

A MANAGEMENT FOCUSED TOOL FOR DEVELOPING PRO-FORMA FINANCIAL STATEMENTS

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ABSTRACT

Developing pro-forma financial statements and associated financial analysis is an important undertaking for new and existing business alike. This paper reports user experiences with a spreadsheet-based method for developing pro-forma financial statements as developed in Jalbert (2017). The paper also presents improvements and enhancements to the template. The forecasting approach reported on here requires users to simply enter their firm-specific figures. As such it is particularly useful for individuals without extensive training in finance. The tool does not require programming or the use of plug figures and does not result in circular references which are all common to other tools. The template provides a powerful tool for entrepreneurs and for teaching management, accounting and finance courses. The tool is suitable for both novice and advanced users.

JEL: A2, G31, M13, M41

KEYWORDS: Financial Statements; Pro-Forma Financial Statements, Forecasting, Entrepreneurship, Small Business Finance, Accounting for Small Businesses

INTRODUCTION

Creating pro-forma financial statements and comprehensive financial analysis constitutes an important step in business planning. Users can become overwhelmed by complexity of the work. They may also have trouble linking elements of the financial analysis together in consistent and meaningful ways to produce quality analysis. Frustrated users might give up or resort to hiring costly professional help to complete the analysis. These expenditures utilize scarce resources needed otherwise to start or grow a business.

Jalbert (2017), develops a financial statement forecasting tool. The template includes forecasted financial statements, a capital budget, calculations of firm value and ratio analysis. The template is highly automated requiring users to enter managerial variables only. The template utilizes a high degree of automation assuring calculation accuracy. This high degree of accuracy can inspire confidence from skeptical bankers. The approach does not require plug-figures. Rather, the calculation of each variable is supported. Further, the spreadsheet does not create circular references, a problem that has been noted in other approaches.

The template addresses considerations commonly associated with start-up firms. Owners of startup firms sometimes do not take a wage. The template incorporates these non-expenses labor amounts into the analysis to more accurately evaluate projects. It also supports the use of Section 179 expense election tax treatment and other immediate expensing options on purchased assets. These special depreciation tools are commonly used by small and intermediate sized firms.

The template provides a useful resource for entrepreneurs, managers, financial planners and other business professionals. The template also holds promise as a teaching tool for business and finance courses. The tool combines accounting and finance considerations and allows users to see and understand the impact that changes in one variable have on the remaining financial analysis. The template can accommodate professors wishing to reduce automation and require students to complete additional calculations. It can also accommodate those that wish to introduce additional complexity to the tool.

The research presented here improves upon and enhances the work of Jalbert (2017). The improvements here make the template easier to use, reduces the need for external data sources and utilizes a more conservative approach to capital budgeting. The remainder of the paper is organized as follows. The next section discusses the relevant literature. The following section discusses improvements to the template developed here. The paper continues by presenting the revised spreadsheets and providing accompanying discussion of the template. The paper closes with some concluding comments.

LITERATURE REVIEW

Some financial research addresses financial statement forecasting, however; the extant body of literature is not extensive. One stream of research describes methods for forecasting financial statements based on historical data. Kerry (2010) forecasts financial statements based on historical financial statements of a firm along with those of other firms. His model requires the user to input macroeconomic data and some user forecasts of selected account items. With these inputs his approach produces forecasted financial statements.

Vélez-Pareja, I. and J. Tham (2008) and Vélez-Pareja (2011) also develop a system for forecasting financial statements based on historical data. They note that their system, unlike many available options, does not require plug figures to balance the financial statements. Arnold (2011) also develops pro-forma financial statements and demonstrates links between common stock and long-term debt, which are commonly entered as plug figures in financial statement forecasting.

Jalbert, Briley and Jalbert (2012) utilize Risk Management Associates (RMA), Annual Statement Studies data to forecast financial statements. RMA data provides summary historical, and current, data. RMA data averages financial values for groupings of firms within an industry. Their method provides an alternative to the percentage of sales method that might appeal more to loan officers.

Drougas and Johnson (2004) develop a system to facilitate financial statement understanding by undergraduate students. They create simulated financial statements with a focus on the role of uncertainty in forecasts. Desanctis and Jarvenpaa (1989) examine how three information presentation methods affect forecast accuracy. They consider numerical formats, graphical formats, and a combination of numeric and graphical formats. They find that graphical formats result in better forecast accuracy. Others that develop financial statement forecasting techniques include Cheremushkin (2010), who focuses on retained earnings use by the firm and Vélez-Pareja (2010) who focuses on the role of tax shields and debt in developing forecasted financial statements.

A common difficulty associated with creating financial statements lies in estimating sales and sales growth. To address this difficulty Vorkink, K. and K. Workman (2016) suggest a four-step process for estimating sales as follows: 1.) calculate historical averages, 2.) use macroeconomic considerations to adjust the historical averages, 3.) incorporate adjustments for industry effects and 4.) incorporate adjustments for company-specific effects.

In addition to the academic literature, several patents related to financial analysis and financial statement forecasting exist. Erwin, Fortheringham and McGuinness (1998), U.S. Patent US6249770, utilize historical

account data for the firm to forecast financial statements. Their method incorporates inflation adjustments and exchange rates in their forecasts. Other patents, and patent applications, exist that involve forecasting financial statements and related issues (Chopra, Masih, Chugh, Bidkar and Navani, 2015).

TEMPLATE ENHANCEMENTS

The author of this paper utilized the Jalbert (2017) template as a starting point. After using a beta version of the tool and the final tool developed by Jalbert (2017) several observations were noted. First, the template does not provide instruction on how to properly use the tool. Some instructions were presented in Jalbert (2017). However, users may not have access to the entire research paper when preparing their financial statements. Moreover, users may not be willing to invest the time to work through an academic paper to fully understand the instructions. The new template presented here incorporates a list of instructions to guide users through completing the template.

The second observation relates to errors in capital budgeting analysis. When completing the capital budget, users must enter the sales prices of items sold upon closing the business. Users may make errors when entering these terminal cash flows. Specifically, they may report sales prices for equipment that had not been previously purchased. The solution, incorporated into the template here, involves error messages calling users attention to problematic entries. The spreadsheet does this by comparing items being sold to items that were purchased earlier. If a user reports a sales prices for an item that was not previously purchased, an error message appears.

A third observation relates to long term assets. The template of Jalbert (2017) requires depreciating or immediately expensing all long-term assets purchased at the outset of the project. While this is a common occurrence, a few situations occur whereby long-term assets should not be depreciated, such as the case of land purchases. To accommodate these situations, the new template presented here includes a separate category for non-depreciable long-term assets.

The fourth observation relates to tax computations on the income statement. Jalbert (2017) uses the corporate tax rate to compute net income. This template is modified to utilize the personal ordinary income tax rate. Most users of the template are likely small businesses inclined to select an organizational form that subjects it to pass-through taxation. Thus, the change incorporated here results in a template more directly applicable to its primary users. Advanced users wishing to use the corporate tax rate may do so through a simple template modification that does not otherwise affect spreadsheet calculation techniques.

A fifth observation relates to sales estimates. The Jalbert (2017) template allows for a single sales input, all of which are subject to a Cost of Goods Sold (COGS). If sales are services, the user simply set the COGS percentage in the input variable section equal to zero to reflect this reality. However, the template does not easily accommodate revenue mixes that include both products and services. To simplify these computations, the template here includes rows for both product sales and other sales. COGS calculations apply to only the product sales.

Further, users may not realize that a positive entry for common stock is required. The template here incorporates a new error message that reminds users that accounting conventions require a positive entry for this field.

No known research addresses the appropriate method for handling accumulated cash from operations in the capital budget. The Jalbert (2017) template uses an aggressive form of capital budgeting. The method uses total cash accumulated in the business upon closing as a terminal cash flow. This approach commonly results in a large terminal cash flow. The aggressiveness occurs because profits reported earlier consider these cash flows. Thus, this approach creates cash flow estimates, net present value and internal rate of

return calculations that are arguably aggressive. The revised template presented here uses a more conservative capital budgeting approach. The new template considers only the beginning cash invested in the firm as a terminal cash flow. Other cash accumulated through operations, and where there exists an associated operating cash flow, are excluded from the terminal cash flow calculations. The template here is also modified to use the cost of equity for Net Present Value calculations rather than the weighted average cost of capital (WACC). This approach generally introduces more conservatism to the result.

Finally, for the Jalbert (2017) template users needed to access external data sources to determine values for required input variables. These variables include the cost of equity, average interest rates on loans, and the relevant tax rates. The template here includes two new worksheets to help users address this issue. The 'Tax' worksheet includes information to assist users with determining the appropriate tax rates to input for the corporate tax, ordinary income and capital gains. The tool does not automatically compute the tax rates because of tax-code complexity. However, users can use the provided information to approximate their relevant tax rates. The worksheet titled 'Cost of Cap' provides information to help users determine the appropriate costs of funds. Separate information is included to estimate the cost of equity and cost of debt. These tax rates and costs of funds data should be updated annually, prior to distributing the tool to potential users.

REVISED TEMPLATES

This section presents the revised template that incorporate improvements and enhancements to the template presented by Jalbert (2017). As with most financial models, the template here requires simplifying assumptions. This section begins by outlining these assumptions. Like the predecessor template, the template here allows capital equipment purchased, expensed using standard depreciation tools, at the outset of the project only. Users may choose between four depreciation methods, 1.) 3-year MACRS, 2.) 5-Year Straight Line, 3.) 5-year MACRS, and 4.) 39-Year Straight Line. Items purchased after initiation of the business must be immediately expensed using Section 179 expense election or other immediate expensing options. The analysis further assumes the direct cost of producing product sales (COGS), remains constant as a percentage of sales. Advanced users can override the annual COGS automatic calculations to produce a time variant COGS. Overriding this figure does not require other changes in the spreadsheet.

