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AN ENHANCED MANAGEMENT TOOL FOR CREATING PRO-FORMA FINANCIAL STATEMENTS

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ABSTRACT

The creation of pro-forma financial statements presents a challenge for entrepreneurs without extensive training in finance and accounting. This paper is the third in a series that provides tools to assist managers with creating these estimates. The approach requires users to estimate only management variables. The template completes all other necessary calculations. This paper extends earlier work by introducing additional automation. Specifically, the template here automates tax and cost of capital calculations.

JEL: A2, G31, M13, M41

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

INTRODUCTION

Pro-forma financial statements and associated analysis constitute an important element of planning for new ventures. Entrepreneurs lacking a strong accounting and finance background do not possess the necessary tools to create the analysis. Moreover, hiring professionals to complete the task utilizes scarce resources needed for other purposes. The tools presented here allow individuals with little training to create computationally correct pro-forma financial statements. The tool has sufficient sophistication to meet the needs of most professionals.

Numerous tools exist to automate the creation of pro-forma financial statements. Vélez-Pareja, and Tham (2008); Vélez-Pareja (2011); and Arnold (2011) note that some available options require plug figures to balance the financial statements. Plug figures fail to reflect actual business plans and limit the usefulness of pro-forma financial statements. Other tools suffer from circular references that introduce inaccuracies into the analysis. The tools presented here do not require plug figures. Rather, each calculation is fully founded in accounting principles. Furthermore, the tools here do not contain circular references.

This paper represents the third in a series focusing on the development of pro-forma financial statements. The techniques provide comprehensive financial analysis tools geared primarily for start-up firms. The first paper in the series provided the initial analysis tool (Jalbert, 2107). The template includes income statements, balance sheets, cash flow statements and statements of retained earnings. The second paper (Jalbert, 2019) provided some technical fixes and introduced additional features to address common issues.

During several years of use, the author observed user difficulty with completing some elements of the template. Specifically, users have trouble estimating tax amounts and capital costs. This paper modifies the previous templates by automating basic tax calculations and eliminating the need for users to estimate capital costs. Previous versions of the template required users to estimate tax rates. While it is not possible to fully automate all provisions of the U.S. tax code, the template here incorporates basic features of the tax code including business income exclusions, standard deductions, variations in tax due based on marital status, state tax liabilities, progressive tax rates, and income from non-business sources. Users must input

their non-business income and marital status into the program. With this information the template provides tax estimates. Previous iterations of the template required users to input capital costs. This paper simplifies this process by requiring users to rate the riskiness of their firm from one to ten. The template includes some guidelines to assist users with this process. With this information the template provides estimates the firm's cost of capital.

The remainder of the paper is organized as follows. The next section provides a review of the literature. The following section documents the template revisions presented here. The paper continues by presenting the revised template. Finally, the paper closes with some concluding comments.

LITERATURE REVIEW

A small body of literature addresses financial statement forecasting. Jalbert, Briley and Jalbert (2012) used Risk Management Associates (RMA), Annual Statement Studies data that draws on the experience of other firms in an industry to develop financial statements. Their methodology improves upon, and provides more flexibility than, the percentage of sales method. They argue their approach results more accurate financial statements. In a related paper, Vorkink and Workman (2016) addressed sales and sales growth forecasts. They developed a process for estimating sales involving four steps: 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.

A second branch of research involves a time series approach to financial statements. Historical financial statements for the firm provide the basis for projecting future financial statements. Kerry (2010) combined historical financial statements of a firm with financial statements of other firms to forecast financial statements. The model requires users to input macroeconomic data and estimates of some financial accounts. The approach combines this information to produce financial statement forecasts.

Vélez-Pareja, I. and J. Tham (2008) and Vélez-Pareja (2011) also developed historically based financial statement forecasts. Their approach produces better forecasts than earlier approaches because it excludes the need for plug figures to balance the statements. Arnold (2011) demonstrated links between long-term debt and common stock in the financial statement forecasting process. He further noted these variables are sometimes treated as plug figures in financial statement forecasting.

Desanctis and Jarvenpaa (1989) considered the effect of presentation method on forecast accuracy. They examined numerical formats, graphical formats, and a combination of the two. They found that graphical formats produce better forecast accuracy. A few other papers develop pro-forma financial statements. Drougas and Johnson (2004) created simulated financial statements that focus on forecast uncertainty. Cheremushkin (2010) focused on retained earnings use by the firm in financial forecasting. Vélez-Pareja (2010) considered the role of tax shields and debt in creating pro-forma financial statements.

Some patents relate to financial statement forecasting. Erwin, Fortheringham and McGuinness (1998), U.S. Patent US6249770, developed pro-forma financial statements derived from historical firm-level account data. They incorporated inflation adjustments and exchange rates to refine the forecasts. Chopra, Masih, Chugh, Bidkar and Navani, 2015 also hold a patent related to pro-forma financial statements.

As noted earlier, the current paper represents the third in a series. The initial paper (Jalbert, 2017), created a template including forecasted financial statements, a capital budget, calculations of firm value and ratio analysis. The template automates many required calculations. The approach minimizes user inputs to focus exclusively on variables controlled by management. The automation guarantees calculation accuracy and frees users to focus on relevant decision issues. The approach avoids using plug-figures and produces fully

supported and consistent statements. In addition, the approach does not create circular references which result in misleading and incorrect calculations.

Jalbert (2019) extended the work of Jalbert (2017). The revised template provides step-by-step directions to walk users through completing the pro-forma financial statements. It also provides data on taxes and cost of capital data directly, thereby eliminating the need to research these issues. The new template includes tools to allow for non-depreciable long-term assets such as land purchases and uses a more conservative capital budgeting approach. The template allows for multiple categories of sales that simplify some cost of goods sold calculations. Finally, the revised template corrects some technical problems and creates error notifications that warn the user of problematic entries.

TEMPLATE ENHANCEMENTS

The template developed here uses starts from the Jalbert (2019) template. Using the template for about one-year resulted in observations that motivated this template revision. First, users generally do not have sufficient skills to properly estimate tax rates as required by the Jalbert (2017) and Jalbert (2019) templates. In the absence of these skills most users complete the template without adjusting the default tax rates. Jalbert (2019) tried to rectify this problem by providing some information regarding tax rates as a part of the template. However, the issue persisted. The template here requires users to indicate their marital status and any non-business income. The spreadsheet combines this information with business income reported in the template to estimate tax rates and taxes due. While the template automates tax calculations it does not consider all aspects of the tax code. Advanced users may over-ride these automatic calculations.

The second enhancement here involves cost of capital estimates. The Jalbert (2017) template required users to estimate the costs of equity and borrowing money. The Jalbert (2019) template also requires users to estimate these amounts but assists in this process by providing some data on costs of various funding sources.

Table 1: Risk Assessment Guidelines

Risk Level	Guidance
1 (Lowest)	Appropriate for a firm with guaranteed government contracts, a highly stable cost structure and insurance that eliminates other uncertainties. An example is a school bus service having guaranteed contracts with a public-school district. Fuel costs are contracted and full-coverage insurance is maintained to cover other eventualities.
2	Appropriate for firms with guaranteed government contracts. However, the firm may face some risk in input costs or the firm may face other business risks.
3	Appropriate for firms with risk characteristics similar to a large publicly traded firm with stable product demand and cost structures. An example is Proctor and Gamble.
4	Appropriate for small publicly traded firms with some product demand and cost structure risk. An example of such a firm is a franchisee of a national restaurant chain.
5	Appropriate for small publicly traded firms with substantial product demand or cost structure risk. An example of this type of firm might be a franchisee of a smaller chain of restaurants.
6	Appropriate for start-up firms with the owners contributing most of the required capital. The firm operates in an established industry with stable demand and cost structures. Such a firm might be a smaller grocery or auto parts store.
7	Appropriate for start-up firms with a moderate amount of debt. There exists moderate uncertainty about product demand and/or cost structures. Such a firm might be an independent convenience store.
8	Appropriate for start-up firms with substantial debt. There is considerable uncertainty about product demand and/or cost structure. This category includes businesses such as a start-up non-franchise restaurant.
9	Appropriate for firms with large amounts of debt. There exist high levels of uncertainty about product demand and/or cost structure. This category includes firms such as a start-up non-franchise restaurant, located away from a major traffic area.
10 (Highest)	Appropriate for highly speculative firms with product development risks, unknown product demand and unknown cost structures. The firm typically involves high levels of debt and other obligations. This category includes firms such as a start-up firm developing a new cell phone.

This table shows guidelines for selecting a risk level.

Observations indicated that users do not examine their own situation and modify the default value accordingly. To alleviate this problem, this template version requires users to rank the risk of their firm on

a scale of one to ten. The template provides guidance to assist users with making this determination. Table 1 shows guidance provided to assist users in selecting the firm's risk level. With this information the template automatically calculates the relevant cost of capital. Advanced users my over-ride these calculations or modify the cost of capital rates applicable to each risk level.

The third change enhances the valuation calculations by incorporating more precise tax calculations and reflecting changes in tax rates that occur through time. Previous iterations of the template use a single non-dynamic tax rate. This revised template incorporates the dynamic nature of tax rates over the project's life. Tax rates contained in the template should be updated annually to reflect current tax policies.

The fourth change involved updating tax and loan rates to reflect market conditions as of July 2020. This generally involved reducing loan rates. Users should update these market rates to reflect any subsequent changes that occur.

