

Statements of Cash Flow & Analysis of Ratios



AS WE HAVE ALREADY DISCUSSED, THE INCOME statement by itself only hints at the cash-flow story. It offers no insight into where cash came from or how it was used, recording only two structural elements, revenue and expense, which track flows of value, not cash. The cash-flow statement integrates the income-statement data with the additional information provided by the balance sheets to get the full story. Note that *balance sheets* here is intentionally plural—double the fun. The cash-flow statement tracks the underlying cash events behind the balance sheets and income statement, whose accrual numbers present only an *as though* cash truth. The statement of cash flow offers actual cash truth.

To prepare a cash-flow statement, you need three things: a starting balance sheet, an ending balance sheet and an income statement for the time in between. With these statements, you can adjust each major-value line item from the income statement by the *change* in its most closely associated balance-sheet items to determine what actually happened in cash terms. By such adjustments, you undo the misleading *as though cash* assumption built into accrual-based accounting systems. For example, let's look at Jones Dynamite Co. for the second quarter of 2000, ending 6/30/00.

2nd quarter sales (per income statement)	\$2,125,500
+ Beginning accounts receivable (per 3/31 balance sheet)	\$1,275,500
	(assumed paid in 2nd quarter)
- Ending accounts receivable (per 6/30 balance sheet)	\$1,365,500
	(not yet collected)
= Cash from sales in 2nd quarter	\$2,035,500

To complete the cash-flow statement, you would proceed line by line, capturing all the changes in the income statement's and balance-sheets' elements, showing where cash came from and how it was used during the accounting period. The process follows the income-statement sequence as though everything had been settled in cash *but then immediately reverses* the misleading *as though* assumption. This reversal requires that every income-statement line item be adjusted for the period-to-period change in the related balance-sheet line items. Let's examine that adjusting logic more closely.

The Cash-Adjusted Income Statement

The process of creating the cash-flow statement starts at the top of the income statement with the accrual-based sales number as the first step toward getting the actual *cash from sales* figure, as in the example above. This cash-adjusted income statement is the most logical form for a cash-flow statement. It's *cash-adjusted* in the sense that we always presume that an increase in an asset or a decrease in a liability or net-worth account represents cash flowing out, and vice versa. Let's examine that plus-and-minus logic a bit more closely. As we do, look at the Uniform Credit Analysis® (UCA) cash-flow worksheet on pages 52 and 53. This format is recommended by the Risk Management Association, the primary trade group for commercial bankers. Bankers succeed in business largely by getting back the money they lent, so their interest in cash flow is intense. To help ensure success, they have standardized this interrelating of balance sheet and associated income-statement line items to create what I think is the most

useful of the available cash-flow-statement formats.

In a pure cash system, the only way to get anything that might be considered an asset is to buy it for cash, and the only way to reduce a debt is to pay it off in cash. The only way to decrease net worth is to pay it out as a dividend or lose it through a negative net-profit figure. The consequence of such direct-cash happenings is that all increases in assets and all decreases in either liabilities or net worth between balance-sheet dates necessarily imply cash outflows. For that reason the cash-flow statement adjusts the related income-statement line from *both* ends of the time horizon—that is, the starting and ending balance sheets. Note, too, that opposite movements in these balance-sheet items imply cash flowing *in* so that, for example, a decrease in the asset *inventory* from one balance sheet to the next implies that cash came in in an amount equal to the excess of inventory use (to meet customer orders) over inventory acquisition.

While the balance sheet and income statement are constructed—that is, built up from the transaction level as sales and other business events are recorded in a journal and then successively carried over to ledgers, trial balance sheets and finished statements—the cash-flow statement is deconstructed. Instead of assembling a cash flow from the ground up, the balance sheet and income statement are deconstructed into their components, then rearranged to tell the story of cash flow from pieces that were originally put together to tell the story of value flow. Knowing and understanding the value-flow story is important, of course, but it is incomplete without an understanding of the cash-flow story.

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BOX 4-1

Uniform Credit Analysis® Cash-Flow Worksheet

ACCOUNT TITLE	LOCATION	CASH IMPACT	
Sales	Income statement	(+)	\$ _____
Accounts receivable	Balance sheet	decrease (+), increase (-)	_____
Cash from sales			_____
Cost of goods sold (COGS)	Income statement	(-)	_____
Depreciation in COGS*	Income statement	(+)	_____
Inventory	Balance sheet	decrease (+), increase (-)	_____
Accounts payable	Balance sheet	increase (+), decrease (-)	_____
Cash production costs			_____
Cash from sales - Cash production costs = Gross cash profit			_____
Selling, General & Administrative Expense (SG&A)	Income statement	(-)	_____
Depreciation & amortization in SG&A*	Income statement	(+)	_____
Prepaids & deposits	Balance sheet	decrease (+), increase (-)	_____
Accrued liabilities	Balance sheet	increase (+), decrease (-)	_____
Cash Operating Expenses			_____
Gross cash profit - Cash operating expenses = Cash after operations			_____
Other income	Income statement	(+)	_____
Other expenses	Income statement	(-)	_____
Other current assets	Balance sheet	decrease (+), increase (-)	_____
Other current liabilities	Balance sheet	increase (+), decrease (-)	_____
Other assets	Balance sheet	decrease (+), increase (-)	_____
Other liabilities	Balance sheet	increase (+), decrease (-)	_____
Miscellaneous cash income/expenses			_____
Tax provision (benefit)	Income statement	benefit (+), provision (-)	_____
Income tax refund receivable	Balance sheet	decrease (+), increase (-)	_____
Deferred tax benefit (asset)	Balance sheet	decrease (+), increase (-)	_____
Income taxes payable	Balance sheet	increase (+), decrease (-)	_____
Deferred taxes payable	Balance sheet	increase (+), decrease (-)	_____
Cash taxes paid			_____
Cash after operations + Miscellaneous cash income ÷ expenses + Cash taxes paid = Net cash after operations			_____
Interest expense	Income statement	(-)	_____
Dividends or owners' withdrawal	Income statement	(-)	_____

