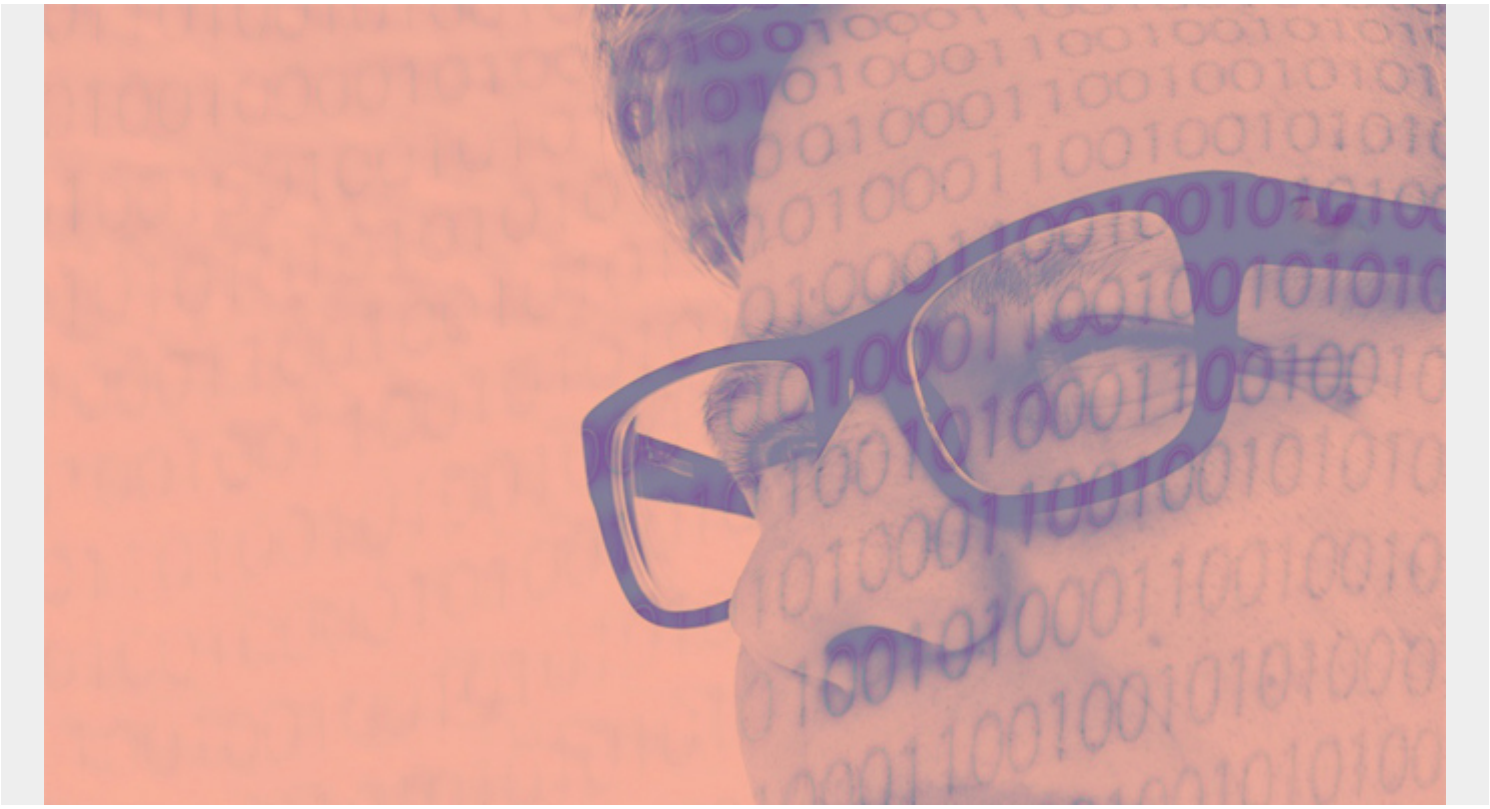
TABLEAU: JOIN TABLES ON CALCULATED FIELDS AND CREATE CROSSTAB TABLES



This is part of our ongoing series on Tableau. In this article, I'll show how to join Tableau tables on a calculated field and how to create a table text, which is also known as a **crosstab table**.

(This article is part of our Tableau Online Guide. Use the right-hand menu to navigate.)

Getting the data for Tableau

To illustrate a variety of Tableau functions, we'll continue looking at the same three stocks: Starbucks (SBUX), Johnson & Johnson (JNJ), and Disney (DIS).