The fifth change is a technical correction. In earlier versions of the statement interest expense was estimated based on end-of-year loan balances. This version of the template utilizes beginning-of-year loan balances in interest calculations.

ASSUMPTIONS

As with most financial models, this template incorporates certain simplifying assumptions. Like previous iterations of the spreadsheet, this template allows depreciated capital equipment purchased outset of the project only. Users select from four depreciation methods, 1.) 3-year MACRS, 2.) 5-Year Straight Line, 3.) 5-year MACRS, and 4.) 39-Year Straight Line. Immediate expensing, through the 179 Expense Election or other immediate expensing options applies to capital purchases made after the project start. The calculations assume cost of goods sold (COGS), remains a constant percentage of sales throughout the project life. Advanced users may introduce time-varying COGS which does not necessitate other spreadsheet modifications.

The capital budget utilizes a five-year framework. Capital budget calculations incorporate the sale of all business assets, and payment of all business liabilities, upon completion of year 5 of operations. The template discounts cash flows at the cost of equity, K_E to arrive at the Net Present Value. Advanced users might utilize a different discount rate or adjust the relevant cash flows considered.

REVISED FINANCIAL ANALYSIS TEMPLATE

This section presents the revised templates. The Excel spreadsheet contains the seven worksheets that constitute the template. Worksheet 'S1' contains the main worksheet. Worksheet 'S1' contains 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. All user entries occur in the 'S1' worksheet. The remaining worksheets exist to support Worksheet 'S1'. The worksheet 'Steps' provides step-by-step instructions to assist users in completing the template using data relevant for their firm. Worksheet 'DP' reports depreciation calculations. Worksheet 'CC' provides information regarding the cost of capital. It also includes a new tool to automatically calculate the firm's cost of funds. The 'Tax' worksheet provides current tax information. The new worksheet 'TaxC' provides tax calculations based on income figures reported in Worksheet 'S1'. Finally, worksheet 'EM' contains error messages that appear throughout the template, calling user attention to entries that violate accounting rules.

Table 2 shows provides a sequence of steps to complete the worksheet. The table reflects changes necessary to accommodate the template revisions made here. Specifically, changes occur in Steps 7 and 8. Changes to Step 7 reflect automation of cost of capital estimations. Changes to Step 8 reflect automation of tax

computations. The instructions direct users to specific cells that must be addressed. For best results, users should follow the steps sequentially.

The template requires some user inputs and automatically calculates other figures. Users input items in plain text and the template calculates bolded items. The spreadsheet does not protect template-calculated variables thereby allowing advanced users to make template adjustments as desired. Users should back up their data prior to modifying bolded items to avoid unanticipated outcomes. The document here presents both numeric and formula versions. Tables 1-11 present the numeric format. Corresponding Tables with an 'F' suffix show the relevant underlying formulae. Due to size, some formulae could not be accommodated in the presentation. When this occurred, the indicator * along with a number directs the reader to the table note showing the formulae.

Table 2: 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 potitive 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 B4:** Input your estimates for COGS as a Percentage of Sales.									
12		**CELL B5:** 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 RISK LEVEL OF THE FIRM**									
27		**CELL B7:** Enter the firms risk level from 1-10 (1=lowest risk) in cell B7**.**									
28		Use the guidelines in **CELLS M11-M60** to make the determination.									
29											
30	**Step 8:**	**ESTIMATE PERSONAL INCOME AND STATE TAX RATE**									
31		**CELL: B3** Enter the state income tax relative to the federal tax.									
32		If State taxes due are typically about 1/4 of the federal liability enter 0.25.									
33		**CELL B6:** Enter your marital status. Use code in **CELLS M5-M6**									
34		**CELLS C8-G8:** Enter your personal non-business income.									
35		**CELLS C9-G9:** Enter your personal capital gain income.									
36											
37	**Step 9:**	**REVIEW THE DIVIDEND POLICY**									
38		**CELLS: ROW 41:** Indicate your planned dividend payments									
39		**CELLS: ROW 42**: Confirm the dividend payments do not result in negative Retained earnings.									
40		**CELLS: ROW 78:** Confirm the dividend payments do not result in negative cash balances.									
41											
42	**Step 10:**	**ESTIMATE SALES PRICES FOR ASSETS**									
43		**CELLS G165-G176:** Indicate the revovery amounts of assets utilized by the business.									
44											
45	**Step 11:**	**REPORT RMA RATIO DATA**									
46		**CELLS: H216-H222:** Report relevant ratio values from RMA Annual Statement Studies.									

This table shows the sequence of steps necessary to complete the template.

Users being the analysis by entering several required inputs. Table 3 (Table 3F) shows the input variables and provides the income statement. Enhancement to Table 3 over previous template versions comes in the input variables. The changes here simplify required inputs by no longer requiring users to determine of Federal tax rates. Some input is required to estimate State taxes. The template asks users to estimate the typical amount of state tax due relative to the amount of federal tax due. An individual typically owing $10,000 in Federal tax and $4,000 in State tax would enter 40 for the input variable State Tax Relative to Federal Tax. Users must also enter the cost of goods sold (COGS) as a percentage of sales. This figure remains constant throughout the five-year analysis. The spreadsheet accommodates both sales subject to a COGS and sales not subject to a COGS. Next, users enter the general excise tax rate, or other sales-based tax rate the business must pay.

Table 3 presented here enhances tax estimates relative to previous template versions. To facilitate tax estimation, the user enters their marital status. Users can select: 1 for Single individuals, 2 for married couples filing a joint return, 3 for Married individuals filing a separate return and 4 for individuals classified as head of household. Finally, the user must estimate the firms risk level. Risk levels range from one to ten with one equaling the safest firm and 10 equaling the riskiest of firms. Table 1 provides guidance for making the estimation.

Table 3: Input Variables and Income Statement

	A	B	C	D	E	F	G
1	**INPUT VARIABLES**						
2							
3	**State Tax Relative to Fed Tax***	25.000%					
4	**Cost of Goods Sold as a % of Sales**	40.000%					
5	**General Excise Tax Rate**	4.439%					
6	**Maritial Status****	1					
7	**Firm Risk Level*****	2					
8	**Personal Ordinary Income**		$40,000	$40,000	$40,000	$40,000	$40,000
9	**Personal Capital Gains Income**		$50,000	$50,000	$50,000	$50,000	$50,000
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**		**7,200**	**9,900**	**7,500**	**9,300**	**5,400**
34	**EBT**		**49,801**	**73,191**	**54,723**	**80,301**	**218,585**
35	**Tax**		**6,118**	**14,465**	**6,863**	**15,979**	**68,946**
36	**Net Income**		**43,683**	**58,726**	**47,860**	**64,322**	**149,639**

This table shows the input variables and Income Statement.

Table 3F: Input Variables and Income Statement (Formulae Display)

	A	B	C	D	E	F	G
1	**INPUT VARIABLES**						
2							
3	**State Tax Relative to Fed Tax***	0.25					
4	**Cost of Goods Sold as a % of Sales**	0.4					
5	**General Excise Tax Rate**	0.044386					
6	**Maritial Status****	1					
7	**Firm Risk Level*****	2					
8	**Personal Ordinary Income**		40000	40000	40000	40000	40000
9	**Personal Capital Gains Income**		50000	50000	50000	50000	50000
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$5**	**=D16*$B$5**	**=E16*$B$5**	**=F16*$B$5**	**=G16*$B$5**
18	**Cost of Goods Sold**		**=C14*$B$4**	**=D14*$B$4**	**=E14*$B$4**	**=F14*$B$4**	**=G14*$B$4**
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 Section 179 Purchases**		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	**Depreciation 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**		***6**	***7**	***8**	***9**	***10**
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. The spreadsheet automatically computes bolded items. Users enter data for their company in plain text cells. *1=(B100=B101+B108)*CC!$D#57, *2 =(C100+C101+C108)*CC!$D$57, *3 =(D100+D101+D108)* CC!$D$57, *4 =(E100+E101+E108)* CC!$D$57, *5 =(F100+F101+F108)* CC!$D$57.*
**6 = =IF($B$6=1,TaxC!B64,IF($B$6=2,TaxC!B65,IF($B$6=3,TaxC!B66,IF($B$6=4,TaxC!B67))))*TaxC!B69,*
**7 =IF($B$6=1,TaxC!C64,IF($B$6=2,TaxC!C65,IF($B$6=3,TaxC!C66,IF($B$6=4,TaxC!C67))))*TaxC!C69,*
**8 =IF($B$6=1,TaxC!D64,IF($B$6=2,TaxC!D65,IF($B$6=3,TaxC!D66,IF($B$6=4,TaxC!D67))))*TaxC!D69,*
**9 =IF($B$6=1,TaxC!E64,IF($B$6=2,TaxC!E65,IF($B$6=3,TaxC!E66,IF($B$6=4,TaxC!E67))))*TaxC!E69,*
**10 =IF($B$6=1,TaxC!F64,IF($B$6=2,TaxC!F65,IF($B$6=3,TaxC!F66,IF($B$6=4,TaxC!F67))))*TaxC!F69-TaxC!G98.*

Users must also enter their personal non-business income. Users fill in two classifications of personal income, personal ordinary income and personal capital gains income. Space is provided to report these estimates in each of the 5-years examined. Distinguishing between the two income types improves the precision of tax calculations.

