QuickBooks Cash Flow Projector

Background

The flow of cash in and out of your business is an important gauge of how well you manage your resources. In an established business it's not as crucial as net income and working capital, but it's still an important way to judge how you're managing the process of turning products into cash and then reinvesting in the business.

Cash management is even more important in a business that's still in its early days, because the cushion is usually fairly thin. And if there's some way to forecast how much money's going to hit the Undeposited Funds account during the next month or two – well, that could be very comforting information. Is there a good way to find out? Yes and no – read on.

A Quick Overview of the Cash Flow Projector

Completing the Cash Flow Projector takes several steps. You're expected to do the following:

1. Identify the cash account(s) you're interested in.

2. Select a method to project cash inflows, and optionally adjust the projections as you see fit, for the next six weeks.

3. Select certain expenses that you expect to pay off during the next six weeks.

4. Review and adjust amounts and dates from upcoming Accounts Payable.

5. Review the resulting cash balances.

After reviewing the projected balances, you might want to transfer cash, step up sales efforts, do some belt tightening, or merely stand pat.

A little reflection shows that there are three capabilities in the Cash Flow Projector that might convince you to use it (in preference to some other tool such as a spreadsheet or the back of an envelope):

- It identifies for you the cash accounts that will be of interest, and it shows you the current balance for each cash account.

- It offers several ways to project six weeks of cash inflows. It creates these forecasts automatically or lets you specify them manually.

- It identifies Accounts Payable dates and amounts that will come due during the six week window.

Only the second of those three, the projection of cash inflows, offers to tell you something that's not entirely under your control. Although you decide when to meet business expenses and pay bills, you do not exert control over when customers will buy from you or how much cash you'll take in over the next few weeks. Therefore, it's useful to have available a credible and rational way of projecting what those receipts will be, based somehow on past history.

It's that capability, projecting cash inflows, that the rest of this paper focuses on. I have no interesting information to impart to you regarding the control of expenses, but I can shed a little light on how the Cash Flow Projector forecasts cash receipts.

Running the Cash Flow Projector

You start the Projector going by choosing, from the QuickBooks menu, Company | Planning and Budgeting | Cash Flow Projector. After you *Next* your way past a little introductory splash screen, you see this window (the balances of course will differ according to the company file that's open):
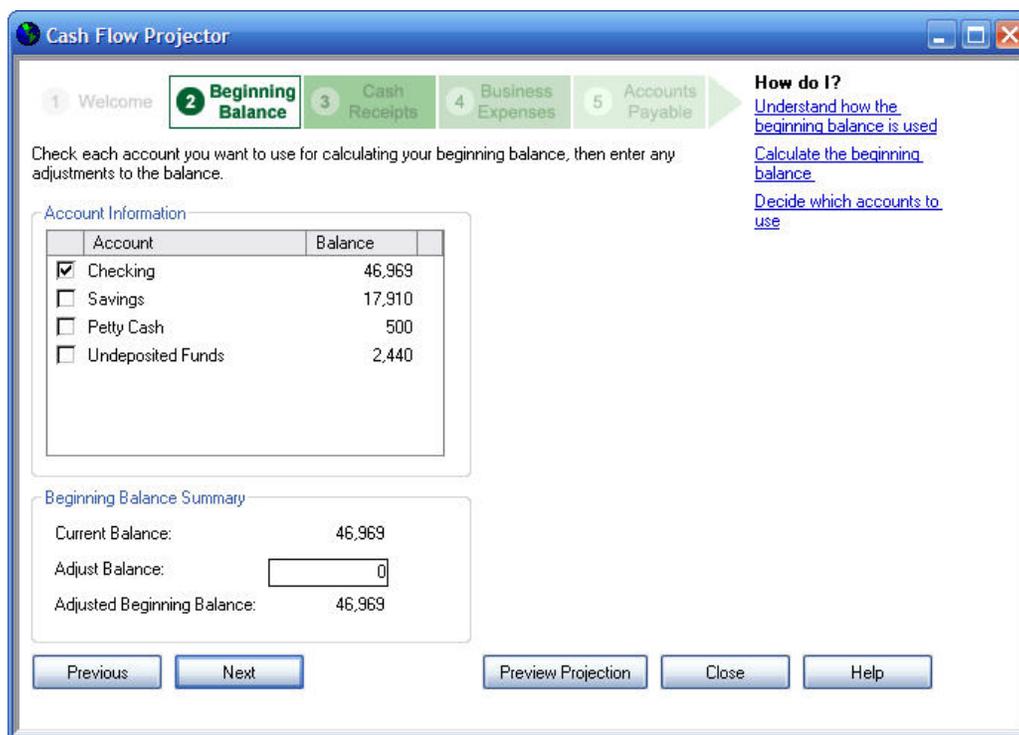

Figure 1.

