USING GOOGLE FINANCE FUNCTIONS

DC Chapter of BetterInvesting

February 22, 2021

Sage

Create complex spreadsheets

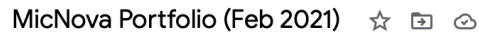With Google Sheets, you can create, edit, and collaborate wherever you are. For free.

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AGENDA

- 1. Introduction to Google Finance

- 2. Current and Historic Prices

- 3. Fundamental Data

- 4. Conditional Formatting

- 5. Using a Filter

- 5. Putting It all Together

File   Edit   View   Insert   Format   Data   Tools   Add-ons   Help

	Security	Ticker	Shares	Cur Price	Market Value	% Port.	Daily $ Change	Daily % Change	Stock Gain $	Stock Gain %	Cost Shr	Total Cost	Fm 52w Low	Price Last 90 days	Cur P/E	Qual	PAR	Market Cap $	Market Cap Size
	Equities																		
	AbbVie Inc	ABBV	22	105.01	2,310	2.0%	(23.10)	-0.99%	153	1.6%	98.05	2,157	83.5%		23	82	5.4%	185,392	Large
	Adobe Inc	ADBE	9	479.12	4,312	3.7%	(83.25)	-1.89%	34	0.1%	475.39	4,279	79.5%		44	86	15.7%	229,355	Large
	Alimentation Couche-Tard Inc Clas	ANCTF	128	30.40	3,891	3.3%	(33.28)	-0.84%	(72)	-2.3%	30.96	3,963	65.2%		12	94	9.2%	33,218	Large
	Alphabet Inc Class C	GOOG	6	2,101.14	12,607	10.7%	(96.36)	-0.76%	7,071	7.7%	922.57	5,535	95.5%		36	99	14.0%	1,411,84	Large
	Apple Inc	AAPL	90	129.87	11,688	9.9%	14.40	0.12%	10,560	842.1%	12.54	1,129	83.4%		35	99	6.4%	2,180,27	Large
	Axos Financial Inc	AX	10	45.06	451	0.4%	14.70	3.37%	11	0.2%	43.99	440	96.7%		13	95	18.7%	2,662	Medium
	Berkshire Hathaway Inc. Class B	BRK.B	25	241.85	6,046	5.1%	(41.25)	-0.68%	2,913	23.2%	125.34	3,133	93.8%		0	75	6.8%	567,663	Large
	Cboe Global Markets Inc	CBOE	54	96.22	5,196	4.4%	(181.98)	-3.38%	474	5.4%	87.45	4,722	44.7%		23	68	10.7%	10,396	Large
	CoStar Group Inc	CSGP	10	913.25	9,133	7.8%	(65.80)	-0.72%	3,323	5.7%	580.92	5,809	91.3%		123	97	10.5%	35,998	Large
	Essent Group Ltd	ESNT	118	44.22	5,218	4.4%	99.12	1.94%	488	12.2%	40.09	4,730	83.4%		11	68	15.3%	4,971	Medium
	Gentex Corporation	GNTX	190	35.65	6,774	5.8%	140.60	2.13%	3,960	267.4%	14.81	2,813	88.5%		29	100	7.1%	8,735	Medium
	LGI Homes Inc	LGIH	51	119.00	6,069	5.2%	149.43	2.52%	395	3.5%	111.26	5,674	86.0%		12	75	17.4%	2,987	Medium
	Microsoft Corporation	MSFT	50	240.97	12,049	10.2%	(141.00)	-1.16%	10,777	423.6%	25.44	1,272	95.5%		36	96	10.9%	1,817,44	Large
	Monster Beverage Corp	MNST	50	89.65	4,483	3.8%	(150.00)	-3.24%	1,493	25.0%	59.80	2,990	87.9%		40	100	11.2%	47,328	Large
	NV5 Global Inc	NVEE	40	104.00	4,160	3.5%	159.20	3.98%	2,006	37.3%	53.84	2,154	99.2%		66	86	6.4%	1,378	Small
	T. Rowe Price Group Inc	TROW	75	162.77	12,208	10.4%	207.75	1.73%	8,170	151.7%	53.84	4,038	92.8%		16	97	10.8%	37,103	Large
	Visa Inc	V	30	204.73	6,142	5.2%	(138.60)	-2.21%	4,237	66.7%	63.51	1,905	81.9%		47	100	10.8%	437,564	Large
					112,735	95.9%			55,991			56,744			*Avg:*	89.2	11.0%		
	Cash				4,870	4.1%						4,870.20							
	Benchmarks																		
	Vanguard Total Stock Market Index	*VTI*		205.97				0.23%					97.6%						
	SPDR S&P 500 ETF Trust	*SPY*		390.03				-0.18%					97.6%						
	YTD Return (not time weighted)																		
	Totals				117,605	100%	(169)	-0.14%	55,991			56,744							
	Last holdings update: 2021-02-20																		

MicNova Portfolio | Benchmarks | Historic Returns | Stocks to Consider | Transactions

WHY GOOGLE SHEETS?