Table 4 presents retained earnings and cash flow statements. These statements remain identical to those presented in Jalbert (2019). Users need only enter the dividend amount paid in each year in Row 41. Thus, additional discussion is omitted.

Table 4: 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**	**43,683**	**52,409**	**50,269**	**39,591**
40	**Net Income**		**43,683**	**58,726**	**47,860**	**64,322**	**149,639**
41	Dividends		0	50,000	50,000	75,000	100,000
42	**New Retained Earnings**		**43,683**	**52,409**	**50,269**	**39,591**	**89,229**
43							
44	**STATEMENT OF CASH FLOWS**	**Yr 0**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**
45	**Net Income**		**43,683**	**58,726**	**47,860**	**64,322**	**149,639**
46	**Depreciation**		**32,464**	**43,264**	**26,464**	**19,864**	**17,164**
47	**Increases in Liabilities**						
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**		**121,147**	**51,990**	**94,324**	**9,186**	**151,803**
58	**Increases in Assets**						
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	**Cash Paid to and Received from Stockholders**						
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**		**138,147**	**-18,010**	**24,324**	**-15,814**	**31,803**
71							
72	**Old Cash**		**20,000**	**158,147**	**140,137**	**164,461**	**148,647**
73	**Plus Change in Cash Position**		**138,147**	**-18,010**	**24,324**	**-15,814**	**31,803**
74	**New Cash Balance**		**158,147**	**140,137**	**164,461**	**148,647**	**180,450**

This table shows the statements of retained earnings and cash flows. The statement of cash flows requires no user inputs. Users enter dividends paid in row 41 of the statement of retained earnings.

Table 4F: Statement of Retained Earnings and Statement of Cash Flows (Formulae Display)

	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**		**=B112**	**=C112**	**=D112**	**=E112**	**=F112**
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	**STATEMENT 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 Operations**		**=SUM(C59:C65)**	**=SUM(D59:D65)**	**=SUM(E59:E65)**	**=SUM(F59:F65)**	**=SUM(G59:G65)**
67	**Cash Paid to & Rec. from Stkholders**						
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**		***11**	***12**	***13**	***14**	***15**
71							
72	**Old Cash**		**=B78**	**=C78**	**=D78**	**=E78**	**=F78**
73	**Plus Change 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 provides the formulae display for the Retained Earnings and Cash Flow Statements. Worksheet 'S1' contains all computations except depreciation. Worksheet 'DP' presents supporting depreciation calculations. The spreadsheet automatically computes bolded items. Users enter data for their company in plain text cells. *11 =sum(C57-C66+C68-C69), *12 =sum(D57-D66+D68-D69), *13 =sum(E57-E66+E68-E69), *14 =sum(F57-F66+F68-F69), *15 =sum(G57-G66+G68-G69).*

Users enter information specific to their business in the balance sheet shown in Table 5 (Table 5F). The balance sheet remains substantially identical to the Jalbert (2019) version. Users should edit unbolded row headings to reflect asset and liability accounts relevant for the business being examined (Cells A79-A84). Next, users enter initial balance sheet data in the column labeled Yr. 0 (Cells B78-B114). Users select depreciation method by entering purchases in the appropriate initial balance sheet row. When instructing students on using the template, the instructor asks student to identify: 1.) Which assets will the firm require?, and 2.) How will the firm finance the purchase of the items? Upon correctly completed the initial balance sheet, users modify unbolded balance sheet items in subsequent years to reflect changes the accounts, such as paying off a loan. The template's beauty lies in its ability to reflect any changes made as necessary throughout the entire five years of statements. Moreover, the balance sheet includes error messages that alert users to incorrect entries and directs them to make corrections. Specifically, an error message appears if assets do not equal liabilities plus equity in the initial balance sheet. A separate error appears if users include a non-positive number for common stock. Interested readers should refer to Jalbert (2017) and Jalbert (2019 for additional balance sheet discussion.

Table 5: 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	**158,147**	**140,137**	**164,461**	**148,647**	**180,450**
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**	**211,147**	**213,137**	**257,461**	**191,647**	**243,450**
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**	**508,683**	**467,409**	**485,269**	**399,591**	**434,229**
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**	**43,683**	**52,409**	**50,269**	**39,591**	**89,229**
113	**Total Equity**	**193,000**	**243,683**	**252,409**	**250,269**	**239,591**	**289,229**
114	**Total Liabilities and Equity**	**413,000**	**508,683**	**467,409**	**485,269**	**399,591**	**434,229**
115	**Cumulative Section 179 Purchases**		**20,000**	**20,000**	**40,000**	**40,000**	**40,000**

This table shows the balance sheet template.

Table 5F: Balance Sheet (Formulae Display)

	A	B	C	D	E	F	G
76	**BALANCE SHT**	**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 Depr. L.T.A**	100000	=B86	=C86	=D86	=E86	=F86
87	**L.T. MACRS 3**	30000	**=B87**	**=C87**	**=D87**	**=E87**	**=F87**
88	**AD 3**		**=B88+C27**	**=C88+D27**	**=D88+E27**	**=E88+F27**	**=F88+G27**
89	**L.T. SL 5**	40000	**=B89**	**=C89**	**=D89**	**=E89**	**=F89**
90	**AD 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**	100000	**=B93**	**=C93**	**=D93**	**=E93**	**=F93**
94	**AD RE 39**		**=B94+C30**	**=C94+D30**	**=D94+E30**	**=E94+F30**	**=F94+G30**
95	**Tot Dep F.A.**	***16**	***17**	***18**	***19**	***20**	***21**
96	**Total Acc Dep**	***22**	***23**	***24**	***25**	***26**	***27**
97	**Total Assets**	***28**	***29**	***30**	***31**	***31**	***33**
98							
99	**Liab. & Eq.**						
100	S.T. Loans	25000	20000	15000	50000	25000	25000
101	C Card Loans	50000	75000	50000	50000	20000	20000
102	CL 3	0	0	0	0	0	0
103	CL 4	0	0	0	0	0	0
104	CL 5	0	0	0	0	0	0
105	CL 6	0	0	0	0	0	0
106	CL 7	0	0	0	0	0	0
107	**Total C Lib**	**=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.**	***34**	***35**	***36**	***37**	***38**	***39**
111	**Comm Stock**	193000	200000	200000	200000	200000	200000
112	**Ret. Ern.**	**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 & 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	***40**	***41**	***42**	***43**	***44**	***45**	***46**

*This table shows formulae used in the balance sheet. Worksheet 'S1' contains all computations except depreciation and error messages. Worksheet 'DP' contains depreciation computations. Worksheet 'EM', contains error messages. Users enter data for their firm in items not bolded. The spreadsheet computes bolded items. *16 = (B87+B89+B91+B93), *17 = (C87+C89+C91+C93), *18 = (D87+D89+D91+D93), *19 = (E87+E89+E91+E93), *20 = (F87+F89+F91+F93), *21 = (G87+G89+G91+G93), *22 =(B88+B90+B92+B94), *23 =(C88+C90+C92+C94), *24 =(D88+D90+D92+D94), *25 =(E88+E90+E92+E94), *26 =(F88+F90+F92+F94), *27 =(G88+G90+G92+G94), *28 =sum(B85+B86+B87-B88+B89-B90+B91-B92+B93-B94), *29 =sum(C85+C86+C87-C88+C89-C90+C91-C92+C93-C94), *30 =sum(D85+D86+D87-D88+D89-D90+D91-D92+D93-D94), *31 =sum(E85+E86+E87-E88+E89-E90+E91-E92+E93-E94), *32 =sum(F85+F86+F87-F88+F89-F90+F91-F92+F93-F94), *33 =sum(G85+G86+G87-G88+G89-G90+G91-G92+G93-B94), *34 =sum(B107+B108+B109), *35 =sum(C107+C108+C109), *36 =sum(D107+D108+D109), *37 =sum(E107+E108+E109), *38 =sum(F107+F108+F109), *39 =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$5), *40 =if(B97=B114,"",EM!$A$1), *41 =if(B111>0,"",EM!$A$5), *42 =if(C111>0,"",EM!$A$5), *43 =if(D111>0,"",EM!$A$5), *44 =if(E111>0,"",EM!$A$5), *45 =if(F111>0,"",EM!$A$5), *46 =if(G111>0,"",EM!$A$5).*

Table 6 (Table 6F) provides the capital budget. This revised template includes minimal changes to the capital budget. As with previous versions of the template, information for the capital budget primarily transfers from other statements. The only revision here involves now referencing Worksheet 'TaxC to calculate taxes due on the disposal of capital purchases. Users report the value of non-expensed owner labor on row 145. This entry incorporates the opportunity cost of uncompensated work into the capital budget decision. Users enter the year 5 terminal cash flows for all non-cash capital assets. The template

automatically enters the terminal cash amount. Further, the template calculates taxes due on the disposal of assets. The analysis assumes full payment of all liabilities at the end of year 5. Net Present Value calculations use the cost of equity to discount cash flows in a manner analogous to Jalbert (2019).