> **Note:** *For the purposes of this discussion I've used the Rock Castle Construction sample company file that Intuit supplies with QuickBooks. I'm running QuickBooks 2008 so the sample file assumes that today's date is 12/15/2011.*

You can choose any or all of the available accounts that the Projector shows you in this window. The Projector offers you any account that might contain cash – generally this means Bank accounts and Undeposited Funds (but subaccounts are excluded).

The Projector needs to know which accounts it should use because it will look back six weeks from the current date to see how much cash has entered each account during each of those weeks. The Projector then uses that recent history to project, or forecast, how much cash will come in during the subsequent six weeks.

For present purposes I'll specify Checking only. This keeps things simple, but there's another reason. *The Projector does not manage transfers between accounts properly*. Suppose that four weeks ago, you deposited $47,703 into your checking account and then transferred $42,300 from your checking account into your savings account.

If you now choose to project cash flows using both the checking and the savings accounts, the Cash Flow Projector thinks that you took in $90,003: that is, the $47,703 that you deposited into checking, plus the $42,300 that you transferred out of checking and into savings. This will have a disastrous effect on the accuracy of the forecast receipts. Therefore, if you decide to use this tool:

Warning: *Do not select more than one cash account in the Projector's second step.*

Once you've selected an account (or, if you must, accounts) by filling its checkbox, click *Next* to go to the next window, shown below:
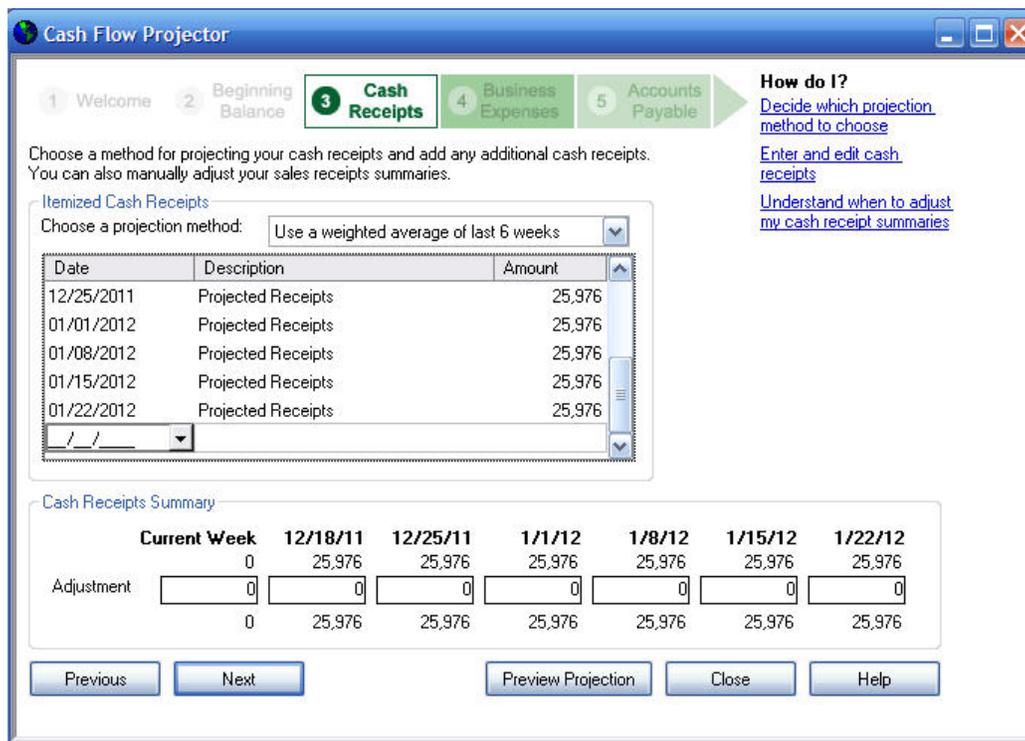

Figure 2.