The financial analysis utilizes a five-year framework. The capital budget is estimated such that all assets are sold, and the business is terminated, upon completion of the fifth year of operations. Further, the template assumes all liabilities are paid in full at the end of the fifth year. The approach here discounts total cash flows at the cost of equity, K_E . Advanced users might elect to change the discount rate to the Weighted Average Cost of Capital (WACC) or modify the relevant cash flows considered in the capital budget.

Revised Financial Analysis Template

This section presents the revised financial analysis template. An Excel spreadsheet contains the template's six worksheets. Worksheet 'S1' is the primary worksheet. It includes the input variables, income statement, statement of retained earnings, statement of cash flows, balance sheet, capital budget analysis, computation of firm value, and ratio analysis. Users enter their information in the 'S1' worksheet. The worksheet 'Steps' contains directions for users to follow in incorporating their firm data in the spreadsheet. The worksheet 'DP' contains depreciation computations. The worksheet 'Cost of Cap' provides information to assist users in estimating the cost of equity and cost of obtaining loans. The worksheet 'Tax' provides information to assist users in estimating tax rate entries required in the input section of 'S1'. Finally, the worksheet 'EM' includes error message that populate in various locations within the spreadsheet when an entry does not conform to basic financial analysis rules.

Table 1: Steps to Complete the Template

	A	B	C	D	E	F	G	H	I	J	K
1	Step 1:	DO NOT MODIFY ANY BOLDED ITEMS. THESE FIGURES ARE AUTOMATICALLY CALCULATED									
2											
3	Step 2:	ENTER DATA FOR YOUR INITIAL (TIME 0) BALANCE SHEET									
4		CELLS: A78-A115: Modify the unbolded row headings to reflect your accounts.									
5		CELLS: B78-B115: Enter the beginning balance sheet data in unbolded cells									
6		CELL A116: Check Error Message: Confirm the Year 0 asset amount equals the liabilities and equity amount.									
7		CELLS B111-G111: Confirm you have included a positive entry for common stock in each year.									
8											
9	Step 3:	INPUT DATA FOR YOUR INCOME STATEMENT FOR YEARS 1-5									
10		CELLS A20-A25: Modify the unbolded row headings to reflect your expense categories.									
11		CELL B8: Input your estimates for COGS as a Percentage of Sales.									
12		CELL B9: Input the General Excise Tax Rate you must pay on your sales.									
13		CELLS: C14-C36, D14-D36, E14-E36, F14-F36, G14-G36: Enter sales and expense estimates in unbolded cells.									
14											
15	Step 4:	REPORT SECTION 179 PURCHASES									
16		CELLS: ROW 26: Report any capital purchases made after the firm was started.									
17											
18	Step 5:	REPORT UNEXPENSED LABOR									
19		CELLS: ROW 145: Report the value of owner labor not expensed on the income statement.									
20											
21	Step 6:	ADDRESS CAPITAL STRUCTURE CHANGES									
22		CELLS: C79-C111, D79-D111, E79-E111, F79-F111, G79-G111: Modify the year 1-5 balance sheets to									
23		reflect changes in accounts. Changes might include increasing or reducing loan balances,									
24		increasing common stock contributions, and changes in assets utilized by the firm.									
25											
26	Step 7:	ESTIMATE THE COSTS OF FUNDS									
27		CELLS: B3 AND B4: Use information in the Cost of Cap worksheet to estimate Average									
28		Interest Rate Rate on Loans and Cost of Equity.									
29											
30	Step 8:	ESTIMATE INCOME TAX RATES									
31		CELLS: B6, B7 AND B8: Examine the Earnings Before Tax (EBT) data in the income statement.									
32		Utilize EBT data to estimate your tax rates. Information to do this is provided in the									
33		worksheet labeled TAX.									
34											
35	Step 9:	REVIEW THE DIVIDEND POLICY									
36		CELLS: ROW 41: Indicate your planned dividend payments									
37		CELLS: ROW 42: Confirm the dividend payments do not result in negative Retained earnings.									
38		CELLS: ROW 78: Confirm the dividend payments do not result in negative cash balances.									
39											
40	Step 10:	ESTIMATE SALES PRICES FOR ASSETS									
41		CELLS G165-G176: Indicate the recovery amounts of assets utilized by the business.									
42											
43	Step 11:	REPORT RMA RATIO DATA									
44		CELLS: H216-H222: Report relevant ratio values from RMA Annual Statement Studies.									

This table shows the steps necessary to complete the template.

The tool requires some user inputs. Other inputs are automatically calculated by the template. Users input items appear in plain text. The template automatically calculates items in bold text. The spreadsheet does not protect template-calculated variables allowing advanced users to make complex template adjustments to accommodate specific needs. The author encourages users to back up their data prior to changing bolded items in the event of unexpected results. The presentation includes both numeric and formula presentations when appropriate. Tables 1-10 show the template in numeric format. Tables 2F-7F show the relevant underlying formulae. The presentation does not accommodate some large formulae. In these instances, the indicator * along with a number indicates formulae presentation in the table note.

Table 1 adds a new worksheet to the Jalbert (2017) template. This table, contained in the worksheet ‘Steps’, provides users instructions on how to utilize the template. The instructions walk the user through eleven sequential steps to successfully enter the data for their firm in the template. Each step points users to specific cells within the tables that must be addressed by the user. By following these steps sequentially, users produce results in a logical framework.

The analysis begins with the entry of required input fields. Table 2 (Table 2F) indicates the necessary input variables and provides the income statement. Required inputs include the average interest rate on loans and cost of equity. The template provides guidance to determine these variables in the worksheet labeled ‘Cost of Cap’ discussed later in this document. The user must also enter the general excise tax rate (GET), capital gains tax rate (TPS), ordinary income tax rate (TPB) and corporate tax rate (TC). Worksheet ‘Tax’, also discussed later in this document, provides support for estimating these values.

Table 2: Input Variables and Income Statement

	A	B	C	D	E	F	G
1	INPUT VARIABLES						
2							
3	Average Interest Rate on Loans	7.250%					
4	Cost of Equity	12.000%					
5	Tax Rate on Capital Gains (TPS)	10.000%					
6	Tax Rate on Ordinary Income (TPB)	12.000%					
7	Corporate Tax Rate (TC)	21.000%					
8	Cost of Goods Sold as a % of Sales	40.000%					
9	General Excise Tax Rate	4.439%					
10							
11							
12	INCOME STATEMENT	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
13							
14	Product Sales with COGS		300,000	325,000	295,000	300,000	600,000
15	Other Sales without COGS		50,000	50,000	50,000	50,000	50,000
16	Total Sales		350,000	375,000	345,000	350,000	650,000
17	General Excise Tax		15,535	16,645	15,313	15,535	28,851
18	Cost of Goods Sold		120,000	130,000	118,000	120,000	240,000
19	Bank and Merchant Fees		15,000	15,000	15,000	15,000	15,000
20	Labor		30,000	30,000	30,000	30,000	60,000
21	Employee Benefits		5,000	5,000	5,000	5,000	10,000
22	Advertising		10,000	10,000	8,000	10,000	10,000
23	Rent		40,000	40,000	40,000	40,000	40,000
24	Utilities		5,000	2,000	5,000	5,000	5,000
25	Expense 5		0	0	0	0	0
26	Current Year Section 179 Purchases		20,000	0	20,000	0	0
27	Depreciation MACRS 3YR		9,900	13,500	4,500	2,100	0
28	Depreciation SL 5YR		8,000	8,000	8,000	8,000	8,000
29	Depreciation MACRS 5YR		12,000	19,200	11,400	7,200	6,600
30	Depreciation SL 39 Year Real Estate		2,564	2,564	2,564	2,564	2,564
31	Total Expenses		292,999	291,909	282,777	260,399	426,015
32	EBIT		57,001	83,091	62,223	89,601	223,985
33	Interest		8,700	11,963	9,063	11,238	6,525
34	EBT		48,301	71,129	53,160	78,363	217,460
35	Tax		5,796	8,535	6,379	9,404	26,095
36	Net Income		42,505	62,593	46,781	68,960	191,365

This table shows the input variables and Income Statement.