Table 6: Capital Budget Analysis

	A	B	C	D	E	F	G
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**		**7,200**	**9,900**	**7,500**	**9,300**	**5,400**
138	**EBT**		**49,801**	**73,191**	**54,723**	**80,301**	**218,585**
139	**Tax**		**6,118**	**14,465**	**6,863**	**15,979**	**68,946**
140	**Net Income**		**43,683**	**58,726**	**47,860**	**64,322**	**149,639**
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**		**56,147**	**81,990**	**54,324**	**64,186**	**146,803**

Table 6: 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**						**3,000**
179	**Tx on Sale of Non Depreciable LT Assets (Land)**						**7,500**
180	**Tax on Long Term Asset MACRS 3YR**						**4,500**
181	**Tax on Long Term Asset SL 5YR**						**3,750**
182	**Tax on Long Term Asset MACRS 5 YR**						**3,210**
183	**Tax on Real Estate Sale**						**423**
184	**Total Terminal Cash Flows**						**425,617**
185	**Total Cash Flow**	**-413,000**	**56,147**	**81,990**	**54,324**	**64,186**	**572,420**
186							
187	**NPV**	**145,885**					
188	**IRR**	**0.1872**					

This table shows the capital budget.

Table 6F: 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.**		***47**	***48**	***49**	***50**	***51**

Table 6F: Capital Budget Analysis (Continued) (Formulae Display)

	A	B	C	D	E	F	G	H
148	**CAPITAL 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	***54**
172	**=A157**						150000	***55**
173	**=A158**						30000	***56**
174	**=A159**						25000	***57**
175	**=A160**						50000	***58**
176	**=A161**						90000	***59**
177	**Tax on Gain C.A.**						***52**	
178	**Tax on Sale of 179**						**=TaxC!G92**	
179	**Tx on Sale of N.D.**						**=TaxC!G93**	
180	**Tax on MACRS 3**						**=TaxC!G94**	
181	**Tax on SL 5**						**=TaxC!G95**	
182	**Tax on MACRS 5**						**=TaxC!G96**	
183	**Tax on R.E. Sale**						**=TaxC!G97**	
184	**Total Term C.F.**						***53**	
185	**Total C.F.**	**=B162**	**=C146**	**=D146**	**=E146**	**=F146**	**=SUM(G146+G184)**	
186								
187	**NPV**	***60**						
188	**IRR**	***61**						

This table shows formulae for the Capital Budget. Worksheet 'S1' contains all computations except depreciation, cost of capital and tax computations. Worksheet 'DP' contains depreciation computations. Worksheet 'CC' contains cost of capital calculations. Worksheet TaxC contains tax calculations. Users enter data for their firm in non-bolded cells. The spreadsheet computes bolded items.
**47 =sum(C140:C144)-C145, *48 =sum(D140:D144)-D145, *49 =sum(E140:E144)-E145, *50 =sum(F140:F144)-F145, *51 =sum(G140:G144)-G145, *52* =SUM(TaxC!G86:G91), **53* ==SUM(G164:G176)-SUM(G177:G183), **54 =IF(AND(G171>0,G115=0,EM!A$4,""), *55 =IF(AND(G172>0,G86=0,EM!A4,""), *56 =IF(AND(G173>0,B158=0,EM!A4,""), *57 =IF(AND(G174>0,B159=0,EM!A4,""), *58 =IF(AND(G175>0,B160=0,EM!A4,""), *59 =IF(AND(G176>0,B161=0,EM!A4,""), *60* ==NPV(CC!D58,C185:G185)+B185, **61* ==IRR(B185:G185).

Table 7 (Table 7F) shows calculated variables, firm values and calculates ratios. The table begins by calculating the proportion of funds obtained from equity and debt. Next, these proportions are combined with costs of equity and debt to identify the weighted average cost of capital (WACC). Table 7 (Table 7F) valuation calculations correspond directly to those in Jalbert (2019). Nevertheless, due to the analysis complexity this document provides a brief discussion of the calculations. The calculations require no user entries. The computations incorporate previously entered information to complete the calculations. The expected EBIT for valuation, *E(EBIT)*, equals the standard EBIT reduced by non-expensed owner labor.

The analysis utilizes variations on valuation approaches of Jalbert (2002) and Miller (1977) which estimate the value of firms subject to the pass-through and double taxation systems respectively. While the template provides both figures, users should focus on the approach relevant for the organizational firm utilized.

The valuation approach used here assigns value as the maximum of going concern or liquidation value where liquidation value equals balance sheet common equity. The note contains selected formulas. A full list of formulae utilized is available from the author.

Table 7: 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)**	**0.0734**						
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**		**314,507**	**536,275**	**358,893**	**591,607**	**1,733,873**	
205	**Value of Levered Firm**		**312,673**	**531,663**	**356,654**	**586,740**	**1,726,660**	
206	**Gain from Leverage**		**-1,834**	**-4,612**	**-2,239**	**-4,867**	**-7,212**	
207								
208	**Firm Value: Double Taxation (Miller Method)**							
209								
210	**Value of Unlevered Firm**		**248,460**	**423,657**	**283,526**	**467,369**	**1,369,759**	
211	**Value of Levered Firm**		**268,047**	**448,498**	**303,599**	**490,170**	**1,378,612**	
212	**Gain from Leverage**		**19,586**	**24,841**	**20,073**	**22,800**	**8,853**	
213								
214	**COMPUTATION OF FINANCIAL RATIOS**							
215		**Yr 0**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**	**RMA**
216	**Total Asset Turnover**		**0.688**	**0.802**	**0.711**	**0.876**	**1.497**	x
217	**Return on Assets**		**0.086**	**0.126**	**0.099**	**0.161**	**0.345**	x
218	**Return on Equity**		**0.179**	**0.233**	**0.191**	**0.268**	**0.517**	x
219	**Debt to Equity**	**1.140**	**1.087**	**0.852**	**0.939**	**0.668**	**0.501**	x
220	**Debt to Assets**	**0.533**	**0.521**	**0.460**	**0.484**	**0.400**	**0.334**	x
221	**Current Ratio**	**1.107**	**2.223**	**3.279**	**2.575**	**4.259**	**5.410**	x
222	**Dividend Payout Ratio**		**0.000**	**0.851**	**1.045**	**1.166**	**0.668**	x

This table shows firm value and financial ratio calculations. Valuation calculations include estimates for both pass-through and double taxation firms.

Table 7F: Calculated Variables, Firm Value and Ratio Analysis (Formulae Display)

	A	B	C	D	E	F	G	H
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**		***63**	***64**	***65**	***66**	***67**	
205	**Value of Levered Firm**		***68**	***69**	***70**	***71**	***72**	
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**		***73**	***74**	***75**	***76**	***77**	
211	**Value of Levered Firm**		***78**	***79**	***80**	***81**	***82**	
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 Ratio**		**=C69/C36**	**=D69/D36**	**=E69/E36**	**=F69/F36**	**=G69/G36**	x

*This table shows formulae for firm value and financial ratio calculations. Worksheet 'S1' contains all calculations except depreciation and tax calculations. Worksheet 'DP' contains depreciation computations. Worksheet TaxC contains tax calculations. Users enter data for their firm in cells not bolded. The spreadsheet calculates bolded items. *63 =MAX(SUM(C200*(1-TaxC!$B$79)/CC!$D$58),C113), *68 =MAX(C204+(C33*((1-TaxC!$B$80)-(1-TaxC!$B$79)))/CC!$D$57,C113), *73 =MAX(C200*((1-TaxC!$B$81)*(1-TaxC!$B$79))/CC!$D$58,C113), *78 =MAX(C210+(C33*((1-TaxC!$B$80)-(1-TaxC!$B$81)*(1-TaxC!$B$79))/CC!$D$57),C113).*

Equations 1 and 2 estimate firm valued based the Jalbert (2002) method as revised, relevant for pass-through taxation firms. Consider a firm with interest expense, I, capital gains tax rate, $T_{PS,}$ the owners required rate of return on invested equity, K_E, a cost of borrowing money, $K_{D,}$ and common equity, CE. Then Equation 1 expresses the value of a firm that does not borrow money, V_U, and Equation 2 expresses the value of a firm that does borrow money, V_L as:

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

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

Equations 3 and 4 utilize the work of Miller (1977) to estimate the value of levered V_L and unlevered, $V_{U,}$ double taxation firms respectively, where T_C equals the corporate tax rate.

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

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

Equation 5 shows the gain from borrowing money, $G_{L,}$ expressed as the difference in value between levered and unlevered values.

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

Table 7 (Table 7F) further provides automated calculations of several financial ratios. Users should obtain industry ratio levels from Risk Management Associates (RMA) Annual Statement Studies and enter the corresponding figures in Cells H216-H222. Users should compare industry averages to their calculated figures. Large difference should be scrutinized to identify potential estimation errors.

Table 8 (Table 8F), from Worksheet 'DP, provides depreciation calculations. The worksheet gathers user-entered data from Worksheet 'S1' to complete the computations. Resulting calculations are incorporated back into Worksheet 'S1.' The 'DP' worksheet requires no user input. Table 9 shows worksheet 'EM' which contains error messages that appear throughout the template to notify users of incorrect data entries.

