

Financial Planner/Projector

Derek Parker

Fall 2010

ISys 520: Spreadsheet Automation

Executive Summary:

Many people do not effectively manage their personal finances. For some it is due to their lack of keeping a budget. For others it is because they can't see the big picture and how it all plays together. Financial security in retirement, for example, doesn't just happen. It's the result of a lifetime of financial decisions. In addition to a lack of planning, ignorance of any kind of financial planning software prohibits many from delving into their finances. I wanted a tool which was very user-friendly and could be effectively used by people with no knowledge of Excel.

My project is a financial planning and projecting tool which can be used to see the big picture of your financial decisions over a long period of time or used to build a budget one year out. For example, you can input your information to reflect the way you are currently living and see where those habits will get you five, ten, fifty, or more years down the road (long-term). This tool can also be used to calculate a budget for a single year at a time (short-term). The output of the tool is detailed enough to allow you to scrutinize over individual expenses, or just look at the bottom line when all is said and done.

Implementation:

In a nutshell, the user inputs their personal information into user forms, the user forms populate a summary worksheet (where the user can review their info and make changes as desired), and a separate sub procedure uses the summary worksheet to populate a customized financial plan for the time period specified. The first tab in the workbook is simply a list of the five steps the user takes to complete their own financial projection (see image below).

	A	B	C	D
1				
2	5 STEPS TO PROJECTING YOUR FINANCIAL FUTURE			
3				
4	1)	ON THE "ASSUMPTIONS" TAB, CLICK THE "INSERT ASSUMPTIONS" BUTTON AT THE TOP OF THE PAGE.		
5	2)	ENTER YOUR EXPECTATIONS ON THE FORM AND CLICK "NEXT" TO MOVE TO THE NEXT FORM.		
6	3)	ONCE YOU'VE FINISHED ENTERING YOUR EXPECTATIONS, CLICK "DONE".		
7	4)	YOU CAN REVIEW THE ASSUMPTIONS YOU ENTERED AND, WHEN YOU'RE SATISFIED, CLICK THE "PROJECT MY FINANCES" BUTTON AT THE TOP OF THE "ASSUMPTIONS" TAB. IF SOMETHING ISN'T RIGHT, JUST CLICK ON THE "EDIT" BUTTON NEXT TO THAT PIECE OF INFORMATION ON THE "ASSUMPTIONS" TAB AND CHANGE IT AS YOU'D LIKE. CLICK "PROJECT MY FINANCES" WHEN YOU'RE DONE.		
8	5)	EXAMINE YOUR PROJECTED FINANCIAL STANDING FOR A GIVEN YEAR OR THE CHANGE IN YOUR CUMULATIVE NET WORTH ACROSS YEARS.		
9				

Information input by the user (into the forms) include: a name for their project, a desired time frame (in years), expected inflation rate, salary expectations (for them and/or for a spouse), investment holdings, financial aid, other income information, and anticipated expenses. Users also input their expected tax rates through a user form which holds a web browser and allows the user direct access to an online tax calculator. Using the tax calculator, the user simply types in the resulting tax rate (see image below).

Instructions

- 1.) Scroll to the Tax Estimator Calculator in the middle of the web browser below.
- 2.) Fill in the information by clicking through each of the buttons on the form.
- 3.) Once you have calculated your taxes for the current year, type the effective tax rate (shown in the gray box beneath the bolded sentence at the bottom of the tax estimator) into the "Estimated Tax Rate:" box beneath the web browser.

