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# CASH FLOW FORMULA, PART 1: How to Measure CASH

BY STEVEN D. LORDS

We are all familiar with the expression:

*“Cash is the lifeblood  
of any organization.”*

Certainly cash is the basis of the world’s economic systems, the common denominator we use to measure the success and stability of business entities.

However, I am convinced that “cash” has become a somewhat generic term. Too often we assume we know what “cash” means, no matter what the context or venue.

But, just as the complexity of the world’s economic systems has grown exponentially, so have the dimensions (or definitions) of “cash.”

## **The Question**

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I’ve been teaching cash management principles for more than 15 years, primarily in the CFMA arena. Invariably, I find that CFMs immediately want to jump to the last chapter of the book, asking at the outset:

*“What is the secret  
to successfully  
forecasting cash?”*

Is this due to our impatience or our tenacity? Or, do we believe we already know everything there is to know – except the actual forecasting of cash?

Perhaps therein lies the pearl of wisdom, that “secret” we all seek. Before we can effectively forecast cash, we have to identify and understand how cash is managed.

And, before we can do that, we must clearly define what we mean by “cash.”

## **Definitions**

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What do I mean by “cash?” When I was in college, I learned that the definition of “cash” for



financial statement purposes was “cash and other marketable securities with maturities of less than one year.”

This definition served me well while I was in public accounting; however, it has been of much less value during my years in the construction industry.

In the context of managing and forecasting cash, I’m not interested in the “freeze-frame” approach that tells how much cash is physically sitting in bank accounts and short-term investments at any particular point in time. (After all, that cash is already beyond managing!) Instead, I’m looking for a more practical, all-encompassing definition.

### OTHER PEOPLE’S MONEY

Most CFMs know how to legally use more cash than is actually sitting in the bank. For example, buying on account doesn’t use cash as defined above – at least not today. The terms negotiated with vendors allow the use of their cash for an agreed-upon period of time.

Similarly, arranging credit terms at the bank allows use of the bank’s cash to purchase equipment and materials; to pay employees, vendors, and subcontractors; or to pay other routine operating expenses.

And then, there’s float. The checks you send to vendors today will take several days to travel through the mail to their offices, then to their banks, and finally to your bank where your account is charged. On your ledger, the cash is gone when the checks are written; in reality, it isn’t really gone until the checks clear the bank.

### A NEW DEFINITION FOR CASH

Combining these examples, I would like to propose a non-accounting definition of cash:

*Within the context of cash management and forecasting, cash may be defined as spending power – a measure of an entity’s ability to consummate transactions for goods and services.*

Obviously, this is a much broader definition than just considering the hard coin or paper currency on hand, or even totaling the balance in bank and short-term investment accounts.

When defined as spending power, cash is subject to expansions and contractions resulting from such things as market and economic conditions, vendor trust as represented by credit terms, changes

in the extension of banking credit, and even current developments in the technologies used in conducting business.

### NEW DIMENSIONS FOR CASH MANAGEMENT

Similarly, cash management now takes on new dimensions. It’s no longer just a matter of understanding and utilizing banking tools and electronic commerce to manage cash flow more effectively throughout your company.

Now it includes the development of better internal business practices and the cultivation of better relationships with your business partners (customers, vendors, subcontractors, banks, bonding companies, etc.) in order to maximize the cash, or spending power, at your company’s disposal.

*Cash management, then, is the management of resources – tangible and intangible, internal and external – to enhance cash (or spending power).*

There are several concepts that underlie this expanded definition of cash management:

- Accelerate receipts
- Decelerate payments
- Minimize current assets
- Maximize current liabilities

Although these concepts seem obvious, they are often misunderstood or not followed, especially by the operations side of our business. Let’s take a look at each one.

### Accelerate Receipts

- Are your contracts negotiated so that you are contractually able to bill earlier and for higher amounts?
- Have you provided the owner with a front-loaded billing schedule that provides for stronger billings in the early stages of the project?
- Are the contract payment terms reasonable and do they provide for payment by wire transfer or other accelerated payment methods?

