



Excel Formatting: Best Practices in Financial Models



Properly formatting your Excel models is **important** because it makes it easier for others to read and understand your analysis... and for *you* to read and understand it if and when you change it later on.

There are **universal standards** for certain formatting points – such as color coding formulas vs. constants – but not for other aspects, since different groups at different firms all use slightly different standards.

Proper formatting is **most important** for actual financial models, but is less important for other types of data sets (e.g. data on orders placed, customers, or sales reps for the due diligence process). But all your spreadsheets should still be readable and easy to use.

Remember that in investment banking the formatting of your Excel analysis also reflects on your professionalism. Poorly formatted Excel files reflect poorly on yourself and your bank.

Aesthetics matter **a lot** in investment banking and other client-driven businesses, so it always pays to make your analysis clean, easy-to-read, and as professional as possible.

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Color Coding in Models

If you do *nothing* else correctly and you're wildly inconsistent elsewhere in your model, at the very least **get the color coding correct**.

Color coding allows anyone to immediately pick up your model and know what **can** be changed (assumptions) and what should **not** be altered (formulas).

Yes, you could figure this out yourself by pressing Ctrl + ~ or pressing F2 or Ctrl + U in every cell, but both those methods are more time-consuming and clumsy to use. **So get the color coding right**.

Links vs. Constants vs. Formulas

Here are the universal standards for *direct* links to cells in other spreadsheets vs. constants (hard-coded numbers) vs. formulas:

- **Blue Font Color:** All hard-coded (i.e. manually entered) numbers; used for historical financial data and also for many input cells in the "Assumptions" part of models
- **Black Font Color:** All formulas; also used for formulas that include links to other worksheets or workbooks, but which are *not direct links* (i.e. if you're adding two numbers that are both from other spreadsheets)
- **Green Font Color:** All *direct* links to cells in other worksheets or workbooks

Wal-Mart Stores, Inc. - Summary of Financial Statements								
(\$ in Millions, Except per Share Figures)								
	Historical			Projected				
January 31,	2011	2012	2013	2014	2015	2016	2017	
Revenue:	\$ 421,849	\$ 446,950	\$ 471,317	\$ 493,709	\$ 515,675	\$ 534,773	\$ 551,404	
Revenue Growth:	3.4 %	6.0 %	5.5 %	4.8 %	4.4 %	3.7 %	3.1 %	
Operating Income:	25,542	26,558	28,272	29,615	30,932	32,078	33,076	
Operating Margin:	6.1 %	5.9 %	6.0 %	6.0 %	6.0 %	6.0 %	6.0 %	

What about text? We prefer to leave it all formatted in the black font color. Technically, you should use blue because it's "hard-coded" but that makes it harder to read models and so we avoid doing it.

We do use the blue font color if there's an input cell that accepts text, however.

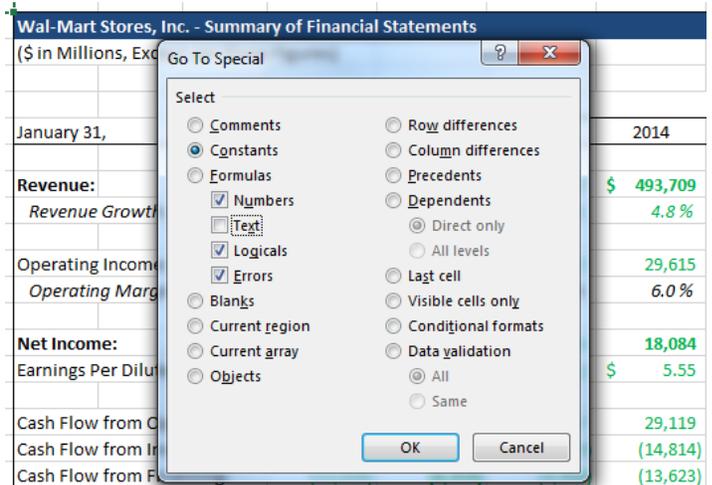
Can You Format All Your Cells Automatically?

One of the most common questions we've received is how to automatically color code your Excel spreadsheets according to the universal color coding standards above.