Table 2F: Input Variables and Income Statement (Formulae Display)

	A	B	C	D	E	F	G
1	INPUT VARIABLES						
2							
3	Avg. Interest Rate on Loans	0.0725					
4	Cost of Equity	0.12					
5	Tax Rate on Cap.Gains (TPS)	0.1					
6	Tax Rate on Ord. Inc. (TPB)	0.12					
7	Corporate Tax Rate (TC)	0.21					
8	COGS as a % of Sales	0.4					
9	General Excise Tax Rate	0.044386					
10							
11							
12	INCOME STATEMENT	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
13							
14	Product Sales with COGS	300000	325000	295000	300000	600000	
15	Other Sales without COGS	50000	50000	50000	50000	50000	
16	Total Sales	=SUM(C14:C15)	=SUM(D14:D15)	=SUM(E14:E15)	=SUM(F14:F15)	=SUM(G14:G15)	
17	General Excise Tax	=C16*\$B\$9	=D16*\$B\$9	=E16*\$B\$9	=F16*\$B\$9	=G16*\$B\$9	
18	Cost of Goods Sold	=C14*\$B\$8	=D14*\$B\$8	=E14*\$B\$8	=F14*\$B\$8	=G14*\$B\$8	
19	Bank and Merchant Fees	15000	15000	15000	15000	15000	
20	Labor	30000	30000	30000	30000	60000	
21	Employee Benefits	5000	5000	5000	5000	10000	
22	Advertising	10000	10000	8000	10000	10000	
23	Rent	40000	40000	40000	40000	40000	
24	Utilities	5000	2000	5000	5000	5000	
25	Expense 5	0	0	0	0	0	
26	Current Year Sec. 179	20000	0	20000	0	0	
27	Depreciation MACRS 3YR	=DP!D7	=DP!D8	=DP!D9	=DP!D10	=DP!D11	
28	Depreciation SL 5YR	=DP!I7	=DP!I8	=DP!I9	=DP!I10	=DP!I11	
29	Depreciation MACRS 5YR	=DP!N7	=DP!N8	=DP!N9	=DP!N10	=DP!N11	
30	Dep. SL 39 Year Real Estate	=DP!S7	=DP!S8	=DP!S9	=DP!S10	=DP!S11	
31	Total Expenses	=SUM(C17:C30)	=SUM(D17:D30)	=SUM(E17:E30)	=SUM(F17:F30)	=SUM(G17:G30)	
32	EBIT	=C16-C31	=D16-D31	=E16-E31	=F16-F31	=G16-G31	
33	Interest	*1	*2	*3	*4	*5	
34	EBT	=C32-C33	=D32-D33	=E32-E33	=F32-F33	=G32-G33	
35	Tax	=C34*\$B\$6	=D34*\$B\$6	=E34*\$B\$6	=F34*\$B\$6	=G34*\$B\$6	
36	Net Income	=C34-C35	=D34-D35	=E34-E35	=F34-F35	=G34-G35	

This table shows the formulae display for input variables and the income statement. Worksheet 'S1' contains all calculations with the exception of depreciation. Worksheet 'DP' presents supporting depreciation calculations. *1 =(C100+C101+C108)*\$B\$3, *2 =(D100+D101+D108)*\$B\$3, *3 =(E100+E101+E108)*\$B\$3, *4 =(F100+F101+F108)*\$B\$3, *5 =(G100+G101+G108)*\$B\$3. The spreadsheet automatically computes bolded items. Users enter data for their company in plain text cells.

The row titled General Excise Tax Rate represents the Hawaii General Excise Tax (GET). This tax is assessed on businesses in Hawaii based on sales. Businesses may elect to add this tax onto sales prices in a manner common to sales taxes. However, the business is responsible for the tax liability without regard to tax collections from customers. The Hawaii GET tax rate varies by island. The tax rate incorporated here equals 4.4386 percent, an amount relevant for the island of Hawaii. Users can adjust the percentage to reflect tax rates of their locality. Users not facing this tax may simply set the rate equal to zero percent.

In addition, users must enter the cost of goods sold (COGS) as a percentage of sales. As noted earlier, the spreadsheet holds COGS as a percentage of sales constant throughout the five-year analysis period. Advanced users may over-ride this calculation by directly entering the cost of goods sold dollar amount. While a bolded element, overriding the COGS figures in the income statement does not affect the remaining calculations. Users modify unbolded column headings, in Cells A20-A25, to reflect the expense categories

for their firm. Users then enter the relevant income statement figures in unbolded cells from A14-G25. Users may vary these amounts by year as determined appropriate.

The primary enhancement of Table 2 over previous versions of the template comes in the estimate of sales. As noted earlier, the previous iteration of this template computed COGS based on total sales. However, some sales, such as revenues for services provided, do not generally have accompanying COGS. The modification here allows product sales, for which COGS is calculated, and service sales without COGS.

Table 3 shows retained earnings and cash flow statements. These statements were not materially modified from their original version. Moreover, the only user entry required is the dividend amount in Row 41. Thus, we do not further discuss these tables here.

Table 3: Retained Earnings Statement and Cash Flow Statement

	A	B	C	D	E	F	G
38	STATEMENT OF RET. EARNINGS	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
39	Old Retained Earnings		0	42,505	55,098	51,879	45,839
40	Net Income		42,505	62,593	46,781	68,960	191,365
41	Dividends		0	50,000	50,000	75,000	100,000
42	New Retained Earnings		42,505	55,098	51,879	45,839	137,203
43							
44	STATEMENT OF CASH FLOWS	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
45	Net Income		42,505	62,593	46,781	68,960	191,365
46	Depreciation		32,464	43,264	26,464	19,864	17,164
47	<u>Increases in Liabilities</u>						
48	Short Term Bank Loans		-5,000	-5,000	35,000	-25,000	0
49	Credit Card Loans		25,000	-25,000	0	-30,000	0
50	Current Liabilities 3		0	0	0	0	0
51	Current Liabilities 4		0	0	0	0	0
52	Current Liabilities 5		0	0	0	0	0
53	Current Liabilities 6		0	0	0	0	0
54	Current Liabilities 7		0	0	0	0	0
55	Long Term Loans 1		25,000	-10,000	-5,000	-10,000	-5,000
56	Long Term Loans 2		0	-10,000	-10,000	-10,000	-10,000
57	Total Sources of Cash		119,969	55,857	93,245	13,824	193,529
58	<u>Increases in Assets</u>						
59	Inventory		0	0	0	0	0
60	Deposits		-10,000	20,000	20,000	-50,000	20,000
61	Asset 4		0	0	0	0	0
62	Asset 5		0	0	0	0	0
63	Asset 6		0	0	0	0	0
64	Asset 7		0	0	0	0	0
65	Non Depreciable LT Assets (Land)		0	0	0	0	0
66	Total Uses of Cash in Operations		-10,000	20,000	20,000	-50,000	20,000
67	<u>Cash Paid to and Received from Stockholders</u>						
68	Increase in Common Stock		7,000	0	0	0	0
69	Dividends		0	50,000	50,000	75,000	100,000
70	= Change in Cash Position		136,969	-14,143	23,245	-11,176	73,529
71							
72	Old Cash		20,000	156,969	142,826	166,071	154,895
73	Plus Change in Cash Position		136,969	-14,143	23,245	-11,176	73,529
74	New Cash Balance		156,969	142,826	166,071	154,895	228,424

This table presents the statements of retained earnings and cash flows. The template requires no user input for the statement of cash flows. Users must enter dividends paid in row 41 of the statement of retained earnings.

Table 3F: Statement of Retained Earnings and Statement of Cash Flows (Formulae Display)

	A	B	C	D	E	F	G
38	STMT OF RET EARN	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
39	Old Retained Earnings	=B112	=C112	=D112	=E112	=F112	=G112
40	Net Income	=C36	=D36	=E36	=F36	=G36	
41	Dividends	0	50000	50000	75000	100000	
42	New Retained Earnings	=C39+C40-C41	=D39+D40-D41	=E39+E40-E41	=F39+F40-F41	=G39+G40-G41	
43							
44	STMT. OF CASH FLOWS	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
45	Net Income	=C36	=D36	=E36	=F36	=G36	
46	Depreciation	=SUM(C27:C30)	=SUM(D27:D30)	=SUM(E27:E30)	=SUM(F27:F30)	=SUM(G27:G30)	
47	Increases in Liabilities						
48	=A100	=C100-B100	=D100-C100	=E100-D100	=F100-E100	=G100-F100	
49	=A101	=C101-B101	=D101-C101	=E101-D101	=F101-E101	=G101-F101	
50	=A102	=C102-B102	=D102-C102	=E102-D102	=F102-E102	=G102-F102	
51	=A103	=C103-B103	=D103-C103	=E103-D103	=F103-E103	=G103-F103	
52	=A104	=C104-B104	=D104-C104	=E104-D104	=F104-E104	=G104-F104	
53	=A105	=C105-B105	=D105-C105	=E105-D105	=F105-E105	=G105-F105	
54	=A106	=C106-B106	=D106-C106	=E106-D106	=F106-E106	=G106-F106	
55	=A108	=C108-B108	=D108-C108	=E108-D108	=F108-E108	=G108-F108	
56	=A109	=C109-B109	=D109-C109	=E109-D109	=F109-E109	=G109-F109	
57	Total Sources of Cash	=SUM(C45:C56)	=SUM(D45:D56)	=SUM(E45:E56)	=SUM(F45:F56)	=SUM(G45:G56)	
58	Increases in Assets						
59	=A79	=C79-B79	=D79-C79	=E79-D79	=F79-E79	=G79-F79	
60	=A80	=C80-B80	=D80-C80	=E80-D80	=F80-E80	=G80-F80	
61	=A81	=C81-B81	=D81-C81	=E81-D81	=F81-E81	=G81-F81	
62	=A82	=C82-B82	=D82-C82	=E82-D82	=F82-E82	=G82-F82	
63	=A83	=C83-B83	=D83-C83	=E83-D83	=F83-E83	=G83-F83	
64	=A84	=C84-B84	=D84-C84	=E84-D84	=F84-E84	=G84-F84	
65	=A86	=C86-B86	=D86-C86	=E86-D86	=F86-E86	=G86-F86	
66	Total Uses of Cash in Oper.	=SUM(C59:C65)	=SUM(D59:D65)	=SUM(E59:E65)	=SUM(F59:F65)	=SUM(G59:G65)	
67	Cash to and from Stckhldrs						
68	Increase in Common Stock	=C111-B111	=D111-C111	=E111-D111	=F111-E111	=G111-F111	
69	Dividends	=C41	=D41	=E41	=F41	=G41	
70	= Change in Cash Position	*6	*7	*8	*9	*10	
71							
72	Old Cash	=B78	=C78	=D78	=E78	=F78	=G78
73	Plus Chg. in Cash Position	=C70	=D70	=E70	=F70	=G70	
74	New Cash Balance	=SUM(C72+C73)	=SUM(D72+D73)	=SUM(E72+E73)	=SUM(F72+F73)	=SUM(G72+G73)	

This table shows the formulae display for variables in the Retained Earnings and Cash Flow Statements. Worksheet 'S1' contains all computations except depreciation. Worksheet 'DP' presents supporting depreciation calculations. *6 =sum(C57-C66+C68-C69), *7 =sum(D57-D66+D68-D69), *8 =sum(E57-E66+E68-E69), *9 =sum(F57-F66+F68-F69), *10 =sum(G57-G66+G68-G69). The spreadsheet automatically computes bolded items. Users enter data for their company in plain text cells.