Dividends payable	Balance sheet	increase (+), decrease (-)	_____
Financing costs			
Net cash after operations – Financing costs =	Net cash income		_____
Current maturities long-term debt (prior year)	Balance sheet	(-)	_____
Current capital lease obligation (prior year)	Balance sheet	(-)	_____
Scheduled debt amortization			
Net cash income – Scheduled debt amortization =	Cash after debt amortization		_____
Fixed assets, net	Balance sheet	decrease (+), increase (-)	
Intangibles	Balance sheet	decrease (+), increase (-)	
Depreciation and amortization*	Income statement	(-)	
Capital spending, net			
Investment	Balance sheet	decrease (+), increase (-)	_____
Total capital spending and investment, net			
Cash after debt amortization – Total capital spending and investment, net =	Financing requirement		_____
Short-term debt	Balance sheet	increase (+), decrease (-)	_____
Long-term debt (excluding prior year's current maturities)	Balance sheet	increase (+), decrease (-)	_____
Preferred stock	Balance sheet	increase (+), decrease (-)	_____
Common stock	Balance sheet	increase (+), decrease (-)	_____
Paid in capital	Balance sheet	increase (+), decrease (-)	_____
Treasury stock	Balance sheet	decrease (+), increase (-)	_____
Total Financing			
Financing requirement – Total financing =	Calculated change in cash		_____
Cash & equivalent	Balance sheet	increase (+), decrease (-)	_____
Marketable securities	Balance sheet	increase (+), decrease (-)	_____
Actual change in cash			
Calculated change in cash =	Actual change in cash		_____

* Note: Where necessary details regarding depreciation and amortization are not provided on the face of the income statement, you may have to refer to footnotes and/or the statement of changes if provided.

We need both melody and harmony. There are actually some real limitations to looking only at cash-flow issues and cash-flow statements. If cash flow were the only issue of significance,

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no one would bother with the other statements. You could manage solely by the company's checkbook, in which cash is what it is at any given moment. This, of course, assumes that all receipts and disbursements are entered there on an accurate and timely basis just as with your personal checking account. Of course, few businesses run on such a cash in/cash out basis. Having the additional insights that come in the form of balance-sheet and income-statement data, though,

readily offsets most of the cash-flow-only limitations.

The two most significant things that balance-sheet and income-statement data add to cash-flow information have to do with time horizons. First, balance-sheet dollar figures for items such as inventory and accounts receivable give important insights into likely near-term cash flows. As the business continues its normal cycle of converting inventory to sales to receivables and back to cash again, the inventory and receivables values set expectations for the cash flows from those primary sources. Suppose, for example, that your wholesale auto-parts business has:

- \$100,000 in inventory;
- \$200,000 in accounts receivable with gross margins of 50%;
- SG&A at 40%;
- 90 days' worth of inventory; and
- 45 days of receivables and payables

You can quickly estimate next quarter's approximate level of cash flow from these elements. Here's how: One business quarter is 90 days, so receivables at 45 days turn twice in that period, yielding cash in from receivables of $2 \times \$200,000 = \$400,000$. But receivables from new sales at the same selling

rate immediately reverse that cash in for a net of zero—although you collect \$400,000 from customers in that 90-day period, you also extend another 90 days worth of credit in the same period. However, you do hold on to half of the \$400,000, in the form of 50% gross margins totaling \$200,000. From that \$200,000 in cash gross margin, you pay out 40% of the \$400,000 in sales for SG&A expenses totaling \$160,000. That leaves you with a net of \$40,000 to cover interest expense, taxes, dividends and capital expenditures. And, this assumes no growth in sales, in which case additional cash would be needed to support net growth in receivables and inventory.

The date of the actual payment for transactions is not particularly important for balance sheet and income statement design. Cash-flow statements are where we deal with the payment realities.

The second perspective on timing that traditional balance-sheet and income-statement data add to what cash-flow analysis provides is rooted in the accounting principle known as *matching*. According to this principle, costs associated with producing revenue are matched to the time period in which the revenue-generating activity takes place. The date of the actual payment for these transactions is not particularly important for balance-sheet and income-statement design. Cash-flow statements are where we deal with the payment realities.