- Available on any platform with a web browser

- Google Finance provides near real time financial data – at no cost

- Can link individual sheets together to build complex spreadsheets

- Spreadsheet can be shared (view only or editable)

- If you know how to use Excel, you can use Google Sheets

- Provides bells and whistles like graphs and condition formatting using color

STOCK FUNCTIONS

- Name
- Price
- Opening Price
- Daily High
- Daily Low
- Volume
- Market Cap
- Shares Outstanding
- P/E
- EPS
- 52-week High
- 52-week Low
- Beta
- $ Change Today
- % Change Today

- **"price"** - Realtime price quote, delayed by up to 20 minutes.
- **"priceopen"** - The price as of market open.
- **"high"** - The current day's high price.
- **"low"** - The current day's low price.
- **"volume"** - The current day's trading volume.
- **"marketcap"** - The market capitalization of the stock.
- **"tradetime"** - The time of the last trade.
- **"datadelay"** - How far delayed the realtime data is.
- **"volumeavg"** - The average daily trading volume.

- **"pe"** The price/earnings ratio.
- **"eps"** - The earnings per share.
- **"high52"** - The 52-week high price.
- **"low52"** - The 52-week low price.
- **"change"** - The price change since the previous trading day's close.
- **"beta"** - The beta value.
- **"changepct"** - The percentage change in price since the previous trading day's close.
- **"closeyest"** - The previous day's closing price.
- **"shares"** - The number of outstanding shares.

MUTUAL FUND FUNCTIONS

- Name
- Price
- Date of Last Price
- $ Change Today
- % Change Today
- YTD Return
- Expense Ratio
- Distribution yield

- 1-wk Return
- 4-wk Return
- 13-wk Return
- 52-wk Return
- 156-wk Return
- 260-wk Return
- Morningstar Rating

- **"closeyest"** - The previous day's closing price.
- **"date"** - The date at which the net asset value was reported.
- **"returnytd" - The year-to-date return.**
- **"netassets"** - The net assets.
- "change" - The change in the most recently reported net asset value and the one immediately prior.
- **"changepct"** - The percentage change in the net asset value.
- **"yieldpct"** - The distribution yield, the sum of the prior 12 months' income distributions (stock dividends and fixed income interest payments) and net asset value gains divided by the previous month's net asset value number.

- **"returnday"** - One-day total return.
- **"return1"** - One-week total return.
- **"return4"** - Four-week total return.
- **"return13"** - Thirteen-week total return.
- **"return52"** - Fifty-two-week (annual) total return.
- **"return156"** - 156-week (3-year) total return.
- **"return260"** - 260-week (5-year) total return.
- **"returnday"** - One-day total return.
- **"morningstarrating"** - The Morningstar star rating.
- **"expenseratio"** - The fund's expense ratio.

* Note return Data may not be reliable

GETTING PRICES

PRICE DATA

- **"open"** - The opening price for the specified date(s).
- **"close"** - The closing price for the specified date(s).
- **"high"** - The high price for the specified date(s).
- **"low"** - The low price for the specified date(s).
- **"volume"** - The volume for the specified date(s).
- **"all"** - All of the above.

SYNTAX

- GOOGLEFINANCE(ticker, [attribute], [start_date], [end_date|num_days], [interval])
  - ticker - The ticker symbol for the security to consider.
  - Need at least a ticker and an attribute
- Examples:
  - =GOOGLEFINANCE("GOOG","price)
  - =GOOGLEFINANCE(A2,A3)
  - =GOOGLEFINANCE("GOOG", "price", DATE(2017,1,1), DATE(2017,12,31), "DAILY")
  - =GOOGLEFINANCE("GOOG","price",TODAY()-30,TODAY())

```
=googlefinance(B2,"price")
```

B	C	
MSFT	240.97	

← Reference a cell

Or just use the ticker →

```
=googlefinance("msft","price")
```

B	C	
MSFT	240.97	

=googlefinance("msft","close","1/13/2021")

B	C	D
MSFT	Date	Close
	1/13/2021 16:00:	216.34

← Returns a 2x2 Matrix

Index gives us row 2 column 2

=index(googlefinance("msft","close","01/13/2021"),2,2)

B	C	D	E
MSFT	216.34		

FUNDAMENTAL DATA

B2	▼	*fx*	=GoogleFinance(A2, "pe")

	A	B	C
1		P/E Ratio	
2	MSFT	36	

B2	▼	*fx*	=GoogleFinance(A2, "marketcap")/1000000

	A	B	C	D
1		Market Cap		
2	MSFT	1,817,448		

Combining Price Data Into Something Useful
% Between 52 Week Low and High

B2	▼	fx	`=(googlefinance(A2, "price")-googlefinance(A2, "low52"))/(googlefinance(A2,"high52")-googlefinance(A2,"low52"))`

	A	B	C	D	E	F
1						
2	MSFT	95.46%				

SPARKLINE GRAPHS

SPARKLINE

Creates a miniature chart contained within a single cell.