Table 8: Depreciation Calculations

	A	B	C	D	E	F	G	H	I
1	**MACRS 3 Year**					**SL 5 Year**			
2									
3	**Depreciation Taken**					**Depreciation Taken**			
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	**Book Value**					**Book Value**			
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	**Gain on Sale**					**Gain on Sale**			
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	**Tax on Gain**					**Tax on Gain**			
28									
29	**Gain on Sale**			**30,000**		**Gain on Sale**			**25,000**
30	**Tax Rate**			**0.15**		**Tax Rate**			**0.15**
31	**Tax Due**			**4,500**		**Tax Due**			**3,750**

Table 8: Depreciation Computations (Continued)

	K	L	M	N	O	P	Q	R	S
1	**MACRS 5 Year**					**39 Year Real Estate**			
2									
3	**Depreciation Taken**					**Depreciation Taken**			
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	**Book Value**					**Book Value**			
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	**Gain on Sale**					**Gain on Sale**			
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	**Tax on Gain**					**Tax on Gain**			
28									
29	**Gain on Sale**			**46,400**		**Gain on Sale**			**2,821**
30	**Tax Rate**			**0.15**		**Tax Rate**			**0.15**
31	**Tax Due**			**6,960**		**Tax Due**			**423**

Table 10 shows cost of capital information and calculations that appear in Worksheet 'CC'. These cost of capital calculations enhance previous versions which required users to manually estimate capital costs. Revisions to this procedure represent one of two primary contributions of the current paper. Users rank the risk of their firm from 1-10 and enter the value in Worksheet 'S1' Cell C7. Table 1 provides some guidelines to make the determination. With this estimate the template selects a cost of funds amount from a list provided in worksheet 'CC' cells A-C 42-53. Distributors of the template should update these rates as market conditions change. Advanced users may use the specific fund cost information provided to over-ride the automated calculations. Provided historical data from Ibbotson and Sinquefield (2019) and current data from other sources may prove useful in this process.

Table 11 shows data regarding current tax rates presented in Worksheet 'Tax'. The table contains tax information for four filing statuses. The table includes standard deduction levels, ordinary and capital gains tax rates, corporate tax rates, and the new qualified business income (QBI) deduction rate. Information from the 'Tax' worksheet feeds into a new worksheet 'TaxC'. The 'TaxC' worksheet formally estimates taxes due based on user entered information. The calculations represent a rough estimate only. Given U.S. tax code complexity, precise tax estimates exceed the template's capabilities. Users requiring more precise estimates should consult a tax professional or utilize a tax preparation tool such as Quickbooks.

Table 8F: Depreciation Computations (Formulae Display)

	A	B	C	D	E	F	G	H	I
1	**MACRS 3 Year**					**SL 5 Year**			
2									
3	**Dep. Taken**					**Dep. Taken**			
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$89**	**=G11*H11**
12									
13	**Total Dep. Taken**			**=SUM(D7:D11)**		**Total Dep. Taken**			**=SUM(I7:I11)**
14									
15	**Book Value**					**Book Value**			
16									
17	**Cost of Machine**			**=C7**		**Cost of Machine**			**=H7**
18	**Less Dep. Taken**			**=D13**		**Less Dep. Taken**			**=I13**
19	**= Book Value**			**=D17-D18**		**= Book Value**			**=I17-I18**
20									
21	**Gain on Sale**					**Gain on Sale**			
22									
23	**Sales Price**			**='S1''!G173**		**Sales Price**			**='S1''!G174**
24	**Less Book Value**			**=D19**		**Less Book Value**			**=I19**
25	**= Gain on Sale**			**=D23-D24**		**= Gain on Sale**			**=I23-I24**
26									
27	**Tax on Gain**					**Tax on Gain**			
28									
29	**Gain on Sale**			**=D25**		**Gain on Sale**			**=I25**
30	**Tax Rate**			**=TaxC!$B$79**		**Tax Rate**			**=TaxC!$B$79**
31	**Tax Due**			**=D29*D30**		**Tax Due**			**=I29*I30**

Table 8F: Depreciation Computations (Formulae Display) (Continued)

	K	L	M	N	O	P	Q	R	S
1	**MACRS 5 Yr**					**39 Year Real Esta**			
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$93**	**=Q11*R11**
12									
13	**Total Dep. Taken**			**=SUM(N7:N11)**		**Total Dep. Taken**			**=SUM(S7:S11)**
14									
15	**Book Value**					**Book Value**			
16									
17	**Cost of Machine**			**=M7**		**Cost of Machine**			**=R7**
18	**Less Dep. Taken**			**=N13**		**Less Dep. Taken**			**=S13**
19	**= Book Value**			**=N17-N18**		**= Book Value**			**=S17-S18**
20									
21	**Gain on Sale**					**Gain on Sale**			
22									
23	**Sales Price**			**='S1'!G175**		**Sales Price**			**='S1'!G176**
24	**Less Book Value**			**=N19**		**Less Book Value**			**=S19**
25	**= Gain on Sale**			**=N23-N24**		**= Gain on Sale**			**=S23-S24**
26									
27	**Tax on Gain**					**Tax on Gain**			
28									
29	**Gain on Sale**			**=N25**		**Gain on Sale**			**=S25**
30	**Tax Rate**			**=TaxC!$B$79**		**Tax Rate**			**=TaxC!$B$79**
31	**Tax Due**			**=N29*N30**		**Tax Due**			**=S29*S30**

This table shows formulae for depreciation calculations. Worksheet 'S1' contains all calculations except depreciation and tax. Worksheet 'DP' contains depreciation computations. Worksheet 'TaxC' contains tax calculations. The spreadsheet calculates all items without user intervention.

Table 9: 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' which contains messages displayed in other areas of the spreadsheet.

Table 10: Cost of Funds Determination

	A	B	C	D	E	F	G
1	**CALCULATION OF AVERAGE INTEREST RATE ON LOANS AND COST OF EQUITY**						
2							
3	**Cost of Equity Information**						
4							
5	***Average Return on financial instruments from 1926-2015***						
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 Sinquefield: Stocks, Bonds, Bills and Inflation, (SBBI) Yearbook**						
13							
14	**Loan Cost Information**						
15							
16	***Interest Rate Data (July 21, 2020)***						
17							
18	**Prime rate of interest**				**3.25%**		
19	**Source FedPrimeRate.com**						
20							
21	**July 21, 2020, 1-year Treasury Bill Rate**				**0.15%**		
22	**July 21, 2020 Current 10-year Treasury Bond**				**1.14%**		
23	**Source: U.S. Department of the Trasury Resource Center**						
24							
25	***Small Business Administration Loans (December 2, 2019)***						
26							
27	**For Loans exceeding $50,000 and repayment in less than 7 years.**						**5.50%**
28	**For Loans exceeding $50,000 and repayment in more than 7 years.**						**6.00%**
29							
30	***Other rates (July 21, 2020)***						
31							
32	**Typical Credit Card Rates**						**15.00%**
33	**Typical 15-year Mortgate Rates**						**3.03%**
34	**Typical 30-year Mortgage Rates**						**3.42%**
35	**Typical Personal Loans Rate**						**6.00%**
36	**Source: Bankrate.com**						
37							
38	**Typical Automobile Loan Rates**						**2.69%**
39	**Source: BankofAmerica.com**						
40							
41							
42	**COST OF EQUITY APPROXIMATION**						
43	**Risk**		**Equity**	**Debt**			
44		**1**	**8.00%**	**4.00%**			
45		**2**	**10.00%**	**6.00%**			
46		**3**	**12.00%**	**8.00%**			
47		**4**	**14.00%**	**10.00%**			
48		**5**	**16.00%**	**12.00%**			
49		**6**	**20.00%**	**16.00%**			
50		**7**	**24.00%**	**20.00%**			
51		**8**	**30.00%**	**25.00%**			
52		**9**	**40.00%**	**35.00%**			
53		**10**	**50.00%**	**45.00%**			
54							
55	**CALCULATED COST OF FUNDS**						
56							
57	**Average Interest Rate on Loans**				**6.000%**		
58	**Cost of Equity**				**10.000%**		

This table shows the 'CC' worksheet. The worksheet calculates loan rates and cost of capital rates.

Table 10F: Cost of Funds Determination (Formulae)

	A	B	C	D	E	F	G
1	**CALC. OF AVG LOAN RATE & COST OF CAP**						
2							
3	**Cost of Equity Information**						
4							
5	***Average Return on financial instruments from 1926-2015***						
6							
7	**Small Stocks**				**0.12**		
8	**Large Stocks**				**0.1**		
9	**Government Bonds**				**0.056**		
10	**Treasury Bills**				**0.034**		
11	**Inflation**				**0.029**		
12	**Source I&S: Stocks, (SBBI) Yearbook**						
13							
14	**Loan Cost Information**						
15							
16	***Interest Rate Data (July 21, 2020)***						
17							
18	**Prime rate of interest**				**0.0325**		
19	**Source FedPrimeRate.com**						
20							
21	**July 21, 2020, 1-year Treasury Bill Rate**				**0.0015**		
22	**July 21, 2020 Current 10-year Treasury Bond**				**0.0114**		
23	**Source: U.S.D.T. Resource Center**						
24							
25	***Small Business Administration Loans (December 2, 2019)***						
26							
27	**For Loans > $50,000 + and repay < 7 years.**						**0.055**
28	**For Loans > $50,000 and repay > 7 years.**						**0.06**
29							
30	***Other rates (July 21, 2020)***						
31							
32	**Typical Credit Card Rates**						**0.15**
33	**Typical 15-year Mortgate Rates**						**0.0303**
34	**Typical 30-year Mortgage Rates**						**0.0342**
35	**Typical Personal Loans Rate**						**0.06**
36	**Source: Bankrate.com**						
37							
38	**Typical Automobile Loan Rates**						**0.0269**
39	**Source: BankofAmerica.com**						
40							
41							
42	**COST OF EQUITY APPROX**						
43		**Equity**	**Debt**				
44	**1**	**0.08**	**0.04**				
45	**2**	**0.1**	**0.06**				
46	**3**	**0.12**	**0.08**				
47	**4**	**0.14**	**0.1**				
48	**5**	**0.16**	**0.12**				
49	**6**	**0.2**	**0.16**				
50	**7**	**0.24**	**0.2**				
51	**8**	**0.3**	**0.25**				
52	**9**	**0.4**	**0.35**				
53	**10**	**0.5**	**0.45**				
54							
55	**CALCULATED COST OF FUNDS**						
56							
57	**Average Interest Rate on Loans**			***83**			
58	**Cost of Equity**			***84**			