These are just a few examples of how contract terms can directly affect the ability to bill reasonably, but aggressively, and to collect money promptly.

### RETAINAGE

In terms of accelerating receipts, retainage is a relevant subject in and of itself. There are two





things CFMs need to know to effectively manage retainage: **1)** its purpose and **2)** the relationship between the retainage held by the owner against the GC and the retainage held by the GC against the subcontractors.

To answer the first question, retainage is held to assure performance between the contracted parties. That is simple enough and generally well understood in the industry.

The second question, however, is where the rub occurs. Unless GCs allow a contractual link to be created between the retainage held by the owner and the retainage held by the GC, there is no relationship.

In general, there is no contractual tie between the owner and the subcontractors on a project. However, I believe that when subcontractors have satisfactorily performed on a contract, they deserve to be paid their retainage, whether or not the owner of the project has paid the GC.

I recognize that it is common practice for a GC to withhold a subcontractor's retainage until its own retainage has been received from the owner. But, common practice does not mean that it makes sense – or that subcontractors cannot negotiate better terms. This is simply another example of negotiating terms that accelerate receipts.

### CHECK YOUR BILLING PROCESSES

Even if contracts contain ideal terms, problems and inefficiencies in billing practices often slow down the receipt of payments. For example, if a pay application is submitted late, not on the proper forms, or lacks required backup documents (such as certified payrolls or lien releases), there will be a delay in getting paid.

### Decelerate Payments

Because slowing down scheduled payments to the bank will have a negative effect on your company's credit rating, slowing down payments for the purposes of this article is primarily a function of managing A/P with trade vendors and subcontractors.

Start by viewing your vendors and subcontractors as industry partners. Treating them fairly will make them want to continue doing business with your company. Treating them unfairly will result in a contraction or termination of credit. Within these bounds are plenty of opportunities for negotiating terms.

### ON YOUR TERMS

Although most vendors would like to have all of their accounts on 30-day terms, most will live with something more than that, especially if your volume of business is significant. I recommend that contractors set their own vendor payment terms, rather than simply accepting the terms offered.

However, extended terms may result in pricing increases to offset the vendor's cost of capital. There are no hard rules here. The terms you negotiate depend on four factors:

- 1) The trust you have developed with the vendor
- 2) Your skills as a negotiator
- 3) The amount of business your company conducts with each vendor
- 4) The vendor's size

As a rule of thumb, you should be able to achieve 45-60 day terms with most vendors.

### TRADE PAYABLES

The schedule for paying trade payables is related to payment terms. When I first started out in the industry, it was common practice for companies to pay discount invoices on the 10th of the month (to get the 2/10 discount) and all other trade payables on the 15th.

Consider, however, the extra cash flow achieved by paying the other trade payables on the 20th or even the 25th of the month. This could play a part in achieving 45- to 60-day terms. Simply changing and communicating your stated terms of payment, then changing your internal practices to follow this schedule, will effect the change.

### SUBCONTRACTORS

Payments to subcontractors typically do not follow the same kind of routine payment schedules as trade payables. Generally, contracts include the terms of when subcontractors will be paid – for example, a specified number of days after the owner has paid the GC (normally, 3-10). (Unfortunately, “pay when paid” and “pay if paid” clauses are outside the scope of this article.)

Payment terms with subcontractors represent a point of negotiation and, as such, are affected by your company's perceived financial strength, integrity, and reputation in the industry –





in addition to the amount of business it does with each subcontractor. Build a strong foundation of trust with your subcontractors by consistently paying according to the agreed-upon terms.

### Minimize Current Assets

The concepts of minimizing current assets and maximizing current liabilities form the foundation of the cash flow formula presented later. Let's look at assets first.

Assets absorb, or use, cash. For example, an account receivable results from expenses such as paying labor costs; purchasing equipment, materials, and inventory; and paying subcontractors. Such paying and purchasing requires using, or committing, some of your company's spending power. These efforts turn to cash only upon collection of the account receivable.