The discussion moves forward to the balance sheet presented in Table 4 (Table 4F), where users are directed to enter specific business information. Users begin by modifying the unbolded row headings to reflect the assets and liabilities accounts utilized by the business (Cells A79-A84). Next, users enter data for the initial balance sheet in column Yr. 0 (Cells B78-B114). Users can select from four depreciation choices by entering their initial balance sheet data in the corresponding row. As with all balance sheets, the process involves answering two fundamental questions: 1.) Which assets will the firm require?, and 2.) How will the firm finance the purchase of these items. Once the initial balance sheet meets the accounting standard Assets = Liabilities + Equity, users may modify unbolded items in subsequent balance sheets to reflect time-changing variations in the accounts. All necessary follow through changes, are automatically completed. Users can select from four depreciation methods by entering their data in the relevant row.

Two primary modifications were made to the balance sheet. First, an additional error message is incorporated. The message appears in cells B116 through G116 and identifies non-positive common stock amounts. Specifically, the error message indicates "ERROR! The common stock value is not valid. Common stock must be entered as a positive number." The second balance sheet modification creates an entry for non-depreciable long term assets such as land. These amounts are incorporated in cells B86-G86.

In the previous template iteration, depreciation applied to all long term assets. Incorporating non-depreciable long term assets improves the accuracy of estimates made with the template. Other elements of the balance sheet remain consistent with those presented in Jalbert (2017). The curious reader is referred to the earlier work for additional balance sheet discussion.

Table 4: Balance Sheet

	A	B	C	D	E	F	G
76	BALANCE SHEET	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
77	Assets						
78	Cash	20,000	156,969	142,826	166,071	154,895	228,424
79	Inventory	10,000	10,000	10,000	10,000	10,000	10,000
80	Deposits	53,000	43,000	63,000	83,000	33,000	53,000
81	Asset 4	0	0	0	0	0	0
82	Asset 5	0	0	0	0	0	0
83	Asset 6	0	0	0	0	0	0
84	Asset 7	0	0	0	0	0	0
85	Total Current Assets	83,000	209,969	215,826	259,071	197,895	291,424
86	Non Depreciable LT Assets (Land)	100,000	100,000	100,000	100,000	100,000	100,000
87	Long Term Asset MACRS 3YR	30,000	30,000	30,000	30,000	30,000	30,000
88	Accumulated Depreciation 3YR		9,900	23,400	27,900	30,000	30,000
89	Long Term Asset SL 5YR	40,000	40,000	40,000	40,000	40,000	40,000
90	Accumulated Depreciation SL 5YR		8,000	16,000	24,000	32,000	40,000
91	Long Term Asset MACRS 5YR	60,000	60,000	60,000	60,000	60,000	60,000
92	Accumulated Depreciation MACRS 5 YR		12,000	31,200	42,600	49,800	56,400
93	Real Estate 39 Years	100,000	100,000	100,000	100,000	100,000	100,000
94	Accumulated Depreciation RE 39 YR SL		2,564	5,128	7,692	10,256	12,821
95	Total Depreciable Fixed Assets	230,000	230,000	230,000	230,000	230,000	230,000
96	Total Accumulated Depreciation	0	32,464	75,728	102,192	122,056	139,221
97	Total Assets	413,000	507,505	470,098	486,879	405,839	482,203
98							
99	Liabilities and Equity						
100	Short Term Bank Loans	25,000	20,000	15,000	50,000	25,000	25,000
101	Credit Card Loans	50,000	75,000	50,000	50,000	20,000	20,000
102	Current Liabilities 3	0	0	0	0	0	0
103	Current Liabilities 4	0	0	0	0	0	0
104	Current Liabilities 5	0	0	0	0	0	0
105	Current Liabilities 6	0	0	0	0	0	0
106	Current Liabilities 7	0	0	0	0	0	0
107	Total Current Liabilities	75,000	95,000	65,000	100,000	45,000	45,000
108	Long Term Loans 1	45,000	70,000	60,000	55,000	45,000	40,000
109	Long Term Loans 2	100,000	100,000	90,000	80,000	70,000	60,000
110	Total Liabilities	220,000	265,000	215,000	235,000	160,000	145,000
111	Common Stock	193,000	200,000	200,000	200,000	200,000	200,000
112	Retained Earnings	0	42,505	55,098	51,879	45,839	137,203
113	Total Equity	193,000	242,505	255,098	251,879	245,839	337,203
114	Total Liabilities and Equity	413,000	507,505	470,098	486,879	405,839	482,203
115	Cumulative Section 179 Purchases		20,000	20,000	40,000	40,000	40,000
116							

This table shows the balance sheet template.

Table 4F: Balance Sheet (Formulae Display)

	A	B	C	D	E	F	G
76	BALANCE SH1	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
77	Assets						
78	Cash	20000	=C74	=D74	=E74	=F74	=G74
79	Inventory	10000	10000	10000	10000	10000	10000
80	Deposits	53000	43000	63000	83000	33000	53000
81	Asset 4	0	0	0	0	0	0
82	Asset 5	0	0	0	0	0	0
83	Asset 6	0	0	0	0	0	0
84	Asset 7	0	0	0	0	0	0
85	Total C.A.	=SUM(B78:B84)	=SUM(C78:C84)	=SUM(D78:D84)	=SUM(E78:E84)	=SUM(F78:F84)	=SUM(G78:G84)
86	Non Dep. LT A.	100000	=B86	=C86	=D86	=E86	=F86
87	L. T. mACRS 3	30000	=B87	=C87	=D87	=E87	=F87
88	A.D. 3		=B88+C27	=C88+D27	=D88+E27	=E88+F27	=F88+G27
89	L.T. SL 5	40000	=B89	=C89	=D89	=E89	=F89
90	A.D. SL 5		=B90+C28	=C90+D28	=D90+E28	=E90+F28	=F90+G28
91	L.T. MACRS 5	60000	=B91	=C91	=D91	=E91	=F91
92	A.D. MACRS 5		=C29+B92	=D29+C92	=E29+D92	=F29+E92	=G29+F92
93	R.E.39 Yr.	100000	=B93	=C93	=D93	=E93	=F93
94	A.D. RE 39 YR		=B94+C30	=C94+D30	=D94+E30	=E94+F30	=F94+G30
95	Total Dep. F.A. *11		*12	*13	*14	*15	*16
96	Total Acc Dep. *17		*18	*19	*20	*21	*22
97	Total Assets	*23	*24	*25	*26	*27	*28
98							
99	Liab. and Eq.						
100	S.T. B. Loans	25000	20000	15000	50000	25000	25000
101	C. Card Loans	50000	75000	50000	50000	20000	20000
102	C.L. 3	0	0	0	0	0	0
103	C.L. 4	0	0	0	0	0	0
104	C.L. 5	0	0	0	0	0	0
105	C.L. 6	0	0	0	0	0	0
106	C.L. 7	0	0	0	0	0	0
107	Total C. Liab	=SUM(B100:B106)	=SUM(C100:C106)	=SUM(D100:D106)	=SUM(E100:E106)	=SUM(F100:F106)	=SUM(G100:G106)
108	L.T. Loans 1	45000	70000	60000	55000	45000	40000
109	L.T. Loans 2	100000	100000	90000	80000	70000	60000
110	Total Liab	*29	*30	*31	*32	*33	*34
111	Comm Stock	193000	200000	200000	200000	200000	200000
112	Ret. Earn.	0	=C42	=D42	=E42	=F42	=G42
113	Total Equity	=SUM(B111:B112)	=SUM(C111:C112)	=SUM(D111:D112)	=SUM(E111:E112)	=SUM(F111:F112)	=SUM(G111:G112)
114	Total L. and E.	=SUM(B110+B113)	=SUM(C110+C113)	=SUM(D110+D113)	=SUM(E110+E113)	=SUM(F110+F113)	=SUM(G110+G113)
115	Cum Sec 179		=C26	=C115+D26	=D115+E26	=E115+F26	=F115+G26
116	*35	*36	*37	*38	*39	*40	*41

This table shows formulae for the balance sheet. Worksheet 'SI' contains all computations except depreciation and error messages. Worksheet 'DP' contains depreciation computations. Worksheet 'EM', contains error messages. *11 = (B87+B89+B91+B93), *12 = (C87+C89+C91+C93), *13 = (D87+D89+D91+D93), *14 = (E87+E89+E91+E93), *15 = (F87+F89+F91+F93), *16 = (G87+G89+G91+G93), *17 = (B88+B90+B92+B94), *18 = (C88+C90+C92+C94), *19 = (D88+D90+D92+D94), *20 = (E88+E90+E92+E94), *21 = (F88+F90+F92+F94), *22 = (G88+G90+G92+G94), *23 = sum(B85+B86+B87-B88+B89-B90+B91-B92+B93-B94), *24 = sum(C85+C86+C87-C88+C89-C90+C91-C92+C93-C94), *25 = sum(D85+D86+D87-D88+D89-D90+D91-D92+D93-D94), *26 = sum(E85+E86+E87-E88+E89-E90+E91-E92+E93-E94), *27 = sum(F85+F86+F87-F88+F89-F90+F91-F92+F93-F94), *28 = sum(G85+G86+G87-G88+G89-G90+G91-G92+G93-B94), *29 = sum(B107+B108+B109), *30 = sum(C107+C108+C109), *31 = sum(D107+D108+D109), *32 = sum(E107+E108+E109), *33 = sum(F107+F108+F109), *34 = sum(G107+G108+G109), *35 = if(B97=B114,"", EM!A1), *36 = if(B111>0,"",EM!\$A\$5), *37 = if(C111>0,"",EM!\$A\$5), *38 = if(D111>0,"",EM!\$A\$5), *39 = if(E111>0,"",EM!\$A\$5), *40 = if(F111>0,"",EM!\$A\$5), *41 = if(G111>0,"",EM!\$A\$5). Users enter data for their firm in items not bolded. The spreadsheet computes bolded items.