*This table show the formula for cost of capital calculations. *83 =VLOOKUP('S1'!B7,CC!A44:C53,3), *84 =VLOOKUP('S1'!B7,CC!A44:C53,2).*

Table 11: Tax Rate Information

	A	B	C	D	E	F
1	**TAX RATES FOR 2020 TAX YEAR**					
2						
3	***Standard Deduction Amounts***					
4						
5	**Single**			**$12,400**		
6	**Married Filing Jointly and Surviving Spouses**			**$24,800**		
7	**Maried Filing Separately**			**$12,400**		
8	**Head of Household**			**$18,650**		
9						
10	***Maximum Capital Gains Rates***			**Max At**	**Max at**	**Excess**
11				**0% Rate**	**15 % Rate**	**Rate**
12	**Single**			**$40,000**	**$441,450**	**20%**
13	**Married Filing Jointly and Surviving Spouses**			**$80,000**	**$496,600**	**20%**
14	**Maried Filing Separately**			**$40,000**	**$248,300**	**20%**
15	**Head of Household**			**$53,600**	**$469,050**	**20%**
16				**0.00**	**0.15**	**0.20**
17						
18	***Corporate Tax Rates***		**21%**	**on all corporate income**		
19	***Qualified Business Income Deduction Rate***		**20%**			
20						
21	***Ordinary Income Tax Rates***					
22						
23	**Single**					
24	**Base of Range**	**Top of Range**	**Base Tax**	**Tax Rate on Income over Base**		
25	**$0.00**	**$9,875.00**	**$0.00**	**10%**		
26	**$9,876.00**	**$40,125.00**	**$987.50**	**12%**		
27	**$40,126.00**	**$85,525.00**	**$4,617.50**	**22%**		
28	**$85,526.00**	**$163,300.00**	**$14,605.50**	**24%**		
29	**$163,301.00**	**$207,350.00**	**$33,271.50**	**32%**		
30	**$207,351.00**	**$518,400.00**	**$47,367.50**	**35%**		
31	**$518,401.00**		**$156,235.00**	**37%**		
32						
33	**Mariied Filing Joint Returns and Surviving Spouse**					
34	**Base of Range**	**Top of Range**	**Base Tax**	**Tax Rate on Income over Base**		
35	**$0.00**	**$19,750.00**	**$0.00**	**10%**		
36	**$19,751.00**	**$80,250.00**	**$1,975.00**	**12%**		
37	**$80,251.00**	**$171,050.00**	**$9,235.00**	**22%**		
38	**$171,051.00**	**$326,600.00**	**$29,211.00**	**24%**		
39	**$326,601.00**	**$414,700.00**	**$66,543.00**	**32%**		
40	**$414,701.00**	**$622,050.00**	**$94,735.00**	**35%**		
41	**$622,051.00**		**$167,307.50**	**37%**		
42						
43	**Married Filing Separately**					
44	**Base of Range**	**Top of Range**	**Base Tax**	**Tax Rate on Income over Base**		
45	**$0.00**	**$9,875.00**	**$0.00**	**10%**		
46	**$9,876.00**	**$40,125.00**	**$987.50**	**12%**		
47	**$40,126.00**	**$85,525.00**	**$4,617.50**	**22%**		
48	**$85,526.00**	**$163,300.00**	**$14,605.50**	**24%**		
49	**$163,301.00**	**$207,350.00**	**$33,271.50**	**32%**		
50	**$207,351.00**	**$311,025.00**	**$47,367.50**	**35%**		
51	**$311,026.00**		**$83,653.75**	**37%**		
52						
53	**Head of Household**					
54	**Base of Range**	**Top of Range**	**Base Tax**	**Tax Rate on Income over Base**		
55	**$0.00**	**$14,100.00**	**$0.00**	**10%**		
56	**$14,101.00**	**$53,700.00**	**$1,410.00**	**12%**		
57	**$53,701.00**	**$85,500.00**	**$6,162.00**	**22%**		
58	**$85,501.00**	**$163,300.00**	**$13,158.00**	**24%**		
59	**$163,301.00**	**$207,350.00**	**$33,830.00**	**32%**		
60	**$207,351.00**	**$518,400.00**	**$45,926.00**	**35%**		
61	**$518,401.00**		**$154,793.50**	**37%**		

This table provides information on current tax rates.

Table 12 (Table 12F) shows the 'TaxC' worksheet which automates tax calculations for the analysis. This procedure represents the second major contribution of the analysis here. Recall that users enter marital status, non-business ordinary income and non-business capital gains income in the input section of Worksheet 'S1'. Users also provide an estimate of the state tax liability relative to the federal tax liability. This information combines with taxable business income calculated in Worksheet 'S1', and current tax rates provided in Worksheet 'Tax' to produce formal tax estimates. The estimates consider both Federal and State tax liabilities, filing status, differential tax rates between ordinary income and taxable gains, standard deductions, and qualified business income deductions. Worksheet 'S1', 'DP' and 'CC' incorporate the resulting values as necessary throughout the analysis. In addition, Worksheet 'TaxC' provides average tax rate estimates used in valuation estimates. The notes to Table 12F provide only selected formulas due to the complexity of the calculations. The full formula list is available from the author on request.

The 'TaxC' worksheet begins by summarizing taxable income information reported in Worksheet 'S1'. Next, the worksheet totals income from business and personal sources and categorizes it as capital gains or ordinary income. The deductions section reports the standard deduction amount for each filing status. The total taxable income section reduces the total income by the standard deduction for each filing status. Next, the taxable income is re-segregated into ordinary and capital gains components. The total ordinary taxable income section reflects that portion of income subject to ordinary tax rates. The capital gains tax rate section indicates the applicable tax rate on capital gains. The worksheet identifies the appropriate capital gains rate based on reported total taxable income. The tax on capital gains section calculates the amount of tax due on reported capital gains income.

The calculations next calculate tax due on ordinary income. To simplify formula development, I used two calculation steps. The first element involves identifying the base tax on ordinary income. The tax on ordinary income section completes the calculations of ordinary income tax due. The worksheet continues with calculations of State taxes. Finally, total tax due is calculated equals the sum of Federal capital gains and ordinary income taxes plus State taxes.

The tax amounts due include both business and personal income. However, aside from serving as a component in calculating tax rates, tax on personal income is irrelevant to the analysis. For this reason, the next calculation shows the business portion of taxes. Using this proportion, the worksheet calculates total tax attributable to business operations. The average tax rates reported in rows 77-81 provide a foundation for business valuation formulas on Worksheet 'S1'. Lastly, the worksheet shows detailed calculations of capital gains taxes due on the sale of individual capital assets.