The projected cash receipts appear in the list box (labeled **Itemized Cash Receipts**), and also above the edit boxes (labeled **Adjustment**) where you can enter adjustments to the projections. Where do these projections, each of them 25,976 in this example, come from?

Notice the dropdown box, labeled **Choose a projection method**. The currently selected item is *Use a weighted average of last 6 weeks*. It is the default selection when you first run the Cash Flow Projector, and it specifies the method that results in the projections of 25,976 in Figure 2. I'll have more to say about this method, not all of it good, below. First, here's a description of the other options in the **Choose a projection method** dropdown.

I want to project cash receipts manually. If you choose this item, the projected cash receipts shown in the prior figure disappear, and you can enter any numbers you wish.

In that case, you presumably have some particular knowledge regarding the timing and amount of cash receipts that you can expect during the next six weeks. If you do have that knowledge, I have to wonder why you're bothering with this tool in the first place. It would be a lot faster and easier to do all this in a spreadsheet.

Use last 6 weeks. If you select this item, you are telling the Projector to assume that your cash

receipts for each of the prior six weeks will be repeated for the next six weeks. Here's what happens first when you choose a different projection method from the dropdown:
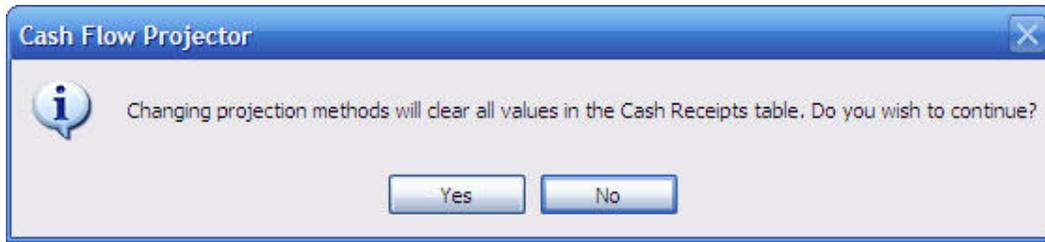

Figure 3.

This warning just means that you're about to replace the projections due to one method with projections due to a different method. There's no need for concern because you can always get the existing values back by returning to the current method.

However, the Projector has a disconcerting habit of changing which accounts are selected in Step 2 (refer back to Figure 1). I make it a habit to use the *Previous* button to check what's selected in Step 2 when I change the projection method in Step 3.

When you click *Yes*, the Projector's window looks like Figure 4, below – again, using the Rock Castle Construction sample file.

In Figure 4, the Projector has replaced the projected receipts shown originally in Figure 2 with new ones, in both the **Itemized Cash Receipts** box and the **Cash Receipts Summary** box. Because I started by selecting the Checking account only (see Figure 1) the Projector looks back at cash receipts for the *past* six weeks that entered the checking account, and assumes that's what cash receipts will be for the *next* six weeks.
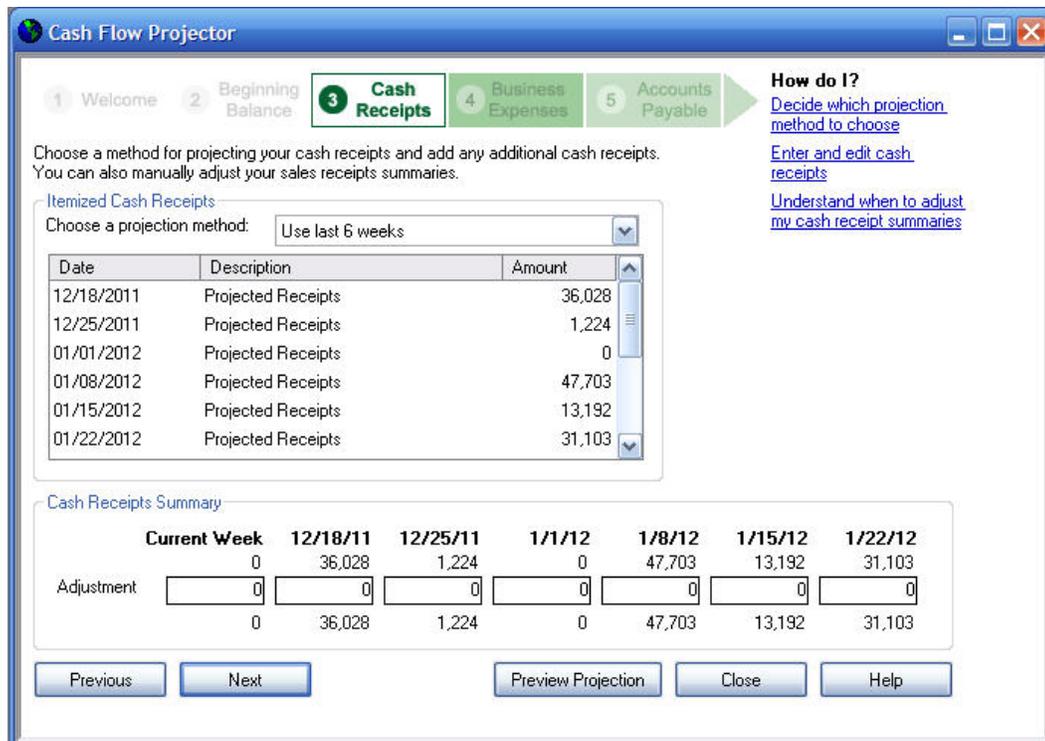