Table 5 (Table 5F) shows the capital budget analysis. Much of the data for this table automatically transfers from information entered in previous statements. Users must only input terminal cash flows occurring at the close of year 5. The spreadsheet automatically computes the terminal cash amount as noted earlier. Users enter sale prices for the remaining current asset recovered and all recovered capital asset. Formulae assume sale of current assets for an amount equaling the purchase price. The careful reader will notice these items are not bolded. Thus, users may override these computations without corrupting the template.

The spreadsheet automatically calculates taxes due on the disposal of assets. The spreadsheet incorporates formulas that assume full payment of all liabilities. Users indicate the value of owner donated labor to the firm on row 145. The amount entered reflects opportunity cost effects of uncompensated work. The spreadsheet provides Net Present Value (NPV) and Internal Rate of Return (IRR) solutions. NPV calculations utilize the Cost of Equity that was input in Table 2, under most circumstances a more conservative approach than the WACC method used in Jalbert (2017).

The capital budget incorporates one important change over the previous template version. Jalbert (2017) utilized the total cash accumulated in Year 5 as the relevant terminal cash flow. The template here uses a different approach. The template here uses the cash amount on the Year 0 balance sheet as the terminal cash flow. This new approach is more conservative any time cash balances increase over the life of the business. This new approach generally produces lower cash flows and thus more conservative NPV and IRR values.

Table 5: Capital Budget Analysis

	A	B	C	D	E	F	G	H
117	CAPITAL BUDGET ANALYSIS	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	
118								
119	Product Sales with COGS		300,000	325,000	295,000	300,000	600,000	
120	Other Sales without COGS		50,000	50,000	50,000	50,000	50,000	
121	Total Sales		350,000	375,000	345,000	350,000	650,000	
122	General Excise Tax		15,535	16,645	15,313	15,535	28,851	
123	Cost of Goods Sold		120,000	130,000	118,000	120,000	240,000	
124	Bank and Merchant Fees		15,000	15,000	15,000	15,000	15,000	
125	Labor		30,000	30,000	30,000	30,000	60,000	
126	Employee Benefits		5,000	5,000	5,000	5,000	10,000	
127	Advertising		10,000	10,000	8,000	10,000	10,000	
128	Rent		40,000	40,000	40,000	40,000	40,000	
129	Utilities		5,000	2,000	5,000	5,000	5,000	
130	Expense 5		0	0	0	0	0	
131	Current Year Section 179 Purchases		20,000	0	20,000	0	0	
132	Depreciation MACRS 3YR		9,900	13,500	4,500	2,100	0	
133	Depreciation SL 5YR		8,000	8,000	8,000	8,000	8,000	
134	Depreciation MACRS 5YR		12,000	19,200	11,400	7,200	6,600	
135	Depreciation SL 39 Year Real Estate		2,564	2,564	2,564	2,564	2,564	
136	EBIT		57,001	83,091	62,223	89,601	223,985	
137	Interest		8,700	11,963	9,063	11,238	6,525	
138	EBT		48,301	71,129	53,160	78,363	217,460	
139	Tax		5,796	8,535	6,379	9,404	26,095	
140	Net Income		42,505	62,593	46,781	68,960	191,365	
141	Depreciation MACRS 3YR		9,900	13,500	4,500	2,100	0	
142	Depreciation SL 5YR		8,000	8,000	8,000	8,000	8,000	
143	Depreciation MACRS 5YR		12,000	19,200	11,400	7,200	6,600	
144	Depreciation SL 39 Year Real Estate		2,564	2,564	2,564	2,564	2,564	
145	Non Expensed Owner Labor		20,000	20,000	20,000	20,000	20,000	
146	Total Operating Cash Flows		54,969	85,857	53,245	68,824	188,529	
147								

Table 5: Capital Budget Analysis (Continued)

	A	B	C	D	E	F	G
148	CAPITAL BUDGET (CONTINUED)	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
149	Cash	-20,000					
150	Inventory	-10,000					
151	Deposits	-53,000					
152	Asset 4	0					
153	Asset 5	0					
154	Asset 6	0					
155	Asset 7	0					
156	Total Current Assets	-83,000					
157	Non Depreciable LT Assets (Land)	100,000					
158	Long Term Asset MACRS 3YR	-30,000					
159	Long Term Asset SL 5YR	-40,000					
160	Long Term Asset MACRS 5YR	-60,000					
161	Real Estate 39 Years	-100,000					
162	Cash Flow	-413,000					
163							
164	Cash						20,000
165	Inventory						10,000
166	Deposits						53,000
167	Asset 4						0
168	Asset 5						0
169	Asset 6						0
170	Asset 7						0
171	Sale of 179 Expense Election Assets						20,000
172	Non Depreciable LT Assets (Land)						150,000
173	Long Term Asset MACRS 3YR						30,000
174	Long Term Asset SL 5YR						25,000
175	Long Term Asset MACRS 5YR						50,000
176	Real Estate 39 Years						90,000
177	Tax on Gain on Sale of Current Assets						0
178	Tax on Sale of 179 Expense Election Assets						2,000
179	Tx on Sale of Non Depreciable LT Assets (Land)						5,000
180	Tax on Long Term Asset MACRS 3YR						3,000
181	Tax on Long Term Asset SL 5YR						2,500
182	Tax on Long Term Asset MACRS 5 YR						4,640
183	Tax on Real Estate Sale						282
184	Total Terminal Cash Flows						430,578
185	Total Cash Flow	-413,000	54,969	85,857	53,245	68,824	619,107
186							
187	NPV	137,460					
188	IRR	0.2039					

This table shows the capital budget.

Table 5F: Capital Budget Analysis (Formulae Display)

	A	B	C	D	E	F	G
117	CAP. BUDGET	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
118							
119	=A14		=C14	=D14	=E14	=F14	=G14
120	=A15		=C15	=D15	=E15	=F15	=G15
121	=A16		=C16	=D16	=E16	=F16	=G16
122	=A17		=C17	=D17	=E17	=F17	=G17
123	=A18		=C18	=D18	=E18	=F18	=G18
124	=A19		=C19	=D19	=E19	=F19	=G19
125	=A20		=C20	=D20	=E20	=F20	=G20
126	=A21		=C21	=D21	=E21	=F21	=G21
127	=A22		=C22	=D22	=E22	=F22	=G22
128	=A23		=C23	=D23	=E23	=F23	=G23
129	=A24		=C24	=D24	=E24	=F24	=G24
130	=A25		=C25	=D25	=E25	=F25	=G25
131	=A26		=C26	=D26	=E26	=F26	=G26
132	=A27		=C27	=D27	=E27	=F27	=G27
133	=A28		=C28	=D28	=E28	=F28	=G28
134	=A29		=C29	=D29	=E29	=F29	=G29
135	=A30		=C30	=D30	=E30	=F30	=G30
136	=A32		=C32	=D32	=E32	=F32	=G32
137	=A33		=C33	=D33	=E33	=F33	=G33
138	=A34		=C34	=D34	=E34	=F34	=G34
139	=A35		=C35	=D35	=E35	=F35	=G35
140	=A36		=C36	=D36	=E36	=F36	=G36
141	=A132		=C132	=D132	=E132	=F132	=G132
142	=A133		=C133	=D133	=E133	=F133	=G133
143	=A134		=C134	=D134	=E134	=F134	=G134
144	=A135		=C135	=D135	=E135	=F135	=G135
145	N. E. Labor		20000	20000	20000	20000	20000
146	Total Op. C.F.		*42	*43	*44	*45	*46

Table 5F: Capital Budget Analysis (Continued) (Formulae Display)

	A	B	C	D	E	F	G	H
148	CAP BUD (CONT)	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	
149	=A78	=-B78						
150	=A79	=-B79						
151	=A80	=-B80						
152	=A81	=-B81						
153	=A82	=-B82						
154	=A83	=-B83						
155	=A84	=-B84						
156	=A85	=-B85						
157	=A86	=B86						
158	=A87	=-B87						
159	=A89	=-B89						
160	=A91	=-B91						
161	=A93	=-B93						
162	Cash Flow	=-B97						
163								
164	=A78						=-B149	
165	=A79						=-B150	
166	=A80						=-B151	
167	=A81						=-B152	
168	=A82						=-B153	
169	=A83						=-B154	
170	=A84						=-B155	
171	Sale of 179						20000	*50
172	=A157						150000	*51
173	=A158						30000	*52
174	=A159						25000	*53
175	=A160						50000	*54
176	=A161						90000	*55
177	Tax on Gain C.A.						*47	
178	Tax on Sale of 179						=G171*B5	
179	Tx on Sale of N.D						*48	
180	Tax on MACRS 3						=DP!D31	
181	Tax SL 5YR						=DP!I31	
182	Tax on MACRS 5						=DP!N31	
183	Tax on R.E. Sale						=DP!S31	
184	Total Term C.F.						*49	
185	Total C.F.	=B162	=C146	=D146	=E146	=F146	=SUM(G146+G184)	
186								
187	NPV	*56						
188	IRR	*57						

This table shows formulae for the Capital Budget. Worksheet 'SI' contains all computations except depreciation and messages. Worksheet 'DP' contains depreciation computations. *42 =sum(C140:C144)-C145, *43 =sum(D140:D144)-D145, *44 =sum(E140:E144)-E145, *45 =sum(F140:F144)-F145, *46 =sum(G140:G144)-G145, *47 =(sum(G165:G170)+Sum(B150:B155))*\$B\$5, *48 =(G172-G86)*\$B\$5, *49 =SUM(G164:G176)-SUM(G177:B183), *50 =IF(AND(G171>0,G115=0,EM!A\$, "")), *51 =IF(AND(G172>0,G86=0,EM!A\$, "")), *52 =IF(AND(G173>0,B158=0,EM!A\$, "")), *53 =IF(AND(G174>0,B159=0,EM!A\$, "")), *54 =IF(AND(G175>0,B160=0,EM!A\$, "")), *55 =IF(AND(G176>0,B161=0,EM!A\$, "")), *56 =NPV(B4,C185:G185)+B185 *57 =IRR(B185:G185). Users enter data for their firm in non-bolded cells. The spreadsheet computes bolded items.

