term Debt/Market Value	25%
Cash Flow/Long Term Debt	65%

In planning asset and financing structures farm managers may reference such indices and plan to take actions to achieve ratios which induce more favourable terms for borrowings.

TABLE 2

	Conservative Financing Policy (Lower Risk; Lower Return)	Aggressive Financing Policy (Higher Risk; Higher Return)
Balance Sheet Effects		
Current assets & trading livestock	\$ 40,000	\$ 40,000
Fixed assets & breeding livestock	80,000	80,000
Total	<u>\$ 120,000</u>	<u>\$ 120,000</u>
Accounts payable	\$ 10,000	\$ 25,000
Loan payable - bank (20%)	0	15,000
Current liabilities	<u>\$ 10,000</u>	<u>\$ 40,000</u>
Long-term debt (16%)	30,000	0
Equity	80,000	80,000
Total	<u>\$ 120,000</u>	<u>\$ 120,000</u>
Income Statement Effects		
Net Operating income (NOI)	\$ 64,800	\$ 64,800
Less: Interest expenses	4,800	3,000
Taxable Income	<u>\$ 60,000</u>	<u>\$ 61,800</u>
Less: Taxes (30%)	18,000	18,540
Net Income	<u>\$ 42,000</u>	<u>\$ 43,260</u>
Measures of Liquidity		
1. Percent current assets	33.3	33.3
2. Net working capital	\$30,000	0
3. Current ratio	4:1	1:1
Measures of profitability		
Rate of return on equity	65.0%	68.0%

C. FINANCING TACTICS AND WORKING CAPITAL POLICIES

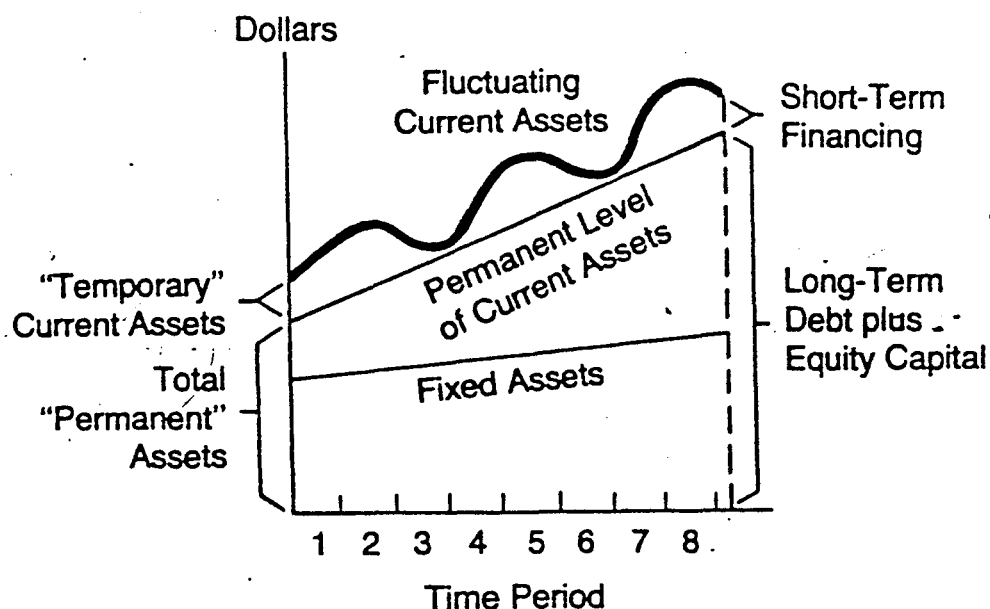
The following policies illustrate some conventional ways of looking at financing working capital and has been cast in a farm context.

Matching Policy

Figure 2 shows the outline of the matching policy. Temporary current assets are funded by spontaneous sources of financing (such as payables, creditors) and short-term borrowings; permanent current assets and fixed assets are financed by long-term debt and equity.

The matching policy assumes unrealistically that the cash flow pattern of a farm is known with certainty. It also assumes that farmers can readily predict at any time the life cycle of all assets. Compounding the problem are the uncertain borrowing costs and the possibility that adequate credit may not be available when needed. The operating conditions of farms and their markets make this policy virtually unattainable.