Figure 4.

You can prove that by looking at a report with Checking account debits on a weekly basis. In the

QuickBooks Accountant edition you can use the Transaction Detail by Account report; with other editions you can also use a custom detail report as shown in Figure 5:

Type	Date	Account	Debit
Week of Oct 30, 11			
Sales Receipt	10/30/2011	10100 · Checking	744
Deposit	10/31/2011	10100 · Checking	26,836
Deposit	11/04/2011	10100 · Checking	3,500
Payment	11/05/2011	10100 · Checking	4,948
Week of Oct 30, 11			36,028
Week of Nov 6, 11			
Deposit	11/11/2011	10100 · Checking	1,224
Week of Nov 6, 11			1,224
Week of Nov 13, 11			
Week of Nov 13, 11			
Week of Nov 20, 11			
Deposit	11/21/2011	10100 · Checking	5,913
Deposit	11/25/2011	10100 · Checking	0
Deposit	11/25/2011	10100 · Checking	10,000
Deposit	11/25/2011	10100 · Checking	2,580
Deposit	11/25/2011	10100 · Checking	14,085
Transfer	11/25/2011	10100 · Checking	
Deposit	11/25/2011	10100 · Checking	1,200
Deposit	11/25/2011	10100 · Checking	4,265
Payment	11/25/2011	10100 · Checking	4,225
Deposit	11/25/2011	10100 · Checking	5,435
Week of Nov 20, 11			47,703
Week of Nov 27, 11			
Sales Receipt	11/29/2011	10100 · Checking	3,150
Payment	11/30/2011	10100 · Checking	4,136
Deposit	12/02/2011	10100 · Checking	4,706
Payment	12/03/2011	10100 · Checking	1,200
Week of Nov 27, 11			13,192
Week of Dec 4, 11			
Transfer	12/05/2011	10100 · Checking	25,000
Payment	12/05/2011	10100 · Checking	5,000
Deposit	12/10/2011	10100 · Checking	1,000

Figure 5.

The report won't display fully here at any legible zoom, but you can see that the cash receipts into Checking during five of the six weeks preceding 12/15/11 correspond exactly to those in the Projector, shown in Figure 4. The sixth week, the week of December 4, also corresponds but you'll have to take my word for that.