Other Cash-Flow Formats

In addition to the cash-adjusted income statement represented by the UCA (Uniform Credit Analysis®) cash-flow-statement format, there are two other generally accepted patterns. Both have been defined by the American Institute of CPAs (AICPA) and balance, as does the UCA format, to the actual change in cash during the period. The AICPA's Financial Accounting Standards Board's (FASB) two alternative cash-flow statement formats are presented in the boxes on pages 56 and 57 as the playfully descriptive Direct and Indirect methods.

Each format begins with cash flow from operating activities, moves through to cash from investing activities and final-

BOX 4-2

Cash Flow: Direct Method**Cash flows from operating activities**

Cash from sales	\$33,506,676
Cash production costs	(28,794,388)
Cash operating expenses	(3,186,992)
Interest expense, net	(544,082)
Taxes paid	(31,346)
Misc. cash income/expense	82,024

Net cash provided by operating activities **\$41,094,584**

Cash flows from investing activities

Capital spending/long-term investments	\$ (676,739)
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Net cash used in investing activities **\$ (676,739)**

Cash flows from financing activities

Change in short-term financing	\$(572,376)
Change in long-term financing	(29,082)
Change in equity	171,069

Net cash from financing **\$(430,389)**

Net increase in cash **\$ (12,544)**

Actual change in cash **\$ (12,544)**

ly to cash from financing activities. The *direct* method begins at cash from operating activities starting with cash from sales, whereas the *indirect* method begins with net income. The direct method has the advantage of being a better parallel with the actual operational flow of the business. The indirect method is preferred by some because of its more traditional approach that is rooted in a well-established accounting rule of thumb for cash-flow estimation, whereby net income and depreciation (as well as any other expenses that have no direct cash implications) are added together. In both the direct and indirect methods, there is a line called *cash from operating activities*, which is generally identical to what is called *net cash income* on the UCA cash-flow format. When this operating cash-flow number is reduced by capital expenditures, the result is referred to as *free cash flow*. That term is worth noting for its content value as well as because it is one of the few reasonably

BOX 4-3

Cash Flow: Indirect Method

Net income	\$223,308
Adjustments to reconcile:	
Depreciation, amortization	\$338,233
Fixed asset adjustment	(12,411)
Undistributed earnings	(52,136)
Change in accounts receivable	(197,442)
Change in inventory	(46,298)
Change in prepaids	37,905
Change in other current assets	12,243
Change in account payable	372,267
Change in accrued liabilities	226,471
Change in other current liabilities	140,000
Change in non-current income	52,444
Net cash provided by operating activities	\$1,094,584
Cash flows from investing activities	
Capital spending/long-term investments	\$(676,739)
Net cash used in investing activities	\$(676,739)
Cash flows from financing activities	
Change in short-term financing	\$(572,376)
Change in long-term financing	(29,082)
Change in equity	171,069
Net cash from financing activities	\$ 430,389
Net increase in cash	\$(12,544)
Actual change in cash	\$(12,544)

well accepted terms in the field of cash-flow analysis; it is essentially identical to cash after debt amortization from the UCA cash-flow format.

The basic idea behind the starting point of the indirect method is that net income in a stable world ought to be available in cash. The main exception would be an adjustment for those expenses incurred for accounting purposes though not involving an actual *expenditure* during the period. Examples include depreciation, depletion, amortization and a variety of expenses *reserved for*, such as future warranty costs. Since these not-yet-spent costs have already been subtracted in calculating

net income, the idea is that they need to be *added back* to get cash flow.

But under what circumstances does the traditional “cash flow equals net income plus depreciation” rule of thumb actually work? The answer is that it is absolutely accurate under

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only one set of circumstances. It works only under conditions of absolute structural stability, when every balance sheet and income-statement line item remains perfectly proportionally the same. (or if whatever changes do take place should happen to offset one another exactly). This implies a world of either great stability or incredible coincidence. Neither is a typical business experience.

In the 1950s, when many of today’s retiring senior executives were being educated, the American business scene was much more stable. Over the years, however, the pace of business has accelerated and become subject to many more changes, both internal and external.

Options have multiplied, the range of competitors has expanded, the rate of new-product introduction has exploded, and the role of foreign firms in the array of suppliers, customers and competitors has gone beyond anything the manager of the ’50s might have imagined. We have seen and will continue to see new kinds of business combinations and techniques as adaptation to changing technology and conditions continues. Integration vertically, horizontally and otherwise will ebb and flow. Conglomeration in various forms and guises will recur. New cross-border and cross-technology combinations will develop. Distribution-channel patterns and industry definitions are shifting in response to deregulation, technology and consolidation. Rules of thumb based on assumptions of stability, therefore, have become downright dangerous in most cases. With this as background, let’s now examine the case for the use of the UCA Cash-Flow Statement over the FASB direct or indirect methods that we have also considered.

Why the UCA Cash-Flow Format Is Preferred

The UCA format was developed in the 1970s by Wells Fargo Bank and promulgated through the banking industry by Robert Morris Associates (now the Risk Management Association), which operates to exchange both information and insights regarding commercial-lending activity. The problem that bankers were addressing was basically one of movement from stability to nonstability. Better tools were needed to analyze the creditworthiness of borrowers in a more complex world in which the old rules of thumb were no longer reliable.