Download the data we are using from here. There are three tables in that zip file: **price**, **earnings**, and **dividends**. We will look at price and earnings. Set a filter to extract only **SBUX**.

A note on the terms:

- **Price** is the stock price.
- **Earnings** are the quarterly filings.

How to join Tableau tables

For whatever reason, the filing dates for Starbucks (SBUX) earnings always fall on a Sunday. We

need to do some math to change that to Monday, so that we can match up the stock price with earnings. (The stock market is closed on Sundays.)

So, we'll create a calculated field to join the two tables, which adds a new field to the earnings table that will match a field in the price table. (Of course, that means we will lose data for those Mondays which are a holiday. You could, as an exercise, try to fix that.)

The two tables have these common elements:

prices table	Symbol	Date
earnings table	Symbol	Quarterend

We calculate:

```
DATE() + 1
```

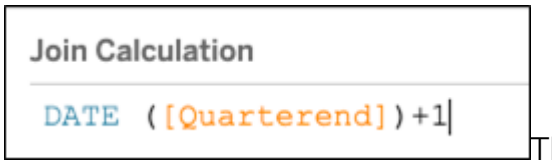
And use that as our join criteria.

So, we add a **calculated field** to our join criteria.

We will make an **inner join**, which will match up records with the same stock symbol with the stock price date and the earnings date on the Monday after the filing.

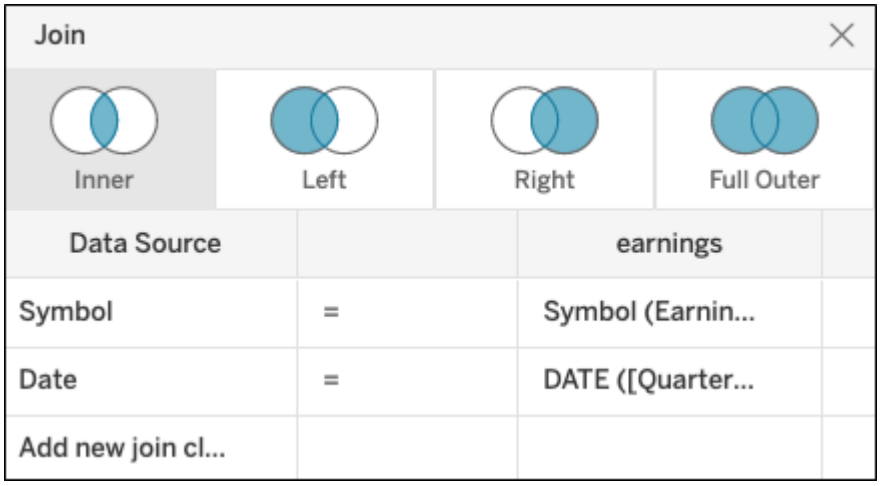
So, the number of records we will have will be equal to the number of quarterly filings. Our data is from 2010 to 2018.

Click below to add this calculation on the earnings column.



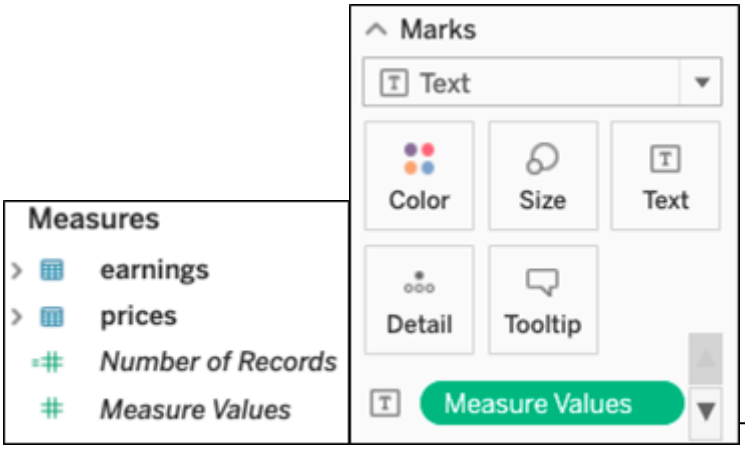
This takes the **Quarterend** string, converts it to a date then adds 1 to it.