Figure 6 shows you the effect, in this example, of taking the results of the prior six weeks and using them as a forecast of the next six weeks (this sort of thing is pretty easy to do in Excel, using an export from a QuickBooks report):
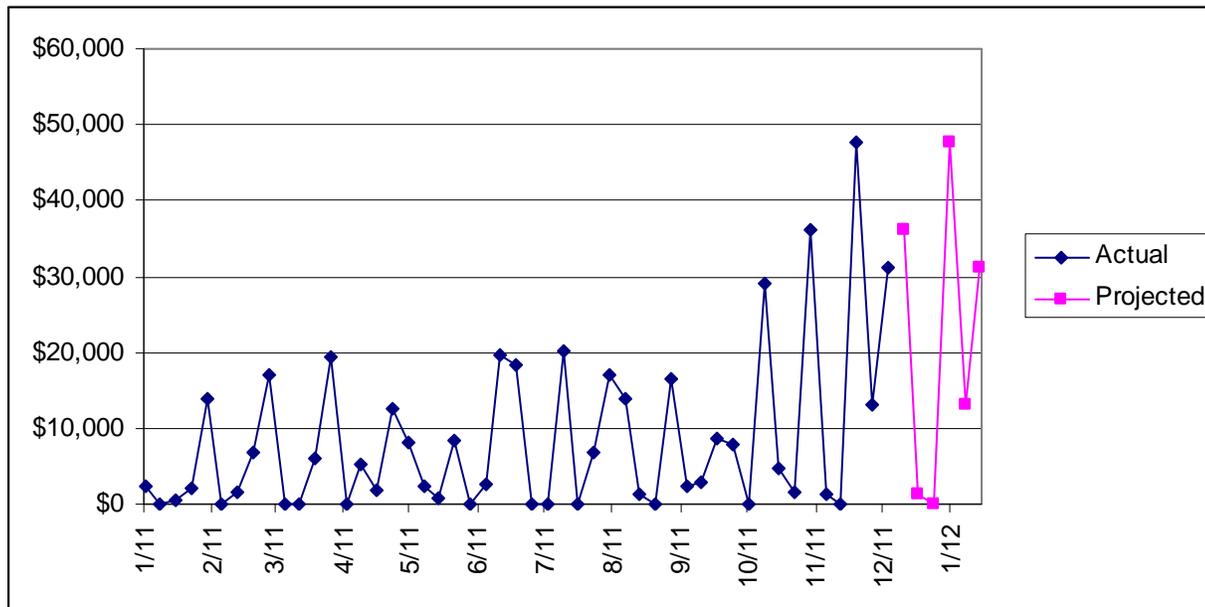
Figure 6.

Look at what's been going on from January 2011 (shown in the chart as 1/11; remember this sample file uses dates from 2011) through early December (shown as 12/11 in the chart). It appears that for three weeks of any given month the cash receipts are relatively low, under $10,000, and during one week of the month the receipts spike to between $15,000 and $20,000. Because I'm showing only the checking account here, that effect could well be due to the company making deposits from Undeposited Funds to Checking once monthly.

More important, the cash receipts vary between $0 and $20,000 per week from January on into October. Then the swings become much larger – look at the spikes of $30,000, $36,000 and nearly $50,000 from October on.

The trend is clearly up during the fourth quarter, and to use the prior six weeks as the projection of the next six weeks is to ignore that trend. If this were a real company instead of an Intuit-supplied sample, I wouldn't be a bit surprised to see the actuals from the end of December and into January that were $10,000 higher than the projections (shown in Pepto pink in Figure 6).

The point to bear in mind is that there's no special reason to use the last six weeks as a stand-in for the next six weeks to come. It's better than nothing, though, and it could even be the best forecast you can make.

Furthermore, it's about a year better than the next option – unless you know that your business is highly seasonal.

Same 6 week period last year. This item from the **Choose a projection method** dropdown means that the forecast values are the same as the values one year earlier. Suppose that today is Thursday, December 15 2011. In that case the first week that will be forecast starts on Sunday, December 18 2011. This projection method uses the actual value for a year earlier. the week of Sunday, December 19 *2010*.

You can tell from Figures 7 and 8 why this would be a bad choice for the Rock Castle Construction sample file. Figure 7 shows the values from the Projector.
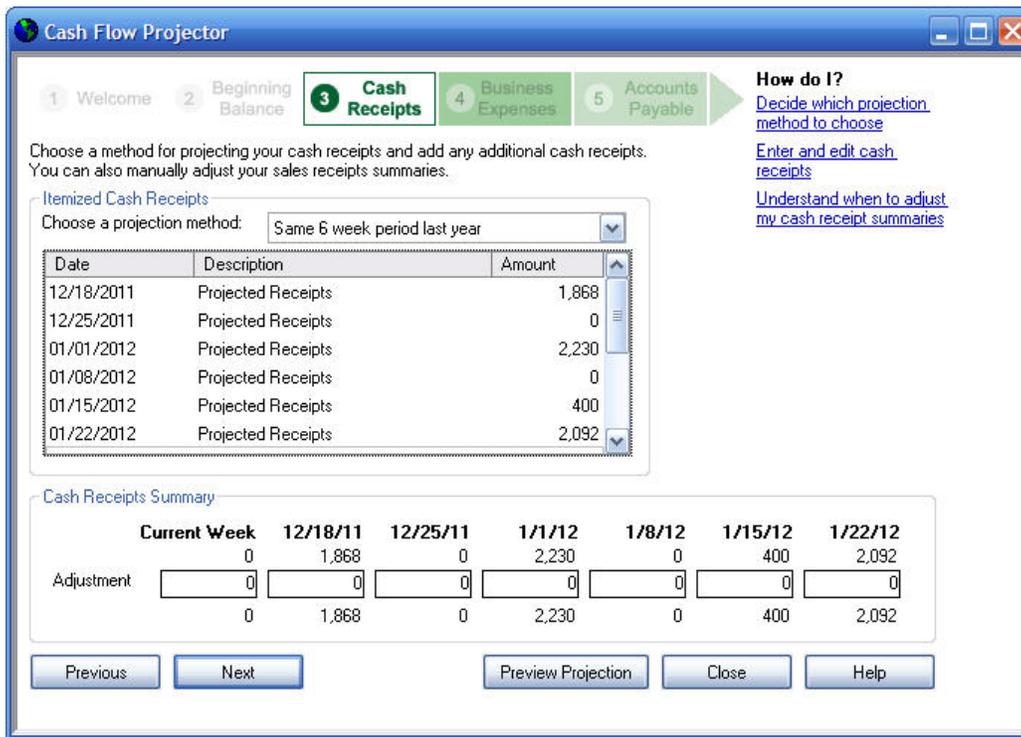
Figure 7.