One of the signal examples of the need for new accounting tools was the W.T. Grant debacle. Long an American retail institution, this huge company had undergone a series of changes in performance, strategy and environmental pressures that created an enormous gap between traditional rule-of-thumb cash flow and true cash flow. The big, prestigious money-center corporate lenders who had a piece of the W.T. Grant debt package were focused on the rule-of-thumb cash-flow number and were badly thrown when the company declared bankruptcy. (Like many things in life, though, bankruptcy can be more or less severe depending on circumstances. Later in this chapter, we will take a look at the two basic types of bankruptcy both as a warning and as another perspective on the centrality of cash-flow management.)

The UCA cash-flow format was designed primarily with the lender in mind. A major advantage for the lender is that it focuses on net-cash income to determine whether the company is liquid on an operating basis. A current ratio or a quick ratio tries to answer that question from a static balance-sheet point of view by relating current assets to current liabilities. But bankers also need to know the answer from an operating perspective. That is to say, did the enterprise cover all cash operating costs and outflows and pay interest on its debt from internally generated fuel? If the net-cash income line on the UCA cash-flow statement is positive, the answer is yes. The same is true of the net cash from operations lines on the other two cash-flow statement formats.

A lender is even more interested in there being a clear enough and large enough expectation of a "yes" at the net-cash

income line over the coming periods to ensure debt repayment as scheduled. If net-cash income isn't positive in the historical analysis, there may be little reason to think it will be in the future. Most first-rate lenders today expect to see reasonable

The UCA format is helpful to virtually anyone looking at the firm, not just lenders. That's because it is a cash-adjusted income statement, making it both familiar in its flow sequence and logical in its exposition of how the company normally operates.

business projections that show positive net-cash income adequate to service proposed debt. Another key focus of the UCA format, but one not satisfactorily covered in either of the other formats, is the line called *cash after debt amortization*. This shows whether the company was able to repay debt as scheduled from internally generated sources.

The UCA format is helpful to virtually anyone looking at the firm, not just lenders. That's because it *is* a cash-adjusted income statement, making it both familiar in its flow sequence and logical in its exposition of how the com-

pany normally operates. When you are approaching lenders, it is always helpful to have information in the form that most directly addresses their concerns. And positive cash projections at the cash-after-debt-amortization line on the UCA cash-flow statement give a positive answer to their critical concern about whether the company prospectively can generate enough cash to pay actual or projected debt as scheduled. This assumes, of course, that the cash-driver assumptions behind the projections are believable.

Long-Term Viability & Cash Flow

Revenue growth is a positive sign of your organization's ability to meet a societal need. Growth, therefore, represents some *prima facie* evidence that your organization is doing something worthwhile. But there is a check on this process. The check is sustainability, the power to keep on going. Cash flow is the way that this check becomes active. No cash, no go. If your customers, prospects, supporters,

patrons, taxpayers or whoever provides your revenue don't provide enough of it, in cash, to cover your costs quickly enough, the organization must radically change. Your company must retrench, merge, sell off assets or otherwise stop being what it was and either curtail its operations or rethink its viability.

There is an old saying that if you don't know where you are going, any road will get you there. A great many businesses operate by that concept. The majority, fortunately, do not. But even in those businesses with a fairly clear plan of where and how they are moving, the cash dimensions of that forward motion are

often still pretty fuzzy. It is a rare business in which all the key people know where their firm is headed, why it is taking that particular direction, and what the cash implications of that movement actually look like. If top management is the only place where that information and sensitivity reside, there will be a lack of focus and energy as many key people below that level wander along other roads.

At the very least, management owes it to the business owners and to every key management and supervisory employee to define a set of cash-driver objectives. These should be well communicated, achievable and logically explained in terms of the individual's job description and sphere of influence. When this occurs, the organization is optimally positioned for growth—not just sales growth, which is not necessarily a good thing, but real growth—an increasing rate of growth in the firm's value. Stated another way, key employees who understand the cash-flow goals and implications of their choices will almost always maximize the company's total economic value. That value is ultimately rooted in the ability to generate increasing cash flows over the long term.

Positive cash flow is the measure of sustainability even in the public sector and in nonprofit organizations. Excess cash may come directly from operations, or be provided by people or organizations who value what an organization does enough to keep it supplied with the fuel to keep things running. In

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business, those people are the customers. In the public sector they are primarily taxpayers or other political constituencies. In nonprofit organizations, they are usually a combination of users and donors. Regardless of your work setting, cash flow remains the bottom line

Other Measures of a Company's Well Being

With all of this emphasis on cash flow, you may well wonder about other tests, measures and signs of an organization's well-being. Should you disregard more traditional methods of analysis and consider only cash flow? Certainly not. Profitability is still important. How efficiently you utilize your assets needs to be addressed. Questions of leverage regarding how well you use your funds still need to be answered. And clearly, of course, you must be intensely concerned about liquidity in order to quantify the ability to meet short-term financial obligations. These four traditional categories for general financial evaluation—which can be conveniently remembered using the acronym PELL for Profitability, Efficiency, Leverage and Liquidity—all also have cash-flow implications.