Table 12: Tax Calculations

	A	B	C	D	E	F	G
1	**TAXABLE INCOME SUMMARY**						
2							
3	**YR**	**1**	**2**	**3**	**4**	**5**	
4	**Ordinary Business Income**	**49,801**	**73,191**	**54,723**	**80,301**	**218,585**	
5	**Qualified Business Income Ded.**	**10,458**	**15,370**	**11,492**	**16,863**	**45,903**	
6	**Taxable Business Income**	**39,343**	**57,821**	**43,231**	**63,438**	**172,682**	
7	**Long Term Bus. Capital Gains**					**149,221**	
8	**Personal Ordinary Income**	**50,000**	**50,000**	**50,000**	**50,000**	**50,000**	
9	**Long Term Pers. Capital Gains**	**50000**	**50000**	**50000**	**50000**	**50000**	
10							
11	**TOTAL ORDINARY INCOME**	**89,343**	**107,821**	**93,231**	**113,438**	**222,682**	
12	**Total L.T. Capital Gains Income**	**50,000**	**50,000**	**50,000**	**50,000**	**199,221**	
13	**Total Income**	**139,343**	**157,821**	**143,231**	**163,438**	**421,903**	
14							
15	**DEDUCTIONS**						
16	**Single**	**12400**	**12,400**	**12,400**	**12,400**	**12,400**	
17	**Married Fil. Joint & Sur. Spouse**	**24800**	**24,800**	**24,800**	**24,800**	**24,800**	
18	**Married Filing Separately**	**12400**	**12,400**	**12,400**	**12,400**	**12,400**	
19	**Head of Household**	**18650**	**18,650**	**18,650**	**18,650**	**18,650**	
20							
21	**TOTAL TAXABLE INCOME**						
22	**Single**	**126,943**	**145,421**	**130,831**	**151,038**	**409,503**	
23	**Married Fil. Joint & Sur. Spouse**	**114,543**	**133,021**	**118,431**	**138,638**	**397,103**	
24	**Married Filing Separately**	**126,943**	**145,421**	**130,831**	**151,038**	**409,503**	
25	**Head of Household**	**120,693**	**139,171**	**124,581**	**144,788**	**403,253**	
26							
27	**TOTAL ORDINARY TAXABLE INCOME**						
28	**Single**	**76,943**	**95,421**	**80,831**	**101,038**	**210,282**	
29	**Married Fil. Joint & Sur. Spouse**	**64,543**	**83,021**	**68,431**	**88,638**	**197,882**	
30	**Married Filing Separately**	**76,943**	**95,421**	**80,831**	**101,038**	**210,282**	
31	**Head of Household**	**70,693**	**89,171**	**74,581**	**94,788**	**204,032**	
32							
33	**Capital Gains Tax Rate**						
34	**Single**	**0.15**	**0.15**	**0.15**	**0.15**	**0.15**	
35	**Married Fil. Joint & Sur. Spouse**	**0.15**	**0.15**	**0.15**	**0.15**	**0.15**	
36	**Married Filing Separately**	**0.15**	**0.15**	**0.15**	**0.15**	**0.20**	
37	**Head of Household**	**0.15**	**0.15**	**0.15**	**0.15**	**0.15**	
38							
39	**TAX ON CAPITAL GAINS**						
40	**Single**	**7,500**	**7,500**	**7,500**	**7,500**	**29,883**	
41	**Married Fil. Joint & Sur. Spouse**	**7,500**	**7,500**	**7,500**	**7,500**	**29,883**	
42	**Married Filing Separately**	**7,500**	**7,500**	**7,500**	**7,500**	**39,844**	
43	**Head of Household**	**7,500**	**7,500**	**7,500**	**7,500**	**29,883**	
44							
45	**BASE TAX ON ORDINARY INCOME**						
46	**Single**	**4,618**	**14,606**	**4,618**	**14,606**	**47,368**	
47	**Married Fil. Joint & Sur. Spouse**	**1,975**	**9,235**	**1,975**	**9,235**	**29,211**	
48	**Married Filing Separately**	**4,618**	**14,606**	**4,618**	**14,606**	**47,368**	
49	**Head of Household**	**6,162**	**13,158**	**6,162**	**13,158**	**33,830**	
50							
51	**TAX ON ORDINARY INCOME**						
52	**Single**	**12,717**	**16,980**	**13,573**	**18,328**	**48,393**	
53	**Married Fil. Joint & Sur. Spouse**	**7,350**	**9,844**	**7,817**	**11,080**	**35,650**	
54	**Married Filing Separately**	**12,717**	**16,980**	**13,573**	**18,328**	**48,393**	
55	**Head of Household**	**9,900**	**14,039**	**10,756**	**15,387**	**46,864**	

Table 12: Tax Calculations Continued

	A	B	C	D	E	F	G
57	**STATE TAX**						
58	**Single**	**4,334**	**7,896**	**4,548**	**8,233**	**23,940**	
59	**Married Fil. Joint & Sur. Spouse**	**2,331**	**4,770**	**2,448**	**5,079**	**16,215**	
60	**Married Filing Separately**	**4,334**	**7,896**	**4,548**	**8,233**	**23,940**	
61	**Head of Household**	**4,016**	**6,799**	**4,229**	**7,136**	**20,173**	
62							
63	**TOTAL TAX DUE**						
64	**Single**	**21,668**	**39,482**	**22,738**	**41,167**	**119,701**	
65	**Married Fil. Joint & Sur. Spouse**	**11,656**	**23,849**	**12,239**	**25,394**	**81,077**	
66	**Married Filing Separately**	**21,668**	**39,482**	**22,738**	**41,167**	**119,701**	
67	**Head of Household**	**20,078**	**33,996**	**21,147**	**35,681**	**100,867**	
68							
69	**BUSINESS PORTION OF TAX DUE**	**0.282**	**0.366**	**0.302**	**0.388**	**0.763**	
70							
71	**TOTAL TAX DUE RELATED TO BUSINESS**						
72	**Single**	**6,118**	**14,465**	**6,863**	**15,979**	**91,329**	
73	**Married Fil. Joint & Sur. Spouse**	**3,291**	**8,738**	**3,694**	**9,857**	**61,860**	
74	**Married Filing Separately**	**6,118**	**14,465**	**6,863**	**15,979**	**91,329**	
75	**Head of Household**	**5,669**	**12,455**	**6,383**	**13,849**	**76,960**	
76							
77	**CALCULATED AVERAGE TAX RATES FOR VALUATION**						
78							
79	**Tax Rate on Capital Gains (TPS)**	**15.000%**	**15.000%**	**15.000%**	**15.000%**	**15.000%**	
80	**Tax Rate on Ordinary Income (TPB)**	**16.528%**	**17.795%**	**16.791%**	**18.140%**	**23.014%**	
81	**Corporate Tax Rate (TC)**	**21.000%**	**21.000%**	**21.000%**	**21.000%**	**21.000%**	
82							
83	**YR 5 CAPITAL GAINS**						
84							
85			**Sales Price**	**Basis**	**Gain**	**Tax Rate**	**Tax Due**
86	**Inventory**		**10,000**	**10,000**	**0**	**0.15**	**0**
87	**Deposits**		**53,000**	**53,000**	**0**	**0.15**	**0**
88	**Asset 4**		**0**	**0**	**0**	**0.15**	**0**
89	**Asset 5**		**0**	**0**	**0**	**0.15**	**0**
90	**Asset 6**		**0**	**0**	**0**	**0.15**	**0**
91	**Asset 7**		**0**	**0**	**0**	**0.15**	**0**
92	**Sale of 179 Expense Election Assets**		**20,000**	**0**	**20,000**	**0.15**	**3,000**
93	**Non Depreciable LT Assets (Land)**		**150,000**	**100,000**	**50,000**	**0.15**	**7,500**
94	**Long Term Asset MACRS 3YR**		**30,000**	**0**	**30,000**	**0.15**	**4,500**
95	**Long Term Asset SL 5YR**		**25,000**	**0**	**25,000**	**0.15**	**3,750**
96	**Long Term Asset MACRS 5YR**		**25,000**	**3,600**	**21,400**	**0.15**	**3,210**
97	**Real Estate 39 Years**		**90,000**	**87,180**	**2,821**	**0.15**	**423**
98	**Total Business Capital Gains**				**149,221**	**0.15**	**22,383**
99	**Personal Capital Gain**				**50,000**	**0.15**	**7,500**
100	**Total Capital Gain**				**199,221**	**0.15**	**29,883**

This table shows calculation of taxes due and relevant tax rates.

Table 12F: Tax Calculations (Formulae)

	A	B	C	D	E	F
1	**TAXABLE INCOME SUMMARY**					
2						
3	**YR**	**1**	**2**	**3**	**4**	**5**
4	**Ordinary Business Income**	**='S1''!C34**	**='S1''!D34**	**='S1''!E34**	**='S1''!F34**	**='S1''!G34**
5	**Qualified Business Income Ded.**	**=B4*Tax!$C$18**	**=C4*Tax!$C$18**	**=D4*Tax!$C$1**	**=E4*Tax!$C$18**	**=F4*Tax!$C$18**
6	**Taxable Business Income**	**=B4-B5**	**=C4-C5**	**=D4-D5**	**=E4-E5**	**=F4-F5**
7	**Long Term Bus. Capital Gains**					**=E98**
8	**Personal Ordinary Income**	**='S1''!C9**	**='S1''!D9**	**='S1''!E9**	**='S1''!F9**	**='S1''!G9**
9	**Long Term Pers. Capital Gains**	**='S1''!C9**	**='S1''!D9**	**='S1''!E9**	**='S1''!F9**	**='S1''!G9**
10						
11	**TOTAL ORDINARY INCOME**	**=B6+B8**	**=C6+C8**	**=D6+D8**	**=E6+E8**	**=F6+F8**
12	**Total L.T. Capital Gains Income**	**=SUM(B7+B9)**	**=SUM(C7+C9)**	**=SUM(D7+D9)**	**=SUM(E7+E9)**	**=SUM(F7+F9)**
13	**Total Income**	**=B11+B12**	**=C11+C12**	**=D11+D12**	**=E11+E12**	**=F11+F12**
14						
15	**DEDUCTIONS**					
16	**Single**	**='Tax!D5**	**=B16**	**=C16**	**=D16**	**=E16**
17	**Married Fil. Joint & Sur. Spouse**	**='Tax!D6**	**=B17**	**=C17**	**=D17**	**=E17**
18	**Married Filing Separately**	**='Tax!D7**	**=B18**	**=C18**	**=D18**	**=E18**
19	**Head of Household**	**='Tax!D8**	**=B19**	**=C19**	**=D19**	**=E19**
20						
21	**TOTAL TAXABLE INCOME**					
22	**Single**	**=B13-B16**	**=C13-C16**	**=D13-D16**	**=E13-E16**	**=F13-F16**
23	**Married Fil. Joint & Sur. Spouse**	**=B13-B17**	**=C13-C17**	**=D13-D17**	**=E13-E17**	**=F13-F17**
24	**Married Filing Separately**	**=B13-B18**	**=C13-C18**	**=D13-D18**	**=E13-E18**	**=F13-F18**
25	**Head of Household**	**=B13-B19**	**=C13-C19**	**=D13-D19**	**=E13-E19**	**=F13-F19**
26						
27	**TOTAL ORDINARY TAXABLE INCOME**					
28	**Single**	**=B$11-B16**	**=C$11-C16**	**=D$11-D16**	**=E$11-E16**	**=F$11-F16**
29	**Married Fil. Joint & Sur. Spouse**	**=B$11-B17**	**=C$11-C17**	**=D$11-D17**	**=E$11-E17**	**=F$11-F17**
30	**Married Filing Separately**	**=B$11-B18**	**=C$11-C18**	**=D$11-D18**	**=E$11-E18**	**=F$11-F18**
31	**Head of Household**	**=B$11-B19**	**=C$11-C19**	**=D$11-D19**	**=E$11-E19**	**=F$11-F19**
32						
33	**Capital Gains Tax Rate**					
34	**Single**	***85**	***86**	***87**	***88**	***89**
35	**Married Fil. Joint & Sur. Spouse**	***90**	***91**	***92**	***93**	***94**
36	**Married Filing Separately**	***95**	***96**	***97**	***98**	***99**
37	**Head of Household**	***100**	***101**	***102**	***103**	***104**
38						
39	**TAX ON CAPITAL GAINS**					
40	**Single**	**=B34*B$12**	**=C34*C$12**	**=D34*D$12**	**=E34*E$12**	**=F34*F$12**
41	**Married Fil. Joint & Sur. Spouse**	**=B35*B$12**	**=C35*C$12**	**=D35*D$12**	**=E35*E$12**	**=F35*F$12**
42	**Married Filing Separately**	**=B36*B$12**	**=C36*C$12**	**=D36*D$12**	**=E36*E$12**	**=F36*F$12**
43	**Head of Household**	**=B37*B$12**	**=C37*C$12**	**=D37*D$12**	**=E37*E$12**	**=F37*F$12**
44						
45	**BASE TAX ON ORDINARY INCOME**					
46	**Single**	***105**	***106**	***107**	***108**	***109**
47	**Married Fil. Joint & Sur. Spouse**	***110**	***111**	***112**	***113**	***114**
48	**Married Filing Separately**	***115**	***116**	***117**	***118**	***119**
49	**Head of Household**	***120**	***121**	***122**	***123**	***124**
50						
51	**TAX ON ORDINARY INCOME**					
52	**Single**	***125**	***126**	***127**	***128**	***129**
53	**Married Fil. Joint & Sur. Spouse**	***130**	***131**	***132**	***133**	***134**
54	**Married Filing Separately**	***135**	***136**	***137**	***138**	***139**
55	**Head of Household**	***140**	***141**	***142**	***143**	***144**