Federal Income Tax Calculator
Find more sources/options for what you're looking for
www.webcrawler.com

Accounting & Tax Services
Check out our accounting and tax preparation rates here today!
home.earthlink.net/~blackdca/tfs

Corporate Tax Solutions
High level tax consulting and compliance solutions for businesses
www.TaxOps.com

Resolve Tax Debt
20K+ in Debt to the IRS? Speak to Us Today for a Free Consultation
www.TaxResolution.com/Debt

Calculate Payroll Taxes
Easy & Hassle Free. Sign Up With Paychex® Now & Get A Free Quote!
www.Paychex.com

Federal Tax Calculator
Find and Compare Info on Federal Tax

1040 Tax Estimator for 2010

Filing status:

Total exemptions: 0

Total income: \$50,000

Total adjustments: \$0

Adjusted gross income: \$50,000

Taxable income: \$44,300

Total credits: \$0

Total tax: \$7,256

Total payments and refundable credits: \$400

Your taxes are estimated at \$6,856.

This is 13.71% of your total income of \$50,000. Your total tax payments for the year were \$0. Your outstanding tax bill is estimated at \$6,856. This puts you in the 25.00% tax bracket.

Estimated Tax Rate:

My financial tool makes extensive use of user forms, which are one of the best ways to facilitate data entry for inexperienced users who aren't comfortable (or shouldn't be) manipulating raw data and/or formulas. Because I wanted to make it as fluid as possible for users, I tried to cover as many options as possible in the forms. For example, I provide the user the option of choosing whether an expense is a monthly, yearly, or percentage-basis expense and enter the amount in that format so they don't have to try and figure out how to keep everything consistent. I went to the extent of disallowing the user to enter an amount when "Percentage" is selected for the expense type since the percentage will be calculated separately for each year required. As such, I probably used a couple hundred different user form controls (text boxes, labels, option boxes, command buttons, etc). I programmed the forms to load any values already input by the user when they go back into the forms to edit information.

Since it only takes one messed-up cell to destroy a whole spreadsheet, I made it a priority to write the code to handle everything through the user forms. The user never has to touch the spreadsheet itself, let alone edit any cells, do any math, or perform any excel functions. Their role is restricted to clicking the buttons inserted on the sheets and moving between three clearly labeled tabs. To accomplish this objective, I protected each of the worksheets to prevent any intentional or unintentional blunders. The tricky part about that is that even VBA won't mess with the cells when they're protected, so I had to provide each of the eight forms with the ability to unprotect the sheets, manipulate them, and protect them again. Of course, that is all done in an instant and the user never has access to unprotected sheets. See the image below for an example of a simple block of code used to maintain protected worksheets.

```

Sub loadName ()
    Sheets("Assumptions").Unprotect
    Cells(3, 1).Value = "Summary of " & txtName.Value
    Sheets("Assumptions").Protect
End Sub

Private Sub btnDone_Click()

```

For ease of use, I made the process completely accessible. That is, the user can move back and forth through the forms as desired with “Previous” and “Next” buttons and can even access each form directly and immediately through the “Edit” buttons situated next to each class of data on the “Assumptions” tab for quick changes. You can see all of the blue “Edit” buttons on the screenshot below.

Row	Column A	Column B	Column C	Column D	Column E	Column F	Column G
1	Insert Assumptions		Project My Finances				
3	Summary of						
4	Start Year		Edit	Expected Inflation:		Edit	
5	End Year						
7	Salary #1			Spouse Salary #1			
8	Beginning Salary			Beginning Salary			
9	Salary Growth Rate		Edit	Salary Growth Rate		Edit	
10	Annual Bonus			Annual Bonus			
11	Year Starting			Year Starting			
13	Salary #2			Spouse Salary #2			
14	Beginning Salary			Beginning Salary			
15	Salary Growth Rate		Edit	Salary Growth Rate		Edit	
16	Annual Bonus			Annual Bonus			
17	Year Starting			Year Starting			
19	Salary #3			Spouse Salary #3			
20	Beginning Salary			Beginning Salary			
21	Salary Growth Rate		Edit	Salary Growth Rate		Edit	
22	Annual Bonus			Annual Bonus			
23	Year Starting			Year Starting			
25	Investment #1			Scholarships			
26	Initial Investment			Amount:			
27	Year Invested			Beginning Year:		Edit	
28	Expected Growth Rate		Edit	Ending Year:			
29	Yearly Contribution			Grants			
30	Duration of Investment			Amount:			
31				Beginning Year:		Edit	
32	Investment #2			Ending Year:			
33	Initial Investment			Other Financial Aid			

Once the user has navigated the user forms to populate the data, they can review their input to ensure its accuracy and then, by clicking the “Project My Finances” button at the top, they will be taken to the “Projections” tab to view their results (as shown below).