Profitability

The simplest way to think about profitability for cash-flow purposes is to focus on three elements: gross margin, operating-expense ratio and rule-of-thumb cash flow. Let's take the last item first. Because of the unusual simplifying assumptions as to stability that rule-of-thumb cash flow requires to be an adequate measure, I recommend its use only in one very restricted circumstance—with those rare companies in which the cash drivers are virtually the same from year to year.

The two other profitability measures are ones already identified as cash drivers: gross margin as a percentage of sales, and operating expense (SG&A) as a percentage of sales. Whatever

money remains from each sales dollar after paying cost of goods sold and SG&A is called *cushion*. Cushion is what's left from the business to pay your three most important constituencies: your banker, your government and your stockholders. If margins should erode for reasons beyond your control, cushion can perhaps be shored up by better control of SG&A. Conversely, if SG&A is unavoidably increasing, you can look to gross margin to make up the difference either via pricing or via production and purchasing efficiencies. Maintaining cushion is critical or you'll risk your ability to meet the needs of those three constituencies. Let's look at the long term for Woody's Lumber on a common-sized basis going back to 1989 and tracking through to 2000.

SALES	100%
Less: cost of goods sold	(52)%
Leaves: gross margin	48%
Less: operating expense (SG&A)	(30)%
EQUALS: cushion:	18 %
Less: interest expense (your banker)	(5)%
taxes (your government)	(4)%
dividends (your stockholders)	(4)%
NET INCOME (after taxes and dividends)	5%

Woody's cushion—what was left from each sales dollar after paying cost of goods sold and SG&A—immediately began to shrink, year by year, from the 18% shown above. Over the next five years, from 1990 to 1994, the cushion dropped to 10.5% at an average rate of 1.5 percentage points annually. Interest and dividends stayed about the same, and taxes dropped because of the net-income drop. There are lots of possibilities that might explain what was happening, of course, but the problem in this case was *not* primarily one of operating management.

In Woody's case those responsible for the day-to-day operation of the business were doing excellent work under deteriorating market conditions, in a soft economy and with significant new competition. They tried reducing SG&A and increasing gross margins with little success. The real problem was not

operating management but senior management. (In your company, the two management categories may be the same group of people, but that is not the issue. The issue is the quality of the job being done in each category.)

Senior management's job is to stay ahead of the curve, to insure a stream of fresh opportunities to replace those that are growing weary. If the company has traditionally paid out significant dividends, it is a likely sign that senior management has not been particularly concerned with investing in new directions.

Senior management's tasks are both less immediate and less operationally oriented than other business tasks. Its job is to stay ahead of the curve, to ensure a stream of fresh opportunities to replace those that are growing weary. If the company has traditionally paid out significant dividends, it is a likely sign that senior management has not been particularly concerned with investing in new directions. Perhaps the senior management team is hoping to prop up the company's stock price with relatively high dividends in lieu of doing the harder work of finding high-return investment opportunities. Those opportuni-

ties must be sought in repositioning the company to meet the challenge of new products, new markets, new processes and new technological applications.

In Woody's case, senior management failed to meet its responsibilities from '89 to '94. As the economy rebounded, things improved somewhat in late '94 and into '95, but the real gain came as new senior management started remaking the company in late '95 and early '96 with a combination of initiatives. These managers relocated most storage to a lower-rent warehouse that was also considerably more labor-efficient. They used the savings from that move to cover increases in delivery costs and tripled their retail space in the original location by remodeling what had previously been expensive storage. They used the additional space for a greatly broadened range of higher-margin home-improvement products. Computer-imaging design-center tools helped both sell and document a greatly increased average sale size through a home-design consulting emphasis that transformed much of the company's basic sales

process. By 2000, Woody's had rebounded 20% beyond its late-'80s cushion level. It could have done so considerably earlier, however, had senior management understood the erosion of cushion as a sign that the basics of the business were changing and that strategic rather than merely tactical responses were required.

When it comes to evaluating longer-term profit potential, two ratios to be watched are the dividend-payout ratio and the capital-expenditure ratio. The dividend-payout ratio should be declining as the company invests for innovative growth. The capital-expenditure ratio should be rising, most especially for items related to development of new opportunities.

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Efficiency

Asset utilization has many aspects, and there are several measures that may logically be used to gauge efficiency. Most important from an operating-cash-flow point of view are those asset-efficiency measures relating to inventory and accounts receivable. As explained earlier, these are most commonly measured in days. How many days worth of sales are in accounts receivable, and how many days worth of cost of goods sold are in inventory?

These are both relative, or proportional, measures. Generally, as sales go up, the investment in inventory and accounts receivable tends to go up proportionally, thereby keeping the days measure the same. For example: If the average balance of outstanding accounts receivable is one-eighth of annual sales, then days receivable are $\frac{1}{8} \times 365 \text{ days} = 46 \text{ days}$. Similarly for inventory: If average inventory value on hand is one-sixth of annual cost of goods sold, then days inventory are $\frac{1}{6} \times 365 \text{ days} = 61 \text{ days}$.