Table 12F: Tax Calculations (Formulae) (Continued)

	A	B	C	D	E	F	G
57	**STATE TAX**						
58	**Single**	***145**	***146**	***147**	***148**	***149**	
59	**Mar. Fil. Jnt & Sur. Sp.**	***150**	***151**	***152**	***153**	***154**	
60	**Married Filing Separately**	***155**	***156**	***157**	***158**	***159**	
61	**Head of Household**	***160**	***161**	***162**	***163**	***164**	
62							
63	**TOTAL TAX DUE**						
64	**Single**	***165**	***166**	***167**	***168**	***169**	
65	**Mar. Fil. Jnt & Sur. Sp.**	***170**	***171**	***172**	***173**	***174**	
66	**Married Filing Separately**	***175**	***176**	***177**	***178**	***179**	
67	**Head of Household**	***180**	***181**	***182**	***183**	***184**	
68							
69	**BUS PORTION OF TAX DU**	**=(B6+B7)/B13**	**=(C6+C7)/C13**	**=(D6+D7)/D13**	**=(E6+E7)/E13**	**=(F6+F7)/F1**	
70							
71	**TOTAL TAX REL TO BUS**						
72	**Single**	**=B64*B$69**	**=C64*C$69**	**=D64*D$69**	**=E64*E$69**	**=F64*F$69**	
73	**Mar. Fil. Jnt. & Sur. Sp.**	**=B65*B$69**	**=C65*C$69**	**=D65*D$69**	**=E65*E$69**	**=F65*F$69**	
74	**Married Filing Sep.**	**=B66*B$69**	**=C66*C$69**	**=D66*D$69**	**=E66*E$69**	**=F66*F$69**	
75	**Head of Household**	**=B67*B$69**	**=C67*C$69**	**=D67*D$69**	**=E67*E$69**	**=F67*F$69**	
76							
77	**CALC AVG TAX RATES**						
78							
79	**Tax Rate on Cap. G.(TPS)**	***185**	***186**	***187**	***188**	***189**	
80	**Tax Rate on Ord Inc (TPB)**	***190**	***191**	***192**	***193**	***194**	
81	**Corporate Tax Rate (TC)**	**=Tax!C18**	**=B81**	**=C81**	**=D81**	**=E81**	
82							
83	**YR 5 CAPITAL GAINS**						
84							
85			**Sales Price**	**Basis**	**Gain**	**Tax Rate**	**Tax Due**
86	**='S1''!A165**		**='S1''!G165**	**=-'S1''!B150**	**=C86-D86**	***195**	**=E86*F86**
87	**='S1''!A166**		**='S1''!G166**	**=-'S1''!B151**	**=C87-D87**	***196**	**=E87*F87**
88	**='S1''!A167**		**='S1''!G167**	**=-'S1''!B152**	**=C88-D88**	***197**	**=E88*F88**
89	**='S1''!A168**		**='S1''!G168**	**=-'S1''!B153**	**=C89-D89**	***198**	**=E89*F89**
90	**='S1''!A169**		**='S1''!G169**	**=-'S1''!B154**	**=C90-D90**	***199**	**=E90*F90**
91	**='S1''!A170**		**='S1''!G170**	**=-'S1''!B155**	**=C91-D91**	***200**	**=E91*F91**
92	**Sale of 179**		**='S1''!G171**	**0**	**=C92-D92**	***201**	**=E92*F92**
93	**Non Dep LT Assets (Land)**		**='S1''!G172**	**='S1''!B157**	**=C93-D93**	***202**	**=E93*F93**
94	**L.T. Asset MACRS 3YR**		**='S1''!G173**	**0**	**=C94-D94**	***203**	**=E94*F94**
95	**L.T. Asset SL 5YR**		**='S1''!G174**	**0**	**=C95-D95**	***204**	**=E95*F95**
96	**L.T. Asset MACRS 5YR**		**='S1''!G174**	**=DP!N19**	**=C96-D96**	***205**	**=E96*F96**
97	**Real Estate 39 Years**		**='S1''!G176**	**=DP!S19**	**=C97-D97**	***206**	**=E97*F97**
98	**Total Bus Cap Gains**				**=SUM(E86:E97)**	***207**	**=E98*F98**
99	**Personal Capital Gain**				**=F9**	***208**	**=E99*F99**
100	**Total Capital Gain**				**=E98+E99**	***209**	**=E100*F100**

This table shows tax calculations formulae.

*85=IF(B22<=Tax!$D$12,Tax!$D$16,IF(AND(B22>Tax!$D$12,B22<=Tax!$E$12),Tax!$E$16,Tax!$F$16)),

*105=IF(AND(B28>=Tax!$A$25,B28<=Tax!$B$25),Tax!$C$25,IF(AND(B28>=Tax!$A$26,B28<=Tax!$B$26),Tax!$C$26,IF(AND(B28>=Tax!$A$27,B28<=Tax!$B$27),Tax!$C$27,IF(AND(B28>=Tax!$A$28,B28<=Tax!$B$28),Tax!$C$28,IF(AND(B28>=Tax!$A$29,B28<=Tax!$B$29),Tax!$C$29,IF(AND(B28>=Tax!$A$30,B28<=Tax!$B$30),Tax!$C$30,IF(B28>Tax!$A$31,Tax!$C$31,ERROR)))))))),

**145 =SUM(B46+B52)*'S1''!$B$3, *165 =SUM(B46+B52+B58),*

**185 =IF('S1''!$B$6=1,TaxC!B34,IF('S1''!$B$6=2,TaxC!B35,IF('S1''!$B$6=3,TaxC!B36,IF('S1''!$B$6=4,TaxC!B37)))),*

**195 =IF('S1''!$B$6=1,TaxC!$F$34,IF('S1''!$B$6=2,TaxC!$F$35,IF('S1''!$B$6=3,TaxC!$F$36,IF('S1''!$B$6=4,TaxC!$F$37)))).*

CONCLUDING COMMENTS

This paper provides enhancements to a tool for creating comprehensive pro-forma financial statements. The template simplifies statement creation and assures completeness and computational correctness. Moreover, the template does not require plug figures and does not create circular references. Users enter

values for managerial-determined variables. With this information the template completes necessary computations and produces completed financial statements. When users adjust managerial-determined values in the spreadsheet, the template updates all other values to reflect the change without further user intervention and while maintaining statement integrity. Error messages instruct the user to correct unfeasible entries.

The template improves upon the work of Jalbert (2017) and Jalbert (2019). However, the template here is not suitable for all situations. International users facing non-U.S. tax systems should use the Jalbert (2019) template. The valuations equations reported here assume constant earnings. Further research might incorporate earnings growth in the valuation estimates. The current worksheet assumes the sale of all capital equipment upon close of the fifth year of operations. Improvements to the template might include more sophisticated deprecation options that allow for premature property sales. Finally, the template produces only annual analysis. Future development might enhance the template to accommodate monthly analysis. Interested readers may contact the author to obtain an electronic copy of the template.

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