Blank Financial Projector Test 1.xlsm - Microsoft Excel non-commercial use										
Home Insert Page Layout Formulas Data Review View Developer										
A10										
A	B	C	D	E	F	G	H	I	J	K
1	Derek's Projections for 2012 to 2025									
2										
3										
4			2012	2013	2014	2015	2016	2017	2018	2019
5	Income									
6	Salary		\$51,000.00	\$53,500.00	\$56,125.00	\$58,881.25	\$77,000.00	\$80,750.00	\$84,687.50	\$88,821.88
10	Spouse Salary		\$11,000.00	\$11,200.00	\$11,404.00	\$11,612.08	\$22,000.00	\$22,400.00	\$22,808.00	\$23,224.16
14	Investments		\$3,000.00	\$3,000.00	\$10,680.00	\$19,100.80	\$23,234.85	\$27,743.74	\$32,662.48	\$38,029.42
18	Financial Aid		\$6,000.00	\$7,000.00	\$7,000.00	\$1,000.00				
22	Other Income			\$2,000.00	\$2,000.00	\$12,000.00	\$12,000.00	\$12,000.00	\$10,000.00	\$10,000.00
26	Gross Income		85000	99900	118293	146307.01	191469.7	205037.48	215628.46	231329.04
27	Change From Prior Year			17.5%	18.4%	23.7%	30.9%	7.1%	5.2%	7.3%
29	Taxes		\$11,653.50	\$13,696.29	\$16,217.97	\$20,058.69	\$26,250.50	\$28,110.64	\$29,562.66	\$31,715.21
31	Expenses									
32	Charitable Contributions		\$8,500.00	\$9,990.00	\$11,829.30	\$14,630.70	\$19,146.97	\$20,503.75	\$21,562.85	\$23,132.90
33	Savings Goals									
34	Emergency Funds		\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00
35	Retirement		\$8,500.00	\$9,990.00	\$11,829.30	\$14,630.70	\$19,146.97	\$20,503.75	\$21,562.85	\$23,132.90
36	Other:New Car		\$1,800.00	\$1,800.00	\$1,800.00	\$1,800.00	\$1,800.00	\$1,800.00	\$1,800.00	\$1,800.00
37	Other:House		\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00
38	Other:Tools		\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00
39	Housing Expenses									
40	Rent/Mortgage		\$11,400.00	\$11,400.00	\$11,400.00	\$11,400.00	\$11,400.00	\$11,400.00	\$11,400.00	\$11,400.00
41	HOA									
42	Homeowner's Insurance									
43	Home Repairs/Improvement		\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00
44	Utilities									
45	Electric		\$240.00	\$240.00	\$240.00	\$240.00	\$240.00	\$240.00	\$240.00	\$240.00
46	Gas		\$360.00	\$360.00	\$360.00	\$360.00	\$360.00	\$360.00	\$360.00	\$360.00
47	Water		\$480.00	\$480.00	\$480.00	\$480.00	\$480.00	\$480.00	\$480.00	\$480.00
48	Phone-land line		\$600.00	\$600.00	\$600.00	\$600.00	\$600.00	\$600.00	\$600.00	\$600.00

The user can look at any level of detail desired or they can simply skip to the summary lines (as shown below) to see the change from year to year in their income, expenses, cash flow, and all of those same things adjusted for inflation as well.