There's no built-in function to do this, but you can create your own **macro** (see the lessons on macros and VBA in the last module) to accomplish this and press a single shortcut combination to automatically color code everything.

Macro Instructions:

1. Press Alt + W + M + R (or Alt + T + M + R, no equivalent on the Mac) to name and begin recording your macro.
2. Press F5 ("Jump to Cell") and then Alt + S on the PC, or ⌘ + S on the Mac, to go to the "Go to Special" menu.
3. Press "O" (or ⌘ + O on the Mac) to select Constants and "X" to uncheck text.
4. Now press Alt + H + FC (or Ctrl + 1 on the PC, or ⌘ + 1 on the Mac) and [select a Blue font color for these constants](#).
5. Press Esc.
6. Now do the same thing, starting with F5, but select Formulas (F, ⌘ + F on the Mac) instead of constants and press "X" to uncheck text.
7. Now press Alt + H + FC (or Ctrl + 1 on the PC, or ⌘ + 1 on the Mac) and [select a Black font color for these constants](#).
8. Stop recording the macro with Alt + W + M + R or Alt + T + M + R.



Finding links to other workbooks and worksheets is tricky, and you will most likely have to use VBA to get this working correctly.

The basic idea: search for "!" in each cell that contains a formula, and then [change the font color to green](#).

But with the way macros work, you would need to modify this in the VBA Editor and make it a For Each loop through all instances of "!" you find, and then change the font color for all of those.



Even if you do this, though, it still won't work 100% of the time because you might come across *formulas* that reference cells in other worksheets without directly linking to them. Fortunately, green cells are rarer than black or blue cells, so the method above works fairly well in most models (and you can format links to other worksheets manually).

Special Formatting for “Input Boxes”

Standalone Operating Model - Assumptions - Wal-Mart Stores, Inc.	
(\$ in Millions, Except per Share Figures)	
Company Name:	Wal-Mart Stores, Inc.
Ticker:	WMT
Current Share Price:	\$ 73.26

Sometimes in financial models, you see other color coding standards aside from what was mentioned above.

Specifically, for assumptions that appear only **once** – such as Company Name, Share Price, Tax Rate, Purchase Premium, etc. – you can use the normal blue font color **but also make the cell background yellow and use a black border outline for the cell**.

This is **not** done universally, and even in the models on this site we don't always do this. It helps the true input cells stand out a bit over normal historical data, but it's less important than getting the normal color coding above right.

How to Do This Automatically

It's almost impossible to “detect” hard-coded historical data vs. true input cells, so don't even bother with that. Once again, however, you *can* record a macro for at least the formatting part of the exercise – just open the Record Macro dialog and change the font color (Alt + H + FC), fill color (Alt + H + H), and border (Alt + H + B)... or use Ctrl + 1 or ⌘ + 1 on the Mac for all of that.

Numbers, Percentages, Dates, and Valuation Multiples

You will see more divergent standards for formatting once you go beyond the simple color coding discussed above – but it's still worth the time to get it right, or at least to be internally consistent in your own models. Here are the major **numerical** categories:

Dollar / Other Currency Signs

In general, you want to display the currency sign (i.e. '\$' for USD, '£' for GBP, '€' for Euros, etc.) only at the **very top** and **very bottom** of each schedule in the financial model.

For instance, for the income statement you would only display the '\$' currency symbol for total revenues at the top, and then again for net income (and/or EPS) at the bottom of the statement.



You would display the currency symbol minimally (if at all) in between those two line items.

Here's what the Wal-Mart income statement looks like:

Income Statement - Wal-Mart Stores, Inc.							
(\$ in Millions, Except per Share Figures)							
	Historical			Projected			
	1/31/2011	1/31/2012	1/31/2013	1/31/2014	1/31/2015	1/31/2016	1/31/2017
Revenue:	\$ 421,849	\$ 446,950	\$ 471,317	\$ 493,709	\$ 515,675	\$ 534,773	\$ 551,404
Revenue Growth:		6.0 %	5.5 %	4.8 %	4.4 %	3.7 %	3.1 %
Cost of Revenue:	314,946	335,127	352,638	369,391	385,826	400,116	412,559
Cost of Revenue % Revenue:	74.7 %	75.0 %	74.8 %	74.8 %	74.8 %	74.8 %	74.8 %
Gross Profit:	106,903	111,823	118,679	124,318	129,849	134,658	138,845
Gross Margin:	25.3 %	25.0 %	25.2 %	25.2 %	25.2 %	25.2 %	25.2 %
Sales, General & Administrative Expenses:	81,361	85,265	90,408	94,703	98,916	102,580	105,770
% Revenue:	19.3 %	19.1 %	19.2 %	19.2 %	19.2 %	19.2 %	19.2 %
Operating Income:	25,542	26,558	28,272	29,615	30,932	32,078	33,076
Investment Income:	201	162	131	203	216	318	339
Interest Expense:	(2,205)	(2,322)	(2,137)	(2,274)	(2,283)	(2,634)	(2,663)
Pre-Tax Income:	23,538	24,398	26,265	27,544	28,865	29,761	30,751
Provision for Income Taxes:	7,579	7,944	8,405	8,814	9,237	9,524	9,840
% Pre-Tax Income:	32.2 %	32.6 %	32.0 %	32.0 %	32.0 %	32.0 %	32.0 %
Consolidated Net Income:	\$ 15,959	\$ 16,454	\$ 17,861	\$ 18,730	\$ 19,629	\$ 20,238	\$ 20,911

Dollar symbols only in top and bottom rows.

The same goes for the balance sheet and cash flow statement.

In certain cases, you may display the currency symbol **at the bottom of major sections**.

For instance, you would display the '\$' symbol on the balance sheet for Cash (since it's the first line item on balance sheet), and again for Total Assets (end of a major section), and again for Accounts Payable (the first line item for Liabilities section), and then at the bottom for Total Liabilities and Equity.

When using the currency symbol, note that the proper formatting is 'Accounting Number Format' (Ctrl + 1 or ⌘ + 1 and then N for number and then A for the accounting number format).

Technically, you could use the "Currency" format as well but we prefer the "Accounting" format since it offers proper alignment for both positive and negative numbers.



Decimal Places

Normally, you do not want to show any decimal places for numbers that represent financial figures in your models – the only exceptions are for share prices (2 decimals), or for per share quantities, such as dividend per share or EPS (also 2 decimals).

If the company is smaller and has revenue in the millions, tens of millions, or hundreds of millions rather than the billions, then you may show up to one single decimal place (e.g. ‘\$98.5’ million) throughout the model.

You can see in the Wal-Mart model above that we’re excluding decimal places entirely because their revenue is in the hundreds of billions.

You can use Alt + H + 0 to increase decimal places on the PC, and Alt + H + 9 to decrease decimal places (sorry, no Mac equivalent shortcuts).

Percentages

Normally, you display all percentages to one decimal place (e.g. 0.0 %). You should *italicize* percentages so that they will be visually distinct from other numbers in your financial model.

To make your life easier, you can use the Custom Number Format shown in the screenshot on the right side of the page:

- 0.0 %_);[Red](0.0%)

Fixes decimals, colors, and alignment.

	1/31/2011	1/31/2012
Revenue:	\$ 421,849	\$ 446,950
Revenue Growth:		6.0 %
Cost of Revenue:	314,946	335,127
Cost of Revenue % Revenue:	74.7 %	75.0 %
		111,823
		25.0 %
		85,265
		19.1 %
		26,558
		162
		(2,322)
		24,398
		7,944
		32.6 %

This format ensures that negative percentages are listed as “(5.1%)” and that positive percentages are correctly aligned with negatives.