Table 6 (Table 6F) shows calculated variables, firm values and provides calculations necessary to complete ratio analysis. The calculations follow exactly the work of Jalbert (2017). However, due to the complexity of the issue a discussion of the calculations is provided here for convenience. The calculated variables culminate in an estimate of the Weighted Average Cost of Capital (WACC). The computation utilizes the average cost of funds and cost of equity entered in the Input Variables in Table 2. The WACC formula combines these figures with the proportions of funds obtained from equity debt in the initial balance sheet. Net Present Value (NPV) computations use the cost of equity to estimate excess present value.

Table 6: Calculated Variables, Firm Value and Ratio Analysis

	A	B	C	D	E	F	G	H
190	CALCULATED VARIABLES							
191								
192	Proportion of Funds From Equity	0.4673						
193	Proportion of Funds from Debt	0.5327						
194	Cost of Capital (WACC)	0.0901						
195								
196	COMPUTATION OF FIRM VALUE	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	
197								
198	EBIT		57,001	83,091	62,223	89,601	223,985	
199	Unexpensed Value of Owners Time		20,000	20,000	20,000	20,000	20,000	
200	EBIT for Valuation		37,001	63,091	42,223	69,601	203,985	
201								
202	Firm Value: Pass-Through Taxation (Jalbert Method)							
203								
204	Value of Unlevered Firm		277,506	473,184	316,670	522,006	1,529,888	
205	Value of Levered Firm		275,106	469,884	314,170	518,906	1,528,088	
206	Gain from Leverage		-2,400	-3,300	-2,500	-3,100	-1,800	
207								
208	Firm Value: Double Taxation (Miller Method)							
209								
210	Value of Unlevered Firm		242,505	373,815	251,879	412,385	1,208,611	
211	Value of Levered Firm		262,785	401,700	273,004	438,580	1,223,821	
212	Gain from Leverage		20,280	27,885	21,125	26,195	15,210	
213								
214	COMPUTATION OF FINANCIAL RATIOS							
215		Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	RMA
216	Total Asset Turnover		0.690	0.798	0.709	0.862	1.348	x
217	Return on Assets		0.084	0.133	0.096	0.170	0.397	x
218	Return on Equity		0.175	0.245	0.186	0.281	0.568	x
219	Debt to Equity	1.140	1.093	0.843	0.933	0.651	0.430	x
220	Debt to Assets	0.533	0.522	0.457	0.483	0.394	0.301	x
221	Current Ratio	1.107	2.210	3.320	2.591	4.398	6.476	x
222	Dividend Payout Ratio		0.000	0.799	1.069	1.088	0.523	x

This table shows calculations of firm value and financial ratios. Valuation calculations are completed based on the work of Miller (1977) and Jalbert (2002) and Jalbert (2017).

Table 6: Calculated Variables, Firm Value and Ratio Analysis (Formulae Display)

	A	B	C	D	E	F	G	H
190	CALC VARIABLES							
191								
192	Prop of Funds Equity	=B113/B114						
193	Prop of Funds Debt	=SUM(B110/B114)						
194	Cost of Capital	*58						
195								
196	COMP OF FIRM VAL	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	
197								
198	EBIT		=C32	=D32	=E32	=F32	=G32	
199	Unexp Value of Labor		=C145	=D145	=E145	=F145	=G145	
200	EBIT for Valuation		=C198-C199	=D198-D199	=E198-E199	=F198-F199	=G198-G199	
201								
202	Firm Value: P.T.							
203								
204	Value of Unlev. Firm		*59	*60	*61	*62	*63	
205	Value of Levered Firm		*64	*65	*66	*67	*68	
206	Gain from Leverage		=C205-C204	=D205-D204	=E205-E204	=F205-F204	=G205-G204	
207								
208	Firm Value: D.T.							
209								
210	Value of Unlev. Firm		*69	*70	*71	*72	*73	
211	Value of Levered Firm		*74	*75	*76	*77	*78	
212	Gain from Leverage		=C211-C210	=D211-D210	=E211-E210	=F211-F210	=G211-G210	
213								
214	COMP OF RATIOS							
215		Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	RMA
216	Total Asset Turnover		=C16/C97	=D16/D97	=E16/E97	=F16/F97	=G16/G97	x
217	Return on Assets		=C36/C97	=D36/D97	=E36/E97	=F36/F97	=G36/G97	x
218	Return on Equity		=C36/C113	=D36/D113	=E36/E113	=F36/F113	=G36/G113	x
219	Debt to Equity	=B110/B113	=C110/C113	=D110/D113	=E110/E113	=F110/F113	=G110/G113	x
220	Debt to Assets	=B110/B97	=C110/C97	=D110/D97	=E110/E97	=F110/F97	=G110/G97	x
221	Current Ratio	=B85/B107	=C85/C107	=D85/D107	=E85/E107	=F85/F107	=G85/G107	x
222	Dividend Payout		=C69/C36	=D69/D36	=E69/E36	=F69/F36	=G69/G36	x

This table shows formulae for calculated variables, firm value and financial ratios. Worksheet 'SI' contains all calculations except depreciation. Worksheet 'DP' contains depreciation computations. *58 =SUM((B192*B4)+(B193*B3)*(1-B6)), *59 =MAX(SUM(C200*(1-\$B\$5)/\$B\$4),C113), *60 =MAX(SUM(D200*(1-\$B\$5)/\$B\$4),D113), *61 =MAX(SUM(E200*(1-\$B\$5)/\$B\$4),E113), *62 =MAX(SUM(F200*(1-\$B\$5)/\$B\$4),F113), *63 =MAX(SUM(G200*(1-\$B\$5)/\$B\$4),G113), *64 =MAX(C204+(C33*((1-\$B\$6)-(1-\$B\$5)))/\$B\$3,C113), *65 =MAX(D204+(D33*((1-\$B\$6)-(1-\$B\$5)))/\$B\$3,D113), *66 =MAX(E204+(E33*((1-\$B\$6)-(1-\$B\$5)))/\$B\$3,E113), *67 =MAX(F204+(F33*((1-\$B\$6)-(1-\$B\$5)))/\$B\$3,F113), *68 =MAX(G204+(G33*((1-\$B\$6)-(1-\$B\$5)))/\$B\$3,G113), *69 =MAX(C200*(1-\$B\$7)*(1-\$B\$5)/\$B\$4,C113), *70 =MAX(D200*(1-\$B\$7)*(1-\$B\$5)/\$B\$4,D113), *71 =MAX(E200*(1-\$B\$7)*(1-\$B\$5)/\$B\$4,E113), *72 =MAX(F200*(1-\$B\$7)*(1-\$B\$5)/\$B\$4,F113), *73 =MAX(G200*(1-\$B\$7)*(1-\$B\$5)/\$B\$4,G113), *74 =MAX(C210+(C33*((1-\$B\$6)-(1-\$B\$7)*(1-\$B\$5)))/\$B\$3,C113), *75 =MAX(D210+(D33*((1-\$B\$6)-(1-\$B\$7)*(1-\$B\$5)))/\$B\$3,D113), *76 =MAX(E210+(E33*((1-\$B\$6)-(1-\$B\$7)*(1-\$B\$5)))/\$B\$3,E113), *77 =MAX(F210+(F33*((1-\$B\$6)-(1-\$B\$7)*(1-\$B\$5)))/\$B\$3,F113), *78 =MAX(G210+(G33*((1-\$B\$6)-(1-\$B\$7)*(1-\$B\$5)))/\$B\$3,G113). Users enter data for their firm in cells not bolded. The spreadsheet calculates bolded items.

Table 6 (Table 6F) also provides an estimate of firm value. The calculations correspond directly to those in Jalbert (2017). The calculations utilize previous inputs to complete the computations, requiring no additional user intervention. The analysis here utilizes the Jalbert (2017) approach, a modification to the earnings valuation methods of Jalbert (2002) and Miller (1977). Methods developed by Jalbert (2002) estimate values of firms subject to the pass-through taxation system. The work of Miller (1977) computes the value of firms subject to the double taxation system. Users should focus their attention on the approach relevant for their tax status. The template reduces EBIT by an amount equal to non-expensed owner labor provided to the firm to determine valuation.