This measure in days is a relative measure, which makes it ideal for period-to-period comparisons. It is far more useful

The most important measures of asset efficiency from an operating cash-flow point of view are those relating to inventory and accounts receivable.

than simply comparing absolute dollar values, which could easily be affected by other variables, including such things as growth, seasonality or other issues having no basic connection to the policies and practices by which receivables or inventory are managed. Other things being equal, the goal is to manage asset days (inventory or receivables) downward and liability days (payables) upward for maximizing cash flow. Although there is no necessary connection between these days measures, the underlying issues can certainly be intertwined. If, for example, one of your major suppliers offers longer-than-usual terms for

especially large purchases, then your inventory days and payables days are likely to both move upward proportionally. If, on the other hand, the offer isn't longer terms but significantly lower prices on large buys, your inventory days will go up, payables will move little and the impact will register mostly in improved gross margins, unless, of course, you pass along the savings. And if you do pass along the savings, you may well wind up with a spike in sales. Everything that happens with a cash driver has to affect some other measure someplace.

There is an offset to these asset-efficiency measures on the liability side of the balance sheet in the form of accounts payable. Since accounts payable consist primarily of amounts owed to suppliers, they can be considered as offsets to the investment in inventory. Because of this, days payable should be included in your evaluation of asset efficiency. Payables, though a liability, are a sort of contra-inventory account. Although logically grouped here as asset-efficiency measures, these three ratios are somewhat better known as *activity ratios* because they do, indeed, say much about turnover or activity rates.

Cash itself is another item of asset efficiency. Unless there is some particular reason for building cash balances, such as anticipated acquisitions, cash balances should be no higher than required to be sure that bills can be paid as they come due. Cash balances earning bank interest pay little in income. Investing that cash in the main operating and developmental

areas of the business should always produce far higher returns.

Return on assets is another broad asset-efficiency measure. Its calculation is simply net income divided by assets, and it indicates how efficiently the assets have been deployed for the production of income. So, for example, if net income after tax is \$500,000 and total assets are \$5,000,000, then return on assets is 10%. If we turn this measure upside down, it tells us how many dollars of assets it takes to generate a dollar of profit. In this example, it would be \$10. Either way, efficiency of asset use for producing income is the measure in view.

The final measure of asset efficiency is assets divided by sales. Here the focus is the investment in assets required to generate a dollar of sales. Because each sale represents a profit opportunity, this ratio reveals something about asset efficiency from a marketing perspective. The goal, obviously, is to get more sales from each dollar of assets employed, thus increasing the return on investment.

In addition to using and managing assets more efficiently, there is a specific financing dimension to asset efficiency: It is not always necessary to own an asset to use it, and it is possible to lease an asset without having it appear on the balance sheet. While leases that are effectively financing exercises have to be capitalized—that is, put on the books as both an asset in use and a liability to be paid—operating leases and rental arrangements permit use of assets without balance-sheet impacts. This can have a positive effect on return on assets by reducing the asset base below what it would be if the asset were owned outright or capitalized on the books as a financing lease. The trade-off is that you may actually pay more for the use of something owned by someone else than you would if you owned it yourself. The lease-versus-buy decision needs to be carefully analyzed.

There is still another, high-level dimension to the asset-

Cash itself is another item of asset efficiency. Unless there is some particular reason for building cash balances, such as anticipated acquisitions, cash balances should be no higher than required to be sure that bills can be paid as they come due.

owning issue when it comes to efficiency of asset use. Rather than either owning or renting, you may be better off contracting out the entire function. Take the following example. A fresh-fish wholesaler on the Great Lakes is located in the far north and has always relied on its fleet of three trucks to deliver to major metropolitan areas. But all

In most small companies, especially closely-held family businesses, the scarcest resource of all, even scarcer than capital, is management time.

three trucks are now reaching an age and mileage level at which it is time to replace them. A local dealership has offered an operating-lease arrangement that will keep the new trucks off the wholesaler's books and require no up-front cash outlay. The owners are naturally very interested. The extra cash freed up by such a lease will help them with the working capital they need to

start a new export line of whitefish caviar.

In most small companies, especially closely held family businesses such as this one, the scarcest resource of all, even scarcer than capital, is *management time*. The fish wholesaler's managers know the fish business. They spend a lot of time cultivating and maintaining relationships with their somewhat independent Native American sources of supply and their big-city restaurant and broker buyers. They carefully monitor product quality and handling. New developments in packaging and product-line extensions to include other fish and fish-related products are becoming more important. These are the most essential operating and developmental elements of their business. If the company is to grow, more management attention must be focused on these items.

After careful analysis—isolating the transportation issues realistically and substantially from these other higher-level management tasks—the company concluded that contracting out the shipping entirely, rather than leasing or buying new trucks, would be a good choice. Over an 18-month period, the company phased itself out of the shipping business. In doing so, it freed up nearly 20% of the two owners' time to focus on the company's true area of primary value creation, which has almost nothing to do with overseeing the scheduling, main-

taining, supervising and driving of trucks. Here the asset-efficiency issue went far beyond how well trucks were used or how well the truck-financing decisions were made. Ultimately, the most important assets of this and other businesses are the skills and knowledge of the people who best understand the dynamics of the business and the directions for its future success. A clear focus on critical core competencies may well be the most asset-efficient direction any company can develop.