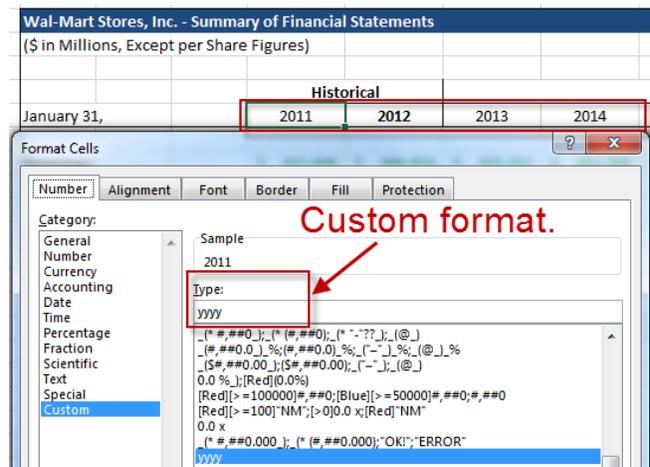
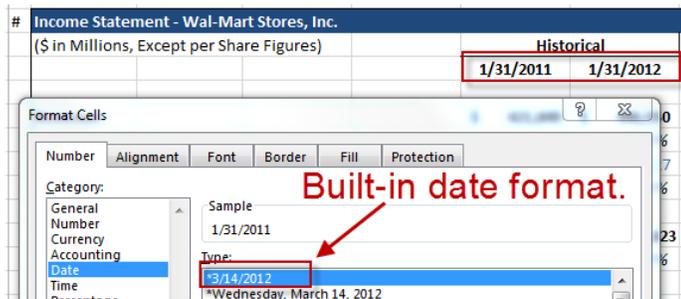
Note that certain exceptions may apply to these rules. For example, if you have **assumptions** which take the form of percentages (e.g. revenue growth), then you may NOT want to italicize those numbers since assumptions are different from calculated percentages, such as gross margin figures.



Dates

Usually, you display dates formatted with either the full month, day, and year (or year, month, and day depending on your region), or simply the year by itself.

See the screenshots below for both methods and the formats we are using:



Remember that your dates MUST be designated 'Date Formatting' (after pressing 'CTRL + 1' to to the cell format dialog box under Number and select 'Date' for formatting type) or "Custom" with the components of dates in the "Type" field (see above).

as get

If you inadvertently let Excel format your dates as 'Text Formatting' rather than as 'Date Formatting,' they may not show up correctly.

To calculate the date of the next year and previous year in financial models, you can use the following formulas:

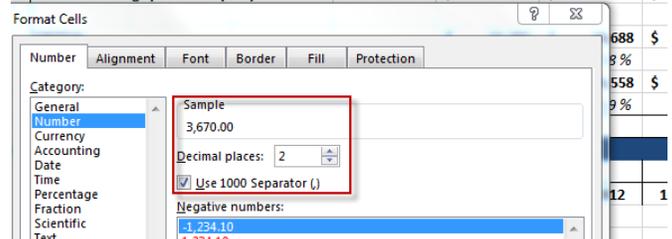
- **Previous Year:** =DATE(YEAR(Year_Cell)-1,MONTH(Year_Cell),DAY(Year_Cell))
- **Next Year:** =DATE(YEAR(Year_Cell)+1,MONTH(Year_Cell),DAY(Year_Cell))

We are taking the same month and day, but adding or subtracting 1 to the year each time.

Share Counts

For the share counts shown in your models, you can use the "Number" format and display two or three decimal places.

Consolidated Net Income:	\$	15,959	\$	16,454	\$
Less: Noncontrolling Interest Earnings:		(604)		(688)	
Net Income Attributable to Parent:	\$	15,355	\$	15,766	\$
Diluted Shares:		3,670.00		3,474.00	
Diluted Earnings per Share (EPS):	\$	4.18	\$	4.54	\$





Note that if you display the share count this way, its alignment relative to the other numbers in your financial model may be slightly different since you're **not** using the "Accounting" format.

Valuation Multiples

For valuation multiples in financial models – such as EV/EBITDA, EV/Revenue, or even P/E – the best practice is to use a "0.0 x" format or a close variation of that.

You may apply "Conditional Formatting" or even "Custom Number Formatting" if the multiple is above 0.0 x or 100.0 x, but even that is not necessarily required.

In situations where the multiple is below 0.0x (i.e. negative valuation multiple) or above 100.0x, it might be better to use the IF(ISERROR()) or IFERROR() built-in function in Excel so that you display "NM" or "N/A" or equivalent text rather than applying formatting at all.