The objective should be to minimize the amount of current assets required to conduct business effectively – in other words, to use your company's resources more effectively. When current assets are reduced, cash (or spending power) is increased.

### Maximize Current Liabilities

The opposite is true with current liabilities. Rather than absorb cash, current liabilities are a source of cash (or spending power). This is because, under our new definition of cash, a liability means that we are using someone else's cash.

In terms of the cash management process, there is a certain balance that can (and should) be reached between minimizing assets and maximizing liabilities. Keep in mind, too, that creditors and lenders may also impose contractual limitations on the ratio of current assets to current liabilities.

### The Cash Management Process

Cash management is often affected more by operational decisions and practices than by financial ones.

Frequently, when a contractor is struggling with cash flow, the focus is placed on finance doing a better job of collecting A/R or of scheduling payments. Although there certainly are instances where finance needs to improve its processes, over the years I have found that poor cash flow is more often caused by poor operational practices.

## The Basic Cash Model: A practical example of how minimizing assets and maximizing liabilities can positively affect cash flow

	Balance @ 06-05	Balance @ 09-05	Change in "Cash"
<b>EBITA</b>			<b>\$10,000</b>
<b>A/R</b>	<b>\$160,000</b>	<b>\$152,000</b>	<b>8,000</b>
<b>Inventory</b>	<b>42,000</b>	<b>39,000</b>	<b>3,000</b>
<b>WIP</b>	<b>(48,000)</b>	<b>(46,000)</b>	<b>(2,000)</b>
<b>Fixed Assets</b>	<b>64,000</b>	<b>63,000</b>	<b>1,000</b>
<b>A/P</b>	<b>(148,000)</b>	<b>(139,000)</b>	<b>(9,000)</b>
<b>Accruals</b>	<b>(6,000)</b>	<b>(6,000)</b>	<b>0</b>
<b>Debt</b>	<b>(50,000)</b>	<b>(48,000)</b>	<b>(2,000)</b>
<b>Cash Flow</b>			<b>\$9,000</b>

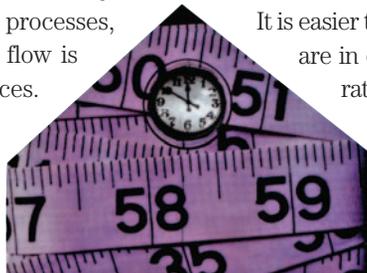
Collecting A/R, or managing A/P, are processes that fall at the end of the food chain, so to speak. Focusing exclusively on the financial processes would be the same as treating only the symptoms of an illness, rather than treating its cause.

In my next article ("Cash Flow Formula, Part 2: How Operations Impact Cash"), we'll look at the construction life cycle, and discuss the operational practices in each step of the cycle that affect a company's cash flow. However, one of the things finance can do to positively affect cash flow is to develop and use a cash forecast.

### CASH FORECASTING

In the early years of my career in construction accounting, my efforts at forecasting cash focused on the balance of cash in the bank. I attempted to develop reliable methods for predicting when receipts would come in and payments would go out.

It is easier to predict, or forecast, cash payments, since we are in control of when they happen. I devised elaborate schemes to track outgoing payments by how





they were sent. All of this effort resulted in less-than-satisfactory attempts to forecast cash in the bank.

### WHAT I KNOW NOW

While I am still a proponent of developing systems and methods to track the flow of cash through our businesses, I now do it for a different reason. If we are to successfully forecast cash, we have to understand how our banking systems work, and how these systems are affected by our internal business practices.

However, rather than attempting to forecast cash in the bank to the nearest dollar, we should focus on understanding patterns and trends. If we try to be too exact, we will most likely give up eventually in frustration. With these basic concepts to lay the foundation, let's now look at the Basic Cash Model (or Formula).

### The Basic Cash Model

Cash management really "came together" for me when I joined SimplexGrinnell, LP, an operating division of Tyco International. Each quarter, Tyco reported its earnings, and demonstrated that a high percentage of those earnings had been turned into cash. Our internal budgets had both an earnings component and a cash flow component in them.