Leverage

The primary issue with leverage has to do not with how efficiently you use assets but with how efficiently you use your net worth, or equity, to multiply—or leverage—your investment. In other words, the profit your business returns on equity or net worth should be higher than its return on assets in proportion to your use of borrowed money to fund your business.

Too much leverage, though, puts both your organization and its creditors at risk. Too many liabilities can put your back to the wall quickly if a few things start to go against you. Bankers may call in their loans, suppliers won't ship product, and good employees may look elsewhere. The employee risk is even greater if the company is not seen as able to meet its payroll consistently, or if it is not perceived as staying competitive technologically. Your highly mobile knowledge workers want to be at least on the cutting edge, if not the bleeding edge, of their fields. If your firm can't offer that opportunity technologically, you may well lose the best, the brightest and the highest-initiative people on your staff. Too much leverage exposes you to the risk of not having enough of a financial shock-absorber to get over the potholes that every business encounters. In the other direction, too little leverage can force return on equity below industry norms to the point of making you less competitive.

The cash-flow implications here are simple. The greater the

The primary issue with leverage has to do not with how efficiently you use assets, but how efficiently you use your net worth, or equity, to multiply—or leverage—your investment.

leverage, the greater the risk that other people's fears and decisions can pull the plug. The lower the leverage, the lower the return available to owners of the business. The right leverage point or range is largely defined by market forces. Those forces include investor and creditor expectations that interact around a variety of perceived trade-offs between risk and reward.

Liquidity

Of the four traditional PELL categories, only liquidity comes close to what we mean by cash flow. Most commonly, liquidity

The current ratio is rooted in the point-in-time values of the balance sheet and therefore says nothing about operational flows.

is evaluated by looking at the ratio of short-term assets to short-term liabilities, called the *current ratio*. If the short-term assets—primarily accounts receivable and inventory—exceed the short-term liabilities by a wide enough margin, there should be enough cash flowing in. Cash actually flows in only after conversion from inventory to sales, then on through receivables and back again to cash. At that point

it is used to pay suppliers, workers and other short-term obligations as they come due.

Unfortunately, the current-ratio approach to liquidity is limited, even though it does give some insight into the likely ability to meet obligations in the near term. To see that limitation clearly, consider that assets and liabilities are listed on the balance sheet in order of decreasing liquidity. Another way to think about the relative liquidity of different categories of assets and liabilities is to substitute the idea of *velocity*. The closer a category is to the top of the balance sheet, the quicker the turnover will be. Cash flows faster than receivables, which flow faster (usually) than inventory, equipment and real estate. Thus, the main limitation in assessing liquidity on a balance-sheet basis is that it has a static, point-in-time orientation; it completely fails to incorporate the operating perspective of the income statement. The current ratio is rooted in the point-in-time values of the balance sheet and therefore says nothing about operational flows. For that we must go to the cash-flow

statement in the form of the UCA's cash-adjusted income statement described beginning on page 50.

Ratio Analysis

Ratio analysis is probably most helpful when it is used in time series across several accounting periods. It shows how management responds to a variety of conditions. It is not terribly helpful to learn, for example, that the current net-profit margin is 4.6% or that the current ratio (short-term assets divided by short-term liabilities) is 2.5. It is much more significant to see how these measures move over time—to see, for example, that leverage as measured by the debt-to-net-worth ratio moved gradually upward over a period of years. Further analysis reveals that this upward trend in leverage was accompanied by increased inventory and receivable days. As it turns out, these were needed to accommodate a broader product line and some shift in distribution channels. Movement and trends in ratios tell us much more than just a single number can because we can infer from such trends much about management's probable decision-making patterns.

Another aspect of ratio analysis is what it may tell us preliminarily about likely cash-flow implications; the ratios suggest a certain type of cash-flow impact. The cash-flow statement then tests and quantifies that suggestion more specifically. For example, close inspection of Jones Dynamite Co.'s financials would show gradual deterioration of the current ratio from 2.2 to 1.8 over a three-year period and suggest declining liquidity—that is, a declining ability to pay current expenses from operating sources of cash. But when we look at the company's cash-flow statement, it shows a significantly positive and increasing net cash-income value over the same three-year period.

The question, then, is which better measures liquidity—the acceptable and improving operating-cash flow from the cash-flow statement, or the significantly declining current ratio

Movement and trends in ratios tell us much more than just a single number can because we can infer from such trends much about management's probable decision-making patterns.

rooted in the static data from the balance sheet? The static measure might be more useful if the company were in big trouble and facing liquidation. In fact, though, most of the time we deal not with issues of immediate liquidation but with questions of ongoing operational cashflowability. Our focus is primarily the going concern and how to keep it going as it continues to generate most of its own fuel from internal operating sources. Recall that the inability to do just that is what drove the once great W.T. Grant Co. into bankruptcy.