Then the join criteria will look like this:



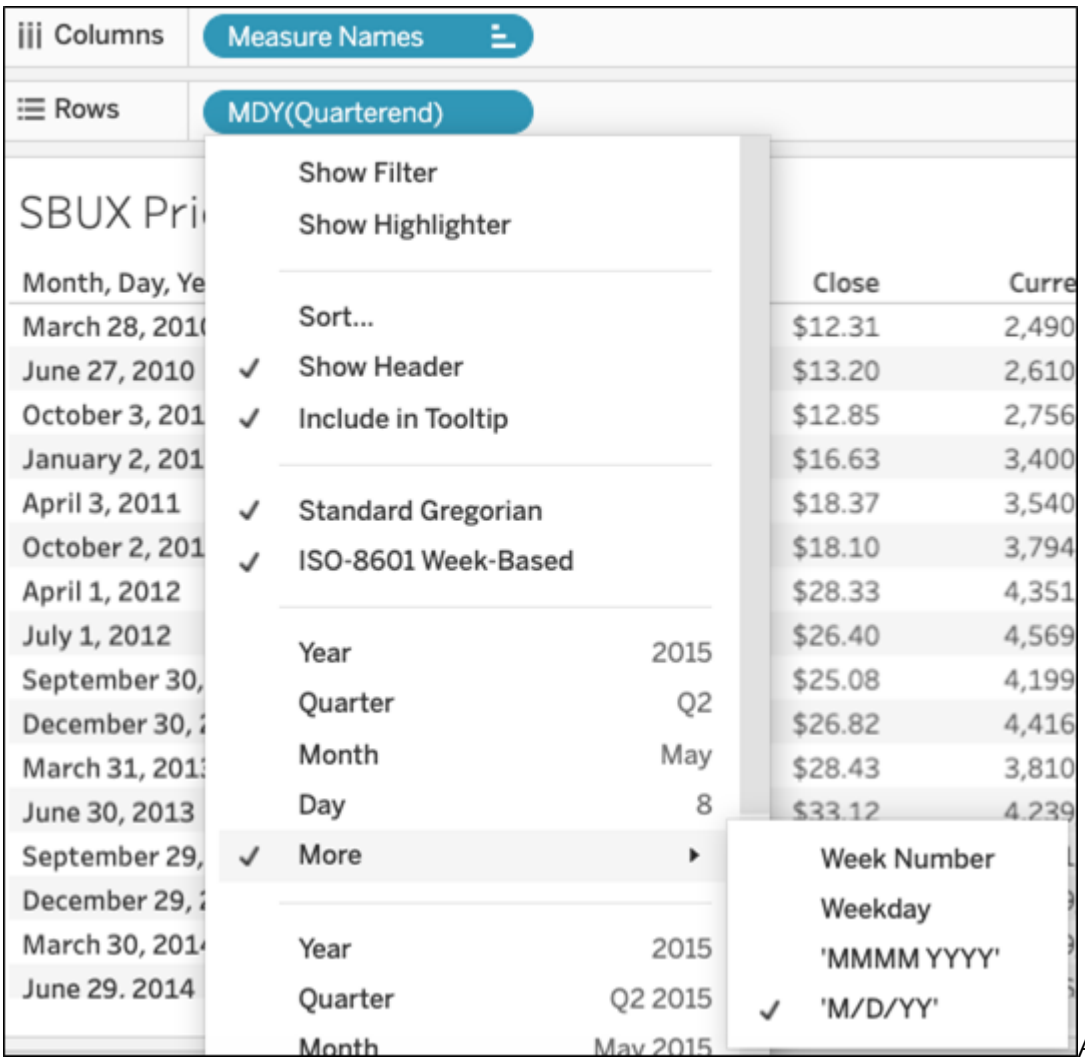
How to create a crosstab table

In the worksheet view you see the both tables: **earnings** and **prices**. The easiest way to make a crosstab table is to drag measure values onto the Text mark.



Then drag **Measure Names** to **Columns**.

Then drag **Quarterend** date to **Rows**, since we want financial data by date. Format the date show that is shows the full date. Tableau tends to collapse that to year, as it assumes we want to do aggregation. (That's logical since, in most cases, you want a report to sum data. In this case, we want the report to show *all* the data.)



Add the **Measure Values** to the **filter** tab and then deselect fields until you have what you want to see. For financial analysis that would be the balance sheet values assets, liabilities, and cash and profit and loss value earnings.