Given the size of the company and the magnitude of its banking structure, it would have been sheer madness to attempt to manage and forecast cash based on bank account figures. In fact, SimplexGrinnell didn't have any "cash" as such, since it was swept daily to Tyco for management and investment at a global corporate level.

The solution, instead, was to employ a formula that focused on the management of assets and liabilities. Here's the formula, with minor modifications to accommodate the average contractor:

- EBITA, or earnings**
- +/- Changes in A/R**
- +/- Changes in Inventory**
- +/- Changes in Net WIP**
- +/- Changes in Fixed Assets**
- +/- Changes in A/P**
- +/- Changes in Accruals**
- +/- Changes in Debt**
- = Cash Flow**

### A WORD OF EXPLANATION

To understand the formula, we must first recognize which line items are assets and which are liabilities. To make this identification easier, the liabilities are in red.

One clarification is needed, however, with the liabilities: Work-in-Progress (WIP) is shown as a liability, even though it generally has components of both assets and liabilities.

Here's why: If we are underbilled on a project, we have, in effect, an unbilled receivable, which is an asset. If we are overbilled on a project, we have a liability to that customer for future performance.

Since we expect our offices to maintain a net overbilled status (a good, sound business practice), I have shown WIP as a liability.

### WHAT THE MODEL SHOWS

An example of a Basic Cash Model appears at left. In this example, we started with \$10,000 of earnings (EBITA). Assets (A/R, Inventory, and Fixed Assets) decreased by \$12,000 (\$8,000, \$3,000, and \$1,000, respectively). Liabilities (WIP, A/P, Accruals, and Debt) decreased by \$13,000 (\$2,000, \$9,000, \$0, and \$2,000, respectively).

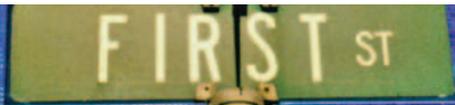
The sum of these three yields \$9,000 cash flow for the quarter ( $\$10,000 + \$12,000 - \$13,000 = \$9,000$ ). A respectable 90% of earnings have been turned into cash flow.

Now, referring back to the concept of minimizing assets and maximizing liabilities, if an asset (A/R, Inventory, or Fixed Assets) has been reduced, then "cash" has been increased. Note that changes in Fixed Assets will be the net of purchases and disposals of assets and depreciation applied. Similarly, if a liability (WIP, A/P, Accruals, Debt) has been increased, then "cash" has been increased.

### SIMPLICITY IS THE KEY

The beauty of this formula is its simplicity. When explained properly, it is easily understood by operations and other non-financial people. Managers and employees at any level in the business can be tasked with minimizing the assets and maximizing the liabilities within their control.

*The net result?  
Everyone becomes part of the cash  
management process*





I won't pretend, however, that this comes easily for everyone. Education and training concerning the use and performance of this model must be given a high priority, since our internal business practices (which often vary considerably from office to office) have the most direct impact on our ability to minimize assets and maximize liabilities.

### Summary

At the core of this somewhat unique perspective on cash management and forecasting are the points discussed in this article:

- 1) "Cash" may be defined as spending power.
- 2) One cash management goal should be to accelerate receipts and decelerate payments.
- 3) The other goal should be to minimize current assets and maximize current liabilities.

An understanding of these concepts allows us to escape from the traditional views and methods of cash management and forecasting that have focused primarily on bank balances. It also allows us to significantly expand the ranks that are committed to our crusade of cash management and forecasting.

After all, you don't have to be a "bean counter" or finance person to understand that we want to accelerate receipts and decelerate payments; and that we also want to minimize assets and maximize liabilities.

### The Next Step

The next step is to take each component of the Basic Cash Model as presented here and discuss it from a practical perspective. As CFMs, we need to learn how we, as well as our employees, can practice effective cash management through our day-to-day business practices.

Once we understand how to manage cash, we can then focus our efforts on forecasting it. This will be discussed in the next installment, "Cash Flow Formula, Part 2: How Operations Impact Cash." **BP**

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