Now look at Figure 8, which shows the forecast based on receipts from a year earlier in the context of the full year:
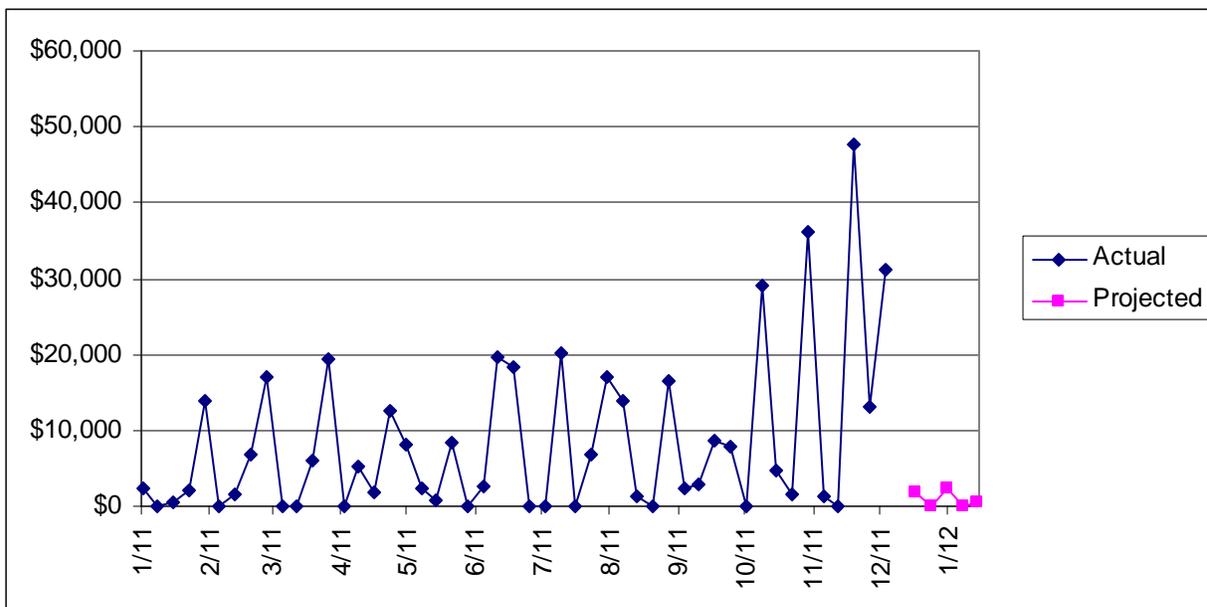

Figure 8.

If your business is highly seasonal, and if you can expect your sales during any given period to be very much like they were 52 weeks earlier, then you might want to use the *Same 6 week period last year* option. But I'd want three or four years worth of data, at the very least, to convince me. Maybe then I'd accept a projection like the one in Figure 8, where the bottom drops out of the cash receipts at the end of the year.