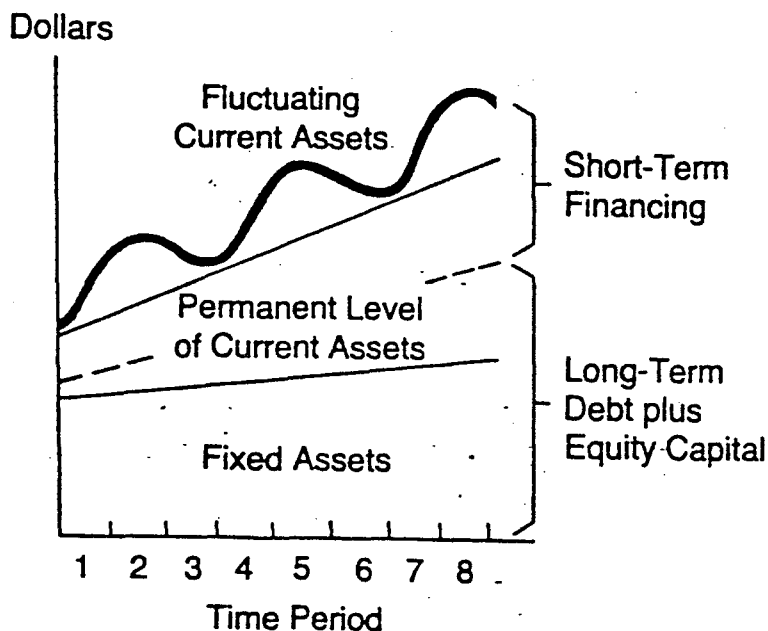
FIGURE 2
(after Weston and Brigham for figure 3 & 4)



Aggressive Policy

An aggressive policy occurs where current liabilities finance temporary and part or all of permanent current-assets (Figure 3). This strategy may increase the risk of illiquidity where the farm has to refinance its short-term loans (at unpredictable interest rate) and gain access to further lines of trade credit. Internal or external events can quickly bring about a liquidity crisis by causing adverse movements in cash flows.

FIGURE 3



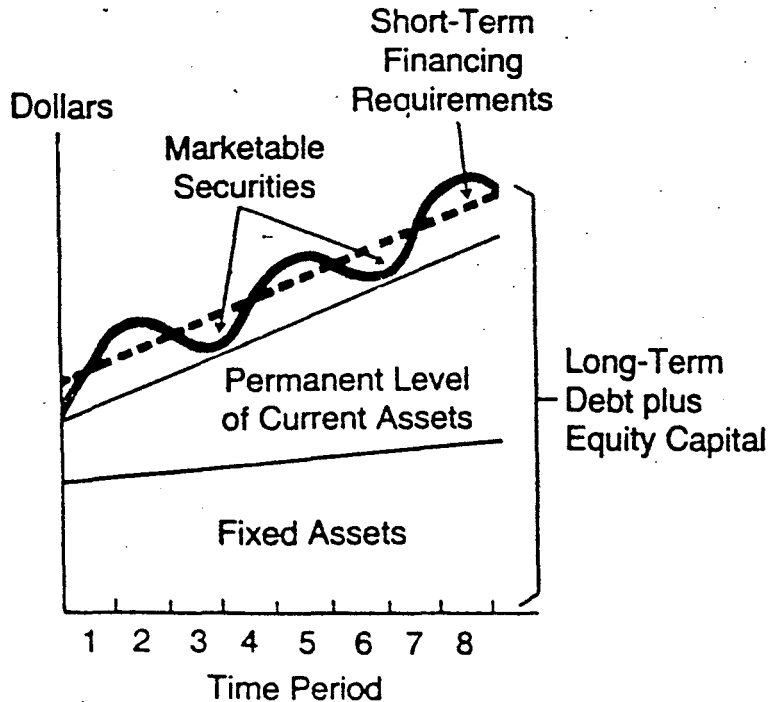
Conservative Policy

The impracticalities of implementing the previous policies cause prudent farmers to opt for a compromise position - termed a conservative policy. A farm adopting this policy balances the trade-off between risk and profitability in a manner consistent with its attitude toward bearing risk.

As illustrated in Figure 4, long-term financing is used to support permanent current assets and part of the temporary current assets. Short-term credit is used to cover peak seasonal needs. This implies that as any seasonal borrowings are repaid, and surplus funds are invested in marketable securities.

This policy has the advantage of providing a margin of safety. If temporary needs for current assets exceed management's expectations, the farm will still be able to use unused short-term lines of credit to fund them. Similarly, if the contraction of current assets should be less than expected, short-term loan payments could still be met but less surplus cash would be available for investment in marketable securities. A conservative policy will demand more time and effort in monitoring and adjusting the mixes of finance and assets.

FIGURE 4



For farms adopting a sustainable commercial approach a conservative policy for risky assets would require long term financing to be largely composed of farmer's equity. The long-term debt component would need to be limited to 25% to 30% of the market value of the farm with the associated interest coverage ratio around 3 to 4 times.

D. CONCLUDING COMMENT

The observations above offer insights into the risk - profitability trade-off inherent in a range of different farm investing and financing decisions. The greater the uncertainty regarding the size and timing of cash flows associated with sales the higher the level of working capital. It was also seen that the cash conversion cycle will influence a farm's working capital policy and the degree of reliance on permanent financing.

The management of working capital is an ongoing responsibility that involves many interrelated decisions about the level and financing of farm current assets. The considerations and general guidelines offered should be useful in establishing working capital policies on farms adopting commercial approaches to production.

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APPENDIX

Flow of Funds Through the Farm