The Ultimate Cash-Flow Risk: Bankruptcy

When a business's cash flow continues to be too much out and not enough in, the result can be the need to file for formal bankruptcy. Chapter 11 bankruptcy is the *good news* of bankruptcy law. It is intended to create breathing space through temporary relief from creditors so that a business can reorganize itself and perhaps recover from its cash-flow failure—that is, begin to create enough positive cash flow to again pay debts as they come due. Inefficient operations can be closed down, needed layoffs instituted, nonessential assets sold at fair market value and debts restructured.

Under a sound Chapter 11 plan with good management, creditors are likely to be repaid at something near full value. In contrast, a forced liquidation under Chapter 7 bankruptcies will likely bring them only fire-sale values. But Chapter 11 is not available to everyone. It requires the agreement of creditors to an operating-cash-flow plan that is strong enough to persuade an appointed panel of those creditors to wait for things to get better. Management must convince the panel that the prospect of being paid something like full value in cash in the intermediate term is worth more than fractional repayment values in the somewhat shorter term. In the absence of confidence in a proposed cure, the plug is pulled and a Chapter 7 liquidation ensues. Under this plan, the frozen illiquid assets that had not produced adequate cash flow are involuntarily melted down, usually at considerable loss. They are liquified and dribbled out to creditors by a court-appointed trustee.

The Z Score: A Bankruptcy Early Warning System

The most important thing to learn about bankruptcy is how to avoid it. Careful management of the seven cash drivers that will be discussed in the following chapters will certainly help a company avoid bankruptcy. In addition, there is an early warning system for bankruptcy that is both easy to use and free of charge. It is called the Z-Score, and it is a useful number to track over time to see how your overall company risk level is moving. Because its calculation involves several of the ratios we have just reviewed, this is a particularly good time to look at it more closely. First, however, a few words of background.

The Z-Score was devised by Dr. Edward Altman at New York University's Stern School of Business. The database consisted of manufacturing companies, and the score incorporates a key ratio tied to the *market value* of equity. If your company is not manufacturing firm, the score less relevant. However, there is a school of thought that says risk is independent of the industry and, therefore, can be measured simply by analysis of profitability, efficiency, liquidity and leverage (PELL) ratios. Altman's Z-Score formula draws on all four of the ratio categories but also incorporates one particular ratio that uses market value of equity so that you need to come up with some realistic estimate of your own market value if you are not a publicly traded company.

Here's the formula for determining your Z-Score

$$Z = 1.2 \times 1 + 1.4 \times 2 + 3.3 \times 3 + .6 \times 4 + .999 \times 5$$

X1 = Working capital ÷ Total assets

X2 = Retained earnings ÷ Total assets

X3 = Earnings before interest and taxes (EBIT) ÷ Total assets

X4 = Market value of equity ÷ Liabilities

X5 = Sales ÷ Total assets

Interpret a Z-Score of 3 or better as good. Consider scores between 1.8 and 2.9 as warning of potential problems. A score below 1.8 indicates major trouble and a likely descent into bankruptcy.

No matter where you find your company on this Z-Score

scale, an understanding of and attention to the seven cash drivers is the most effective improvement approach available.

Getting Ready for a Closer Look at the Cash Drivers

As we begin to look at the cash drivers one by one, remember that although these are not the *only* things that affect cash flow, they are the drivers. For most organizations, most of the time, changed measures in the levels of these drivers will account for nearly all of the variability in cash flow. The sequence in which we will discuss the drivers represents the most common pattern for relative importance. Sales growth, the subject of the next chapter, is the biggest single potential cash-flow driver overall. Gross margin and operating expense (SG&A) are considered fundamental drivers because they address the issues that a business's top management is paid to focus its energies on—the firm's production, buying, marketing and general management dimensions. Accounts receivable, inventory and accounts payable are considered swing drivers because regardless of what is happening at the level of the growth rate and fundamentals, the way these three are managed can swing the company's cash position positively or negatively. If, for example, the fundamentals are eroding, tighter management of the swing drivers can offset some of the negative impact of that erosion. Capital expenditures, the seventh driver, is almost always discretionary.

Increases in a swing driver's use of cash has both growth and relative dimensions. A higher sales level alone will tend to drive up dollars in the swing-driver accounts proportionally to sales or cost of goods sold in dollar terms. In addition, though, the choices by which management creates such a sales increase could also have the effect of changing the proportion. For example, say that top management decided to offer easier credit terms as a competitive marketing tool to bring in new customers. There would certainly be a proportional increase in

receivables dollars resulting from the higher level of sales—the impact of growth. Receivables dollars would also increase because of the more liberal payment terms. This latter part of the increase would manifest itself by a jump in the relative measure of *days receivable*—the impact of the management decision.

You may wonder how seven items, the cash drivers, can have such a controlling effect on a firm. Consider for a moment what is involved. Sales growth, gross margin and operating expense have embedded in them most of the key dimensions of the operating part of the income statement. Receivables, inventory, payables and capital expenditures pick up the main operating controllables from the balance sheet. These drivers capture the core of the firm's financial statements and have embedded within them all of the company's key relationships with employees, customers and suppliers.

Armed with some background on cash flow, a brief overview of the cash drivers, a primer on basic accounting and a look at some of the cash-flow implications of traditional ratios analysis let's consider each cash driver individually in depth.