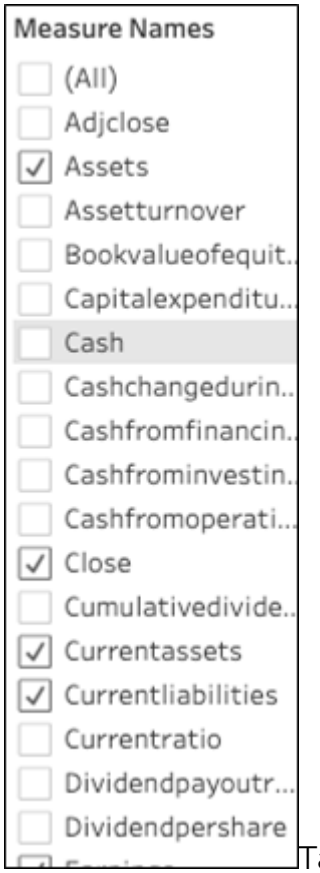
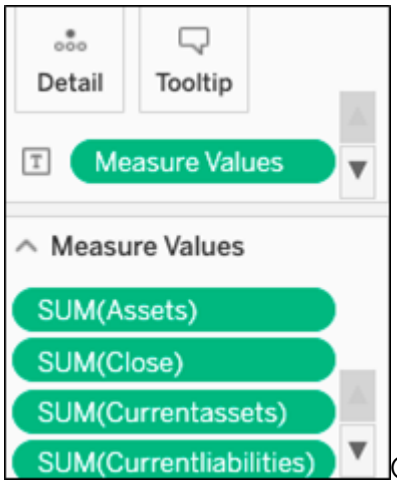


Tableau always assumes we want to sum values. For the sake of simplicity, we will leave it at that, because we have only 1 record per date. So, the sum and individual values are the same.

Now the worksheet shows these Measure Values. If we had not dropped **Measure Values** on the **Text Mark** it would show *abc* in every field. Not sure why that is; it just behaves that way.



Our complete report of stock price on earnings data looks like this:

SBUX Prices

Month, Day, Year o..	Assets	Close	Currentassets	Currentliabilities	Earnings	Revenue
March 28, 2010	6,144,700,000	$12.31	2,490,400,000	1,646,600,000	217,300,000	2,534,700,000
June 27, 2010	6,206,900,000	$13.20	2,610,900,000	1,726,600,000	207,900,000	2,612,000,000
October 3, 2010	6,385,900,000	$12.85	2,756,400,000	1,779,100,000	278,900,000	2,838,000,000
January 2, 2011	6,931,100,000	$16.63	3,400,400,000	1,956,400,000	346,600,000	2,950,800,000
April 3, 2011	7,027,600,000	$18.37	3,540,300,000	1,794,200,000	261,600,000	2,785,700,000
October 2, 2011	7,360,400,000	$18.10	3,794,900,000	2,075,800,000	358,400,000	3,031,700,000
April 1, 2012	8,006,500,000	$28.33	4,351,500,000	1,971,400,000	309,900,000	3,195,900,000
July 1, 2012	8,308,900,000	$26.40	4,569,600,000	2,018,200,000	333,100,000	3,303,600,000
September 30, 2012	8,219,200,000	$25.08	4,199,600,000	2,209,800,000	358,700,000	3,364,100,000
December 30, 2012	8,490,100,000	$26.82	4,416,000,000	2,390,900,000	432,200,000	3,799,600,000
March 31, 2013	8,502,800,000	$28.43	3,810,200,000	2,269,700,000	390,400,000	3,555,900,000
June 30, 2013	9,062,400,000	$33.12	4,239,700,000	2,424,400,000	417,800,000	3,741,700,000
September 29, 2013	11,516,700,000	$38.49	5,471,400,000	5,377,300,000	-1,232,100,000	3,795,000,000
December 29, 2013	10,255,200,000	$39.28	3,759,400,000	2,953,000,000	540,700,000	4,239,600,000
March 30, 2014	10,097,000,000	$36.69	3,579,000,000	2,733,500,000	427,000,000	3,873,800,000
June 29, 2014	10,385,300,000	$38.69	3,356,900,000	2,883,900,000	512,600,000	4,153,700,000
September 28, 2014	10,752,900,000	$37.63	4,168,700,000	3,038,700,000	587,800,000	4,180,700,000
December 28, 2014	12,351,100,000	$41.19	4,546,100,000	3,557,500,000	983,100,000	4,803,200,000
March 29, 2015	12,190,700,000	$47.99	4,245,400,000	3,521,200,000	494,900,000	4,563,500,000
June 28, 2015	12,868,800,000	$53.55	4,760,700,000	4,049,200,000	626,700,000	4,881,200,000
September 27, 2015	12,446,100,000	$55.77	4,352,700,000	3,653,500,000	652,700,000	4,914,800,000
December 27, 2015	12,943,500,000	$60.19	4,727,700,000	4,420,100,000	687,600,000	5,373,500,000
March 27, 2016	12,519,400,000	$58.96	3,883,500,000	4,351,200,000	575,100,000	4,993,200,000