The two methods just discussed, *Use last 6 weeks* and *Same 6 week period last year*, give you

forecasts that vary from week to week in the same way that the actuals vary from week to week. If the six weeks prior to the current week had cash inflows of $100, $500, $200, $0, $800 and $300 then *Use last 6 weeks* will forecast $100, $500, $200, $0, $800 and $300 for the subsequent six weeks.

Another option in the **Choose a projection method** dropdown is *Use an average of last six weeks*. If you run the Cash Flow Projector every week, you wind up forecasting next week's cash receipts by means of a moving average. That is, next week's forecast is always the average of the last six weeks; as time moves forward, so does the basis for the average – hence the term "moving average."

Refer back to Figure 4. There, the projections, which are the actuals for the prior six weeks, are $36,028, $1,224, 0, $47,703, $13,192 and $31,103. The average of those six values is $21,542. Here is the result in the Projector of choosing *Use an average of last six weeks* with Rock Castle Construction as the active file:
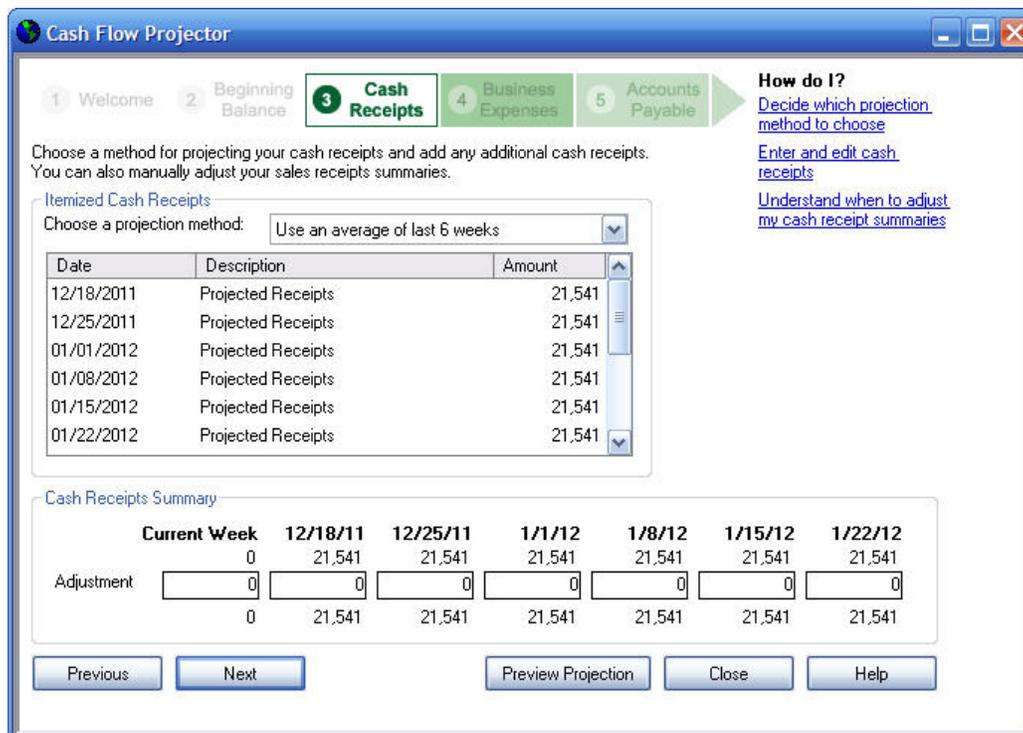

Figure 9.

Used in this way – to provide a constant forecast value through several future time periods – the approach is called a "random no-trend" model. That is, applied to cash inflows, it assumes that the receipts are not trending up or down, and that any differences from week to week are due to random errors around the true long-term average.

(Those errors would have to do with random events such as rainstorms that keep people at home, or overdrawn checking accounts, or a burglar breaking into your store and stealing all your stock, or a sudden, temporary, and one-time-only surge of customer interest in your product.)

Although this sort of single-forecast model has been popular in the past, it has become much less so as computing power has become generally accessible and applications such as QuickBooks and Excel have made it easy to create even slightly more sophisticated forecasts.

In sum, you might consider using the Cash Flow Projector's *average of last 6 weeks* as a forecast method if you repeat it every week, turning a single-forecast model into a moving average model. Few would argue, however, that it's sensible to use the same single forecast for a subsequent six-week period.