Firm value calculations consider both the going concern and liquidation value of the firm. Firm value is calculated as the maximum of the earnings-based valuation or liquidation value of the firm. Liquidation

value is proxied by common equity on the balance sheet. Equations 1 and 2 calculate the value of firms subject to the pass-through taxation system. Equation 1 provide values for the unlevered firm V_U , a firm that doesn't borrow money. Equation 2 specifies the value of a levered firm, V_L , a firm that borrows money. $E(EBIT)$ equals expected earnings before interest and taxes, I equals the total interest expense, T_{PS} equals the capital gains tax rate, K_E equals the owners required rate of return on invested equity, K_D equals the cost of borrowing money and CE equals the common equity from the balance sheet.

$$V_U = \text{Max}\left(\frac{E(EBIT)(1 - T_{PS})}{K_E}, CE\right) \quad (1)$$

$$V_L = \text{Max}\left(\frac{E(EBIT)(1 - T_{PS})}{K_E} + \frac{I[(1 - T_{PB}) * (1 - T_{PS})]}{K_D}, CE\right) \quad (2)$$

Similarly, Equations 3 and 4 provide calculations of value for firms subject to double taxation. This valuation requires introduction of a corporate tax rate, T_C . Equations 2 and 3 show equations for valuing the unlevered firm, V_U , and a levered firm, V_L respectively:

$$V_U = \text{Max}\left(\frac{E(EBIT)(1 - T_{PS})(1 - T_C)}{K_E}, CE\right) \quad (3)$$

$$V_L = \text{Max}\left(\frac{E(EBIT)(1 - T_{PS})(1 - T_C)}{K_E} + \frac{I[(1 - T_{PB})(1 - T_{PS})(1 - T_C)]}{K_D}, CE\right) \quad (4)$$

The gain from borrowing money equals the difference in value between a firm that borrows money and a firm that does not borrow money. This amount is often referred to as the gain from leverage, G_L . Jalbert (2002) and Miller (1977) show that most tax regimes result in positive gains for double taxation firms and negative gains for pass through taxation firms. Equation 5 shows the gain from borrowing money and applies to both pass-through and double-taxation firms:

$$G_L = V_L - V_U \quad (5)$$

Table 6 (Table 6F) also calculates several financial ratios. Three new ratios were added to the analysis relative to the original template. This version includes new calculations for return on equity (ROE), debt to assets and dividend payout ratio. These new ratios provide useful information for users to evaluate important elements of their firm.

In addition to the calculated ratios, the worksheet provides space for industry average ratios. Users should refer to Risk Management Associates (RMA) Annual Statement Studies, or a similar data source, to obtain industry ratio levels. Users enter these values in Cells H216-H222. Comparing calculated figures to industry averages allows users to pinpoint important differences. The presence of large differences suggests the user may have mis-estimated some inputs, or the firm will operate using an approach different from most firms in the industry.

Table 7 (Table 7F) shows depreciation calculations. The table comes from the worksheet labeled 'DP'. Users select from four depreciation methods when completing their analysis by entering data in the corresponding row in the Year 0 balance sheet on Worksheet 'S1'. Worksheet 'DP' calculates the annual depreciation amounts and provides supporting data for tax calculations related to sales of equipment. The spreadsheet requires no user input and functions exactly as the Jalbert (2017) template. Table 8, comes

from the worksheet labeled ‘EM’ and includes error messages. Other worksheets call these error messages when users enter problematic data into the spreadsheet.

Table 7: Depreciation Computations

	A	B	C	D	E	F	G	H	I
1	MACRS 3 Year				SL 5 Year				
2									
3	<u>Depreciation Taken</u>				<u>Depreciation Taken</u>				
4									
5	Year	Percentage	Cost	Depreciation	Year	Percentage	Cost	Depreciation	
6	0				0				
7	1	0.33	30,000	9,900	1	0.2	40,000	8,000	
8	2	0.45	30,000	13,500	2	0.2	40,000	8,000	
9	3	0.15	30,000	4,500	3	0.2	40,000	8,000	
10	4	0.07	30,000	2,100	4	0.2	40,000	8,000	
11	5	0	30,000	0	5	0.2	40,000	8,000	
12									
13	Total Depreciation Taken			30,000	Total Depreciation Taken			40,000	
14									
15	<u>Book Value</u>				<u>Book Value</u>				
16									
17	Cost of Machine			30,000	Cost of Machine			40,000	
18	Less Depreciation Taken			30,000	Less Depreciation Taken			40,000	
19	= Book Value			0	= Book Value			0	
20									
21	<u>Gain on Sale</u>				<u>Gain on Sale</u>				
22									
23	Sales Price			30,000	Sales Price			25,000	
24	Less Book Value			0	Less Book Value			0	
25	= Gain on Sale			30,000	= Gain on Sale			25,000	
26									
27	<u>Tax on Gain</u>				<u>Tax on Gain</u>				
28									
29	Gain on Sale			30,000	Gain on Sale			25,000	
30	Tax Rate			0.10	Tax Rate			0.10	
31	Tax Due			3,000	Tax Due			2,500	

Table 7: Depreciation Computations (Continued)

	K	L	M	N	O	P	Q	R	S	
1	MACRS 5 Year				39 Year Real Estate					
2										
3	<u>Depreciation Taken</u>				<u>Depreciation Taken</u>					
4										
5	Year	Percentage	Cost	Depreciation	Year	Percentage	Cost	Depreciation		
6	0				0					
7	1	0.2	60,000	12,000	1	0.025641	100,000	2,564		
8	2	0.32	60,000	19,200	2	0.025641	100,000	2,564		
9	3	0.19	60,000	11,400	3	0.025641	100,000	2,564		
10	4	0.12	60,000	7,200	4	0.025641	100,000	2,564		
11	5	0.11	60,000	6,600	5	0.025641	100,000	2,564		
12										
13	Total Depreciation Taken				56,400	Total Depreciation Taken			12,821	
14										
15	<u>Book Value</u>				<u>Book Value</u>					
16										
17	Cost of Machine				60,000	Cost of Machine			100,000	
18	Less Depreciation Taken				56,400	Less Depreciation Taken			12,821	
19	= Book Value				3,600	= Book Value			87,180	
20										
21	<u>Gain on Sale</u>				<u>Gain on Sale</u>					
22										
23	Sales Price				50,000	Sales Price			90,000	
24	Less Book Value				3,600	Less Book Value			87,180	
25	= Gain on Sale				46,400	= Gain on Sale			2,821	
26										
27	<u>Tax on Gain</u>				<u>Tax on Gain</u>					
28										
29	Gain on Sale				46,400	Gain on Sale			2,821	
30	Tax Rate				0.10	Tax Rate			0.10	
31	Tax Due				4,640	Tax Due			282	

This table shows depreciation computations. Users make no entries in this spreadsheet. The spreadsheet calculates all items in the table.

Table 7F: Depreciation Computations (Formulae Display)

	A	B	C	D	E	F	G	H	I
1	MACRS 3 Year					SL 5 Year			
2									
3	<u>Dep. Taken</u>					<u>Dep. Taken</u>			
4									
5	Year	Percent	Cost	Depreciation		Year	Percent	Cost	Depreciation
6	0					0			
7	1	0.33	=S1!\$B\$87	=B7*C7		1	0.2	=S1!\$B\$89	=G7*H7
8	2	0.45	=S1!\$B\$87	=B8*C8		2	0.2	=S1!\$B\$89	=G8*H8
9	3	0.15	=S1!\$B\$87	=B9*C9		3	0.2	=S1!\$B\$89	=G9*H9
10	4	0.07	=S1!\$B\$87	=B10*C10		4	0.2	=S1!\$B\$89	=G10*H10
11	5	0	=S1!\$B\$87	=B11*C11		5	0.2	=S1!\$B\$89	=G11*H11
12									
13	T. Dep. Taken			=SUM(D7:D11)		T. Dep. Taken			=SUM(I7:I11)
14									
15	<u>Book Value</u>					<u>Book Value</u>			
16									
17	Cost of Machine			=C7		Cost of Machine			=H7
18	Less Dep. Taken			=D13		Less Dep. Taken			=I13
19	= Book Value			=D17-D18		= Book Value			=I17-I18
20									
21	<u>Gain on Sale</u>					<u>Gain on Sale</u>			
22									
23	Sales Price			=S1!G173		Sales Price			=S1!G174
24	Less Book Value			=D19		Less Book Value			=I19
25	= Gain on Sale			=D23-D24		= Gain on Sale			=I23-I24
26									
27	<u>Tax on Gain</u>					<u>Tax on Gain</u>			
28									
29	Gain on Sale			=D25		Gain on Sale			=I25
30	Tax Rate			=S1!\$B\$5		Tax Rate			=S1!\$B\$5
31	Tax Due			=D29*D30		Tax Due			=I29*I30

Table 7F: Depreciation Computations (Formulae Display) (Continued)

	K	L	M	N	O	P	Q	R	S
1	MACRS 5 Year					39 Year R.E.			
2									
3	Dep. Taken					Dep. Taken			
4									
5	Year	Percent	Cost	Depreciation		Year	Percent	Cost	Depreciation
6	0					0			
7	1	0.2	=S1!\$B\$91	=L7*M7		1	0.025641	=S1!\$B\$93	=Q7*R7
8	2	0.32	=S1!\$B\$91	=L8*M8		2	0.025641	=S1!\$B\$93	=Q8*R8
9	3	0.19	=S1!\$B\$91	=L9*M9		3	0.025641	=S1!\$B\$93	=Q9*R9
10	4	0.12	=S1!\$B\$91	=L10*M10		4	0.025641	=S1!\$B\$93	=Q10*R10
11	5	0.11	=S1!\$B\$91	=L11*M11		5	0.025641	=S1!\$B\$93	=Q11*R11
12									
13	T. Dep. Taken			=SUM(N7:N11)		T. Dep. Taker			=SUM(S7:S11)
14									
15	Book Value					Book Value			
16									
17	Cost of Machine			=M7		Cost of Machi			=R7
18	Less Dep. Taken			=N13		Less Dep. Tal			=S13
19	= Book Value			=N17-N18		= Book Value			=S17-S18
20									
21	Gain on Sale					Gain on Sale			
22									
23	Sales Price			=S1!G175		Sales Price			=S1!G176
24	Less Book Value			=N19		Less Book Va			=S19
25	= Gain on Sale			=N23-N24		= Gain on Sal			=S23-S24
26									
27	Tax on Gain					Tax on Gain			
28									
29	Gain on Sale			=N25		Gain on Sale			=S25
30	Tax Rate			=S1!\$B\$5		Tax Rate			=S1!\$B\$5
31	Tax Due			=N29*N30		Tax Due			=S29*S30

This table shows formulae for calculated variables, firm value and financial ratios. Worksheet 'S1' contains all calculations except depreciation. Worksheet 'DP' contains depreciation computations. The spreadsheet calculates all items without user intervention.