Company Name	Share Price	Capitalization			TTM
		Equity Value	Enterprise Value	Enterprise Value	
Costco Wholesale Corporation	\$ 100.73	\$ 44,680	\$ 41,365		0.4 x
Target Corporation	63.12	42,987	59,676		0.9 x
Kohl's Corporation	46.10	11,342	14,228		0.8 x
Dollar General Corp.	46.34	15,961	18,453		1.2 x

Text

We prefer to format all text in the black font color; some people make the argument that since text is also hard-coded, *it should be formatted in blue*.

However, using blue text makes it more difficult to read the document so we don't follow this practice.

Different banks will have different fonts selected as the 'default' font style to make the appearance of the bank's analysis consistent.

"Arial" is probably the most common type font, although we like to be different for the sake of being different by using Calibri (it looks better on most computers).

Font size doesn't matter quite that much as long as you're consistent; you might see anything from 10 point font to 12 point font used in models.



Borders, Fonts, and Fill Colors

Normally, you only include borders around the financial statements and supporting schedules, such as those for revenue and expense models.

You should **NOT** overuse borders or your model will be much more difficult to read and interpret.

You can also include bottom borders beneath or above date rows, but you should not make a “box” there.

In normal cells, you would only apply outside borders if you have an input cell and you want to change it to the blue/yellow/black border format discussed above.

# Standalone Operating Model - Assumptions - Wal-Mart Stores, Inc.									
(\$ in Millions, Except per Share Figures)									
Company Name:	Wal-Mart Stores, Inc.				Effective Tax Rate:	32%			
Ticker:	WMT				Blue indicates hard-coded numbers.				
Current Share Price:	\$ 73.26				Black indicates formulas and text.				
Last Historical Year:	1/31/2012				Green indicates links from other worksheets.				
Valuation Date:	3/4/2013								
Allow Circular References?	No								
Operating Case:	<ul style="list-style-type: none"> 2 Base 1 Conservative 2 Base 3 Management 				Labels for Public Company Comparables:				
Units:	1,000,000				Trailing Twelve Months: TTM				
Units for Square Feet:	1,000				Forward Year 1: 1/31/2013				
					Forward Year 2: 1/31/2014				
					Forward Year 3: 1/31/2015				
# Revenue Scenarios - Wal-Mart Stores, Inc.									
	Historical				Projected				
	1/31/2009	1/31/2010	1/31/2011	1/31/2012	1/31/2013	1/31/2014	1/31/2015	1/31/2016	1/31/2017

Only borders around this whole area, and around "input cells."

Also used above date row.

As mentioned above, 10, 11, or 12 point font sizes are all common, and standard font types include Arial, Calibri, and Helvetica.

You **very** rarely want to use any type of fill color to change the background color of cells – keep most areas white, and only do this for the titles of all the schedules, key summary rows (such as those in a DCF or the WACC calculation), and perhaps on any graphs or charts you create.

Alignment

In financial models, you should keep most things left-aligned and set to ‘General’ horizontal alignment.



You can indent any rows that show supporting calculations, such as revenue growth or gross margins:

Income Statement - Wal-Mart Stores, Inc.			
(\$ in Millions, Except per Share Figures)		Historical	
		1/31/2011	1/31/2012
Revenue:		\$ 421,849	\$ 446,950
<i>Revenue Growth:</i>			6.0 %
Cost of Revenue:		314,946	335,127
<i>Cost of Revenue % Revenue:</i>		74.7 %	75.0 %
Gross Profit:		106,903	111,823
<i>Gross Margin:</i>		25.3 %	25.0 %
Sales, General & Administrative Expenses:		81,361	85,265
<i>% Revenue:</i>		19.3 %	19.1 %

You can **center align** any important input cells and use **center across selection** for section headers and titles, where appropriate.

Do **NOT** use the “merge cells” function in Excel or you will regret it later – that feature makes it too easy to copy down formulas incorrectly or accidentally misalign other elements of the model.

Some people prefer to keep **all** text left-aligned in cells, and keep **all** numbers and calculations right-aligned – that’s not mandatory, but it can make it easier to spot errors and separate text from calculations.

Normal vs. Bold vs. Italics

You should use **bold text** for:

- Important section summaries or titles (Total Revenue, Net Income, Total Assets, etc.).
- Dates at the top of your model (sometimes – varies by model setup).
- Parts of the Assumptions or Inputs section to draw attention to.
- Sometimes, you will use bold for the entire column of the most recent year’s historical financial data in a model.