The same arguments apply in even greater measure to another item in the **Choose a projection method** dropdown, *Average of same 6 week period last year*. Again, the assumption of this model is that the cash inflows from last year are a good predictor of the upcoming cash inflows – only this time, the average of the year-old data is used for each of the next six weeks. In a highly seasonal business, it makes good sense to look back a year, but almost no sense to push an average out six weeks.

Regarding this way of using the single-forecast model, Farnum and Stanton have written, "When forecasting is an ongoing activity we might object to the single-forecast model as being overly restrictive and unrealistic, because once data have been collected and a model has been fit, that *single* model becomes the basis for *all* future forecasts."[1]

Our advice is to avoid using the six-week average forecasts for more than one period beyond the current week. If you wish to use the six-week average, repeat the analysis weekly in order to turn it into a moving average.

There's one more item in the **Choose a projection method** dropdown: *Use a weighted average of last 6 weeks*. It's the default method, the one that's chosen when you first run the Projector. Here's what it does:

In the *average of last 6 weeks* method, discussed above, each week's cash receipts carries an equal weight in the average. You just take the sum of the weekly cash receipts and divide by 6. This is an *unweighted* average.

The *weighted* average multiplies each week's cash receipts by a different factor, or *weight*, before totaling them; then it divides by 6. Here's what it looks like in an Excel worksheet:

Cash receipts	Weight	Receipts times Weight
$ 36,027.24	0.1875	$ 6,755
$ 1,224.39	0.1875	$ 230
$ -	0.375	$ -
$ 47,703.42	0.75	$ 35,778
$ 13,191.51	1.5	$ 19,787
$ 31,102.65	3	$ 93,308
	Weighted Average:	$ 25,976

Figure 10.

Notice first that the cash receipts in the first column agree with those shown for the most recent six weeks, shown in Figure 4. Also notice that the weighted average of $25,976 agrees with the weighted average calculated by the Cash Flow Projector and shown in Figure 2.

You can demonstrate the same outcome for yourself by entering the six weights, ranging from 0.1875 to 3, into a worksheet along with your own set of cash receipts for the past six weeks. Multiply the receipts by the weights and take the average of the results. It should agree with the weighted average as given by the Cash Flow Projector.

This projection method, the weighted average of the last six weeks, is stronger than the unweighted average shown in Figure 9 for one fundamental reason:

Using the unweighted average, each week's cash receipts have equal weight in the average. The weighted average method gives greater weight to more recent receipts. The assumption is that the

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[1] Farnum and Stanton, Quantitative Forecasting Methods, PWS-Kent, 1989.

more recent the observation, the more likely it is to resemble the next occurrence. If your weekly cash receipts have been trending up from, say, $5,000 last month to $8,000 last week, then it is rational to project that next week's receipts will be closer to $8,000 than to $5,000.

We can express the relative effect of the weights in percentage terms. See Figure 11.

Weeks back	Weight	Percent of effect
6	0.1875	3.13%
5	0.1875	3.13%
4	0.375	6.25%
3	0.75	12.50%
2	1.5	25.00%
1	3	50.00%

Figure 11.

Of course, this assumes that you have no special knowledge about next week. If you know that your business will be closed next week, and that you will make no sales, that's special knowledge, which is difficult to build into a weighted average without seeing your calendar.

If this weighted average approach is better than the unweighted average approach shown in Figure 9, it's not all that much better. Three issues are pretty clear:

1. It's still a single-forecast. The Cash Flow Projector is asking you to let it apply weights that get smaller the farther back you go. Then it wants to apply the same result in each of the subsequent six weeks (again, see Figure 2). That's self-contradictory.

2. Why look exactly six weeks back? Why not four weeks, or 26?

3. Why specifically those weights? Bear in mind that the same weights, ranging from 0.1875 to 3, are used regardless of the company file that's open. There's nothing magical about them.

It's important to your business planning to be able to look ahead and estimate your net income. It's probably not quite as important to be able to look ahead and estimate your cash flows, but it *is* important. You can have plenty of net income, but if it never turns into cash then you're not going to be able to pay your bills.

Fortunately, there are much stronger ways to forecast cash (and net income as well) than the QuickBooks Cash Flow Projector offers you. Some are based on least squares regression, some on what's called *exponential smoothing* – a hifalutin name for a straightforward technique that has lots of intuitive appeal and strong practical uses. Beyond the Ledgers is in the process of developing a tool based on smoothing that will enable you to forecast your cash inflows and your net income much more accurately than the approaches offered by the Cash Flow Projector.