Table 8: Error Messages

	A
1	ERROR! Your beginning balance sheet entries do not conform to the basic accounting relationship Assets = Liabilities + Equity. Please adjust your entries to comply with this requirement.
2	
3	ERROR! This entry is not valid. A non zero entry in this cell indicates you are selling something that you did not purchase. Either record the purchase of this item on the Year 0 balance sheet or remove the entry from this cell.
4	ERROR! This entry is not valid. A non zero entry in this cell indicates you are selling something that you did not purchase. Either record the purchase of this item statement as a section 179 purchase on your income statement or remove the entry from this cell.
5	ERROR! The common stock value is not valid. Common stock must be entered as a positive value.

This table shows worksheet 'EM'. The worksheet stores error messages which are referenced and displayed by other areas of the spreadsheet.

Table 9 provides information to help users determine the cost of equity and average cost of loans. The table represents an enhancement to the previous template version. Historical data from Ibbotson and Sinquefeld (2019) indicate long-term historical returns on stocks and bonds as well as inflation rates. Data used to calculate these averages runs from 1926-2015. Next, the table provides information to assist users with calculating loan rates. The table includes information on the current prime rate of interest, Government bond rates, Small Business Administration loan rates and other potentially useful interest rates.

Table 9: Information to Determine Loan Rates and Cost of Equity

	A	B	C	D	E	F	G	H
1	INFORMATION TO DETERMINE AVERAGE INTEREST RATE ON LOANS AND COST OF EQUITY							
2								
3	<u>Cost of Equity Information</u>							
4								
5	<i>Average Return on financial instruments from 1926-2015</i>							
6								
7	Small Stocks				12.00%			
8	Large Stocks				10.00%			
9	Government Bonds				5.60%			
10	Treasury Bills				3.40%			
11	Inflation				2.90%			
12	Source Ibbotson and Sinquefeld: Stocks, Bonds, Bills and Inflation, (S&B) Yearbook							
13								
14	<u>Loan Cost Information</u>							
15								
16	<i>Interest Rate Data (December 2, 2019)</i>							
17								
18	Prime rate of interest				4.75%			
19	Source FedPrimeRate.com							
20								
21	December 2, 2019, 1-year Treasury Bill Rate				1.56%			
22	December 2, 2019 Current 10-year Treasury Bond				2.15%			
23	Source: U.S. Department of the Treasury Resource Center							
24								
25	<i>Small Business Administration Loans (December 2, 2019)</i>							
26								
27	For Loans exceeding \$50,000 and repayment in less than 7 years.						7.25%	
28	For Loans exceeding \$50,000 and repayment in more than 7 years.						7.75%	
29								
30	<i>Other rates (December 2, 2019)</i>							
31								
32	Typical Credit Card Rates						15.00%	
33	Typical 15-year Mortgage Rates						3.25%	
34	Typical 30-year Mortgage Rates						3.50%	
35	Typical Personal Loans Rate						7.00%	
36	Source: Bankrate.com							
37								
38	Typical Automobile Loan Rates						3.50%	
39	Source: BankofAmerica.com							

This table shows the 'Cost of Cap' worksheet. The worksheet provides users information to assist in estimating loan rates and cost of capital rates.

Table 10 provides data to assist users in estimating tax rates. This table represents a new addition to the template. Providing the data directly in the spreadsheet simplifies the users work. Standard deduction rates provide users an approximation of the amount of money that can be earned tax-free. Tax tables are provided for capital gains tax rates as well as ordinary income tax rates. The table contains ordinary tax rates for four filing status'. The table shows the current corporate tax rate of 21 percent and the Qualified Business Income (QBI) deduction rate of 20 percent.

Table 10: Tax Rate Information

	A	B	C	D	E	F
1	TAX RATES FOR 2020 TAX YEAR					
2						
3	USE THIS INFORMATION TO ESTIMATE YOUR TAX RATES					
4						
5	<i>Standard Deduction Amounts</i>					
6						
7	Single			\$12,400		
8	Married Filing Jointly and Surviving Spouses			\$24,800		
9	Married Filing Separately			\$12,400		
10	Head of Household			\$18,650		
11						
12	<i>Maximum Capital Gains Rates</i>			Max At	Max at	Excess
13				0% Rate	15 % Rate	Rate
14	Single			\$40,000	\$441,450	20%
15	Married Filing Jointly and Surviving Spouses			\$80,000	\$496,600	20%
16	Married Filing Separately			\$40,000	\$248,300	20%
17	Head of Household			\$53,600	\$469,050	20%
18						
19	<i>Qualified Business Income Deduction Rate</i>		20%			
20						
21	<i>Corporate Tax Rates</i>					
22						
23	21%	on all corporate income				
24						
25	<i>Ordinary Income Tax Rates</i>					
26						
27	Single					
28	Base of Range	Top of Range	Base Tax	Tax Rate on Income over Base		
29	\$0.00	\$9,875.00	\$0.00	10%		
30	\$9,876.00	\$40,125.00	\$987.50	12%		
31	\$40,126.00	\$85,525.00	\$4,617.50	22%		
32	\$85,526.00	\$163,300.00	\$14,605.50	24%		
33	\$163,301.00	\$207,350.00	\$33,271.50	32%		
34	\$207,351.00	\$518,400.00	\$47,367.50	35%		
35	\$518,401.00		\$156,235.00	37%		
36						
37	Married Filing Joint Returns and Surviving Spouse					
38	Base of Range	Top of Range	Base Tax	Tax Rate on Income over Base		
39	\$0.00	\$19,750.00	\$0.00	10%		
40	\$19,751.00	\$80,250.00	\$1,975.00	12%		
41	\$80,251.00	\$171,050.00	\$9,235.00	22%		
42	\$171,051.00	\$326,600.00	\$29,211.00	24%		
43	\$326,601.00	\$414,700.00	\$66,543.00	32%		
44	\$414,701.00	\$622,050.00	\$94,735.00	35%		
45	\$622,051.00		\$167,307.50	37%		
46						
47	Married Filing Separately					
48	Base of Range	Top of Range	Base Tax	Tax Rate on Income over Base		
49	\$0.00	\$9,875.00	\$0.00	10%		
50	\$9,876.00	\$40,125.00	\$987.50	12%		
51	\$40,126.00	\$85,525.00	\$4,617.50	22%		
52	\$85,526.00	\$163,300.00	\$14,605.50	24%		
53	\$163,301.00	\$207,350.00	\$33,271.50	32%		
54	\$207,351.00	\$311,025.00	\$47,367.50	35%		
55	\$311,026.00		\$83,653.75	37%		
56						
57	Head of Household					
58	Base of Range	Top of Range	Base Tax	Tax Rate on Income over Base		
59	\$0.00	\$14,100.00	\$0.00	10%		
60	\$14,101.00	\$53,700.00	\$1,975.00	12%		
61	\$53,701.00	\$85,500.00	\$9,235.00	22%		
62	\$85,501.00	\$163,300.00	\$29,211.00	24%		
63	\$163,301.00	\$207,350.00	\$66,543.00	32%		
64	\$207,351.00	\$518,400.00	\$94,735.00	35%		
65	\$518,401.00		\$167,307.50	37%		

This table provides information to assist users in estimating the relevant tax rates.

CONCLUDING COMMENTS

This paper presents a template for producing pro-forma financial statements. The template provides users assured accuracy regarding calculations. Thus, they can defend their calculations to skeptical bankers. Users simply enter relevant information for managerial determined variables. The template automatically completes all other computations. When the user adjusts a value in the spreadsheet, the remaining accounts automatically reflect the change. The template does not utilize plug figures and results are free of circular references. Users begin by entering figures into the initial balance sheet. Error messages point out imbalances to the user. Once the initial balance sheet meets the condition that $\text{Assets} = \text{Liabilities} + \text{Equity}$, regardless of user inputs, the remaining financial statements will be computationally correct.

While the template here constitutes a substantial improvement over the Jalbert (2017) template, there remains room for further improvement. Future refinements might include automatically estimating tax rates, cost of equity and loan rates rather than requiring users to interpret the data and make their own estimates. The spreadsheet has some depreciation limitations. Currently users purchase depreciable assets at the outset of the project. Purchases that occur later must be immediately expensed. Future refinements might allow users to purchase and sell depreciable assets throughout the company life cycle. Finally, the template is limited to annual analysis. Some users may require monthly analysis. Future development might provide a template capable of monthly analysis. Interested users may contact the author to obtain an electronic copy of the template.

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