26	Gross Income		85000	99900	118293	146307.01	191469.7	205037.48	215628.46	231329.04
27	Change From Prior Year			17.5%	18.4%	23.7%	30.9%	7.1%	5.2%	7.3%
73	Total Expenses	\$	85,217.50	\$ 90,240.29	\$ 96,440.57	\$ 105,884.09	\$ 121,108.44	\$ 125,682.13	\$ 129,252.35	\$ 134,545.02
74	Change From Prior Year			6%	7%	10%	14%	4%	3%	4%
76	Net Cash Flow		(\$217.50)	\$9,659.71	\$21,852.43	\$40,422.92	\$70,361.26	\$79,355.35	\$86,376.11	\$96,784.02
77	Change From Prior Year			-4541.2%	126.2%	85.0%	74.1%	12.8%	8.8%	12.0%
79	Cumulative Excess (Deficient) Cash Flow		(\$217.50)	\$9,442.21	\$31,294.64	\$71,717.56	\$142,078.82	\$221,434.17	\$307,810.27	\$404,594.29
82	Inflation Adjusted Data									
83	Gross Income		\$82,524.27	\$96,990.29	\$114,847.57	\$142,045.64	\$185,892.91	\$199,065.51	\$209,348.02	\$224,591.30
84	Expenses		\$82,735.44	\$87,611.93	\$93,631.62	\$102,800.09	\$117,581.01	\$122,021.49	\$125,487.72	\$130,626.23
85	Net Cash Flow		(\$211.17)	\$9,378.36	\$21,215.95	\$39,245.55	\$68,311.91	\$77,044.02	\$83,860.30	\$93,965.07
86	Cumulative Excess(Deficient) Cash Flow		(\$211.17)	\$9,167.19	\$30,383.15	\$69,628.70	\$137,940.60	\$214,984.63	\$298,844.92	\$392,809.99

Discussion of Learning:

I may have learned more in Spreadsheet Automation than I did in any other class this year. It is a foreign language to be sure and one of which I could not speak a single word before taking the class. Basically, everything was new to me and I am very pleased with how much new knowledge and skills I've been able to acquire. In fact, I already have plans for a couple projects that I'm eager to do using VBA. With that said, specific things of which I solidified my understanding and/or learned well from my project include:

- Case Select constructs
- Option Explicit functionality/public variable usage
- Option Base 1 functionality
- Protecting worksheets with VBA
- With constructs
- If Then constructs
- User Forms
 - Option buttons
 - Web browsers
 - Frames
 - Multipages
 - Formatting and altering text boxes
 - Command Buttons

The most difficult conceptual issues I had involved the complexities of creating an output worksheet that was fully dynamic in that there weren't a predetermined number of columns of output data. I wanted the output data to extend only as far as the range specified by the user which could vary every time. I had to write the code to only populate the sheet based on those criteria, which got to be more tricky than I anticipated, but certainly helped me get a much better grasp on the use of public variables.

Another time-consuming hang up I ran into involved the intricate differences in the functionality of various user form controls. For example, it took a bit of searching to figure out how the multipage control worked. At first I thought I could move between pages just like I move between forms. I quickly learned that didn't work. I actually never went to office hours for help, which you may think is stupid of me or you may appreciate me not bombarding you with more questions, but what I can say is that because I worked so hard to figure out the things I learned, I'm confident that I'll retain them well and that I learned them better than I otherwise would have. Let's just say I got to be fairly proficient at using google, using the object browser, and seeking out information to help me write code.

After spending approximately 50 or 60 hours on my project, I wasn't able to incorporate some of the dynamics I wished to have in my project. For example, I wanted the user to input certain life expectations, such as the arrival of children, plans to pay for their children's educations, etc. and allow my code to use that data to calculate more accurate expenses and the timing of those expenses. I didn't realize at the onset how much would be involved in this project. As it stands, I've written 1548 lines of code to get to where I'm at. In fact, I have plans to continue work on my project and improve it further even though I won't be able to finish all the bells and whistles that I want by the submission deadline.