Italics are mainly for percentages and changes over time (as mentioned above).

Aside from that, everything else in your financial models should just be set to normal font weight (i.e. non-bold, non-italicized).

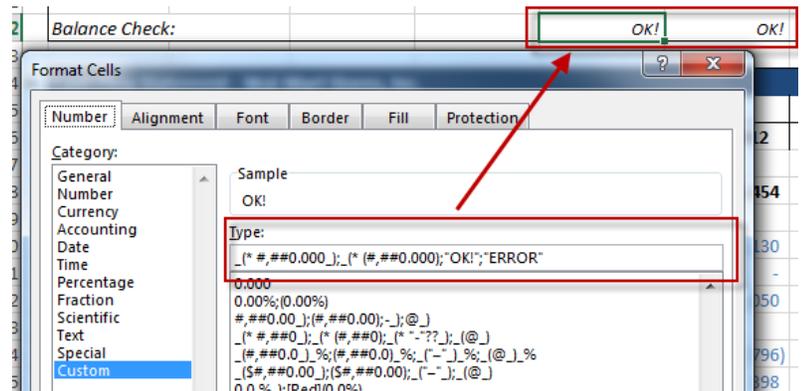
This is the *least* important point of everything we’ve been through so far, but you might as well get it right if you’re trying to get everything else right as well:

Wal-Mart Stores, Inc. - Summary of Financial Statements							
(\$ in Millions, Except per Share Figures)							
January 31,	Historical		Projected				
	2011	2012	2013	2014	2015	2016	2017
Revenue:	\$ 421,849	\$ 446,950	\$ 471,317	\$ 493,709	\$ 515,675	\$ 534,773	\$ 551,404
Revenue Growth:	3.4 %	6.0 %	5.5 %	4.8 %	4.4 %	3.7 %	3.1 %
Operating Income:	25,542	26,558	28,272	29,615	30,932	32,078	33,076
Operating Margin:	6.1 %	5.9 %	6.0 %	6.0 %	6.0 %	6.0 %	6.0 %
Net Income:	15,355	15,766	17,215	18,084	18,983	19,592	20,265
Earnings Per Diluted Share:	\$ 4.18	\$ 4.54	\$ 5.12	\$ 5.55	\$ 6.03	\$ 6.45	\$ 6.92
Cash Flow from Operations:	23,643	24,255	27,687	29,119	30,368	31,304	32,171
Cash Flow from Investing:	(12,193)	(16,609)	(14,139)	(14,814)	(15,477)	(16,053)	(16,555)
Cash Flow from Financing:	(12,028)	(8,458)	(9,908)	(13,623)	(12,948)	(14,383)	(11,423)

Balance Check Formatting

When building the balance sheet as part of your 3-statement operating model, you should **always** include a “balance check” at the very bottom to ensure that the balance sheet actually balances... it’s kind of a big deal.

You can also format it differently depending on whether it really does balance, or whether it’s off by some positive or negative number (see screenshot on the right and the actual text used below):



- `_(* ##0.000_);_(* (##0.000);"OK!";"ERROR"`

See the lesson on custom number formats for more, but essentially this ensures that we *always* have at least three decimal places after the decimal and that positives and negatives are aligned properly; if it’s 0 because the balance sheet balances, we display “OK!” instead.



Charts & Graphs and Other Points

Please see the formatting graphs and charts lesson and/or the separate quick reference guide on charts and graphs for more on these – it's a big topic and it's quite different from everything else above on formulas and calculations.

The Bottom-Line on Formatting

We've covered a lot of points, but the bottom-line on formatting in financial models is that **consistency** is more important than minutiae. Yes, get the color coding right and make sure your model is legible...

But don't spend hours and hours on tiny details unless your team is unreasonably demanding (this happens an unfortunately high proportion of the time in investment banking).

And in time-pressured situations such as modeling case studies (there's almost a 100% guarantee you'll get these in buy-side interviews), definitely do NOT obsess over formatting or even worry about these issues.

In that context, numbers, model structure, and correct formulas matter more than aesthetic formatting issues.