Sample Usage

- SPARKLINE(A1:F1)

- SPARKLINE(A2:E2,{"charttype","bar";"max",40})

- SPARKLINE(A2:E2,A4:B5)

- SPARKLINE(A1:A5, {"charttype","column"; "axis", true; "axiscolor", "red"})

TYPES OF SPARKLINE GRAPHS

•

The "charttype" option defines the type of chart to plot, which includes:

- "line" for a line graph (the default)

- "bar" for a stacked bar chart

- "column" for a column chart

- "winloss" for a special type of column chart that plots 2 possible outcomes: positive and negative (like a coin toss, heads or tails).

	C	D	E	O	P	Q	R	U
	Security	**Ticker**	**Shares**	**Port. Gain $**	**Port. Gain %**	**Fm 52w Low**	**Price Last 90 days**	**Cur P/E**
	Equities							
	Air Lease Corp Class A	AL	651.774	9,021	47.2%	92.0%		9
	Alphabet Inc Class A	GOOGL	6.393	11,628	673.6%	98.4%		36
	Alphabet Inc Class C	GOOG	7.360	13,226	597.0%	98.3%		36
	Apple Inc	AAPL	297.353	35,717	721.7%	90.9%		37
	Berkshire Hathaway Inc. Class B	BRK.B	99.236	13,782	144.3%	97.7%		0
	Biogen Inc	BIIB	45.144	(399)	-3.2%	29.7%		11
	Centene Corp	CNC	188.536	(1,474)	-11.7%	48.5%		16
	CVS Health Corp	CVS	193.306	(1,524)	-9.8%	80.0%		12
	EPAM Systems Inc	EPAM	97.547	27,621	300.4%	99.0%		70
	Essent Group Ltd	ESNT	398.728	349	2.0%	73.7%		10
	East West Bancorp, Inc.	EWBC	415.596	9,171	51.8%	97.8%		16
	Gentex Corporation	GNTX	437.982	7,207	89.3%	84.3%		29
	Gilead Sciences, Inc.	GILD	264.560	2,333	14.8%	40.5%		703
	iShares Expanded Tech-Software Se	BATS:IG	87.692	7,074	27.2%	99.9%		34
	Microsoft Corporation	MSFT	129.383	28,939	600.4%	97.4%		36

SPARKLINE

Creates a miniature chart contained within
a single cell.

B2	▾	*fx*	=sparkline(GOOGLEFINANCE(A2,"price",TODAY()-90,TODAY(),"Daily"), {"charttype","line";"linewidth",2;"color","#5f88cc"})

	A	B	C	D	E
1		P/E Ratio			
2	MSFT				

G	H	I
YTD	**w/o Dividends**	
5.82%		
2.90%		
4.32%		
5.51%		
11.17%		
15.38%		
11.50%		
4.70%		
6.75%		
6.73%		
11.87%		
5.97%		
-2.19%		

For Column H –

    =if(G3<0, sparkline(G3*100,{"charttype","bar";"max",10;"rtl",true;"color1","#ff0000"}),"")

For Column I –

    =if(G3>0, sparkline(G3*100,{"charttype","bar";"max",10;"rtl",false;"color1","#33ff00"}),"")

CONDITIONAL FORMATTING

- Use colors to help distinguish data

		Daily	From Hi	YTD	w/o Dividends	
Tot US Mkt	VTI	0.56%	-0.09%	4.87%		
Dow	.DJI	0.30%	-0.40%	1.77%		
S&P 500	SPY	0.39%	-0.19%	3.70%		
NASDAQ	QQQ	0.34%	-0.31%	5.62%		
Small Cap	VB	1.15%	-0.01%	8.87%		
Small Val	VBR	0.88%	-0.23%	8.15%		
REIT (US)	VNQ	0.69%	-11.64%	4.49%		
Tot Int Stk	VXUS	0.71%	-0.66%	4.47%		
Tot Int Dev	VEU	0.74%	-0.80%	8.76%		
Emer Mkt	VWO	#REF!	-0.11%	0.00%		
Tot World	VT	0.61%	-0.02%	4.40%		
Total Bnd	BND	-0.14%	-2.94%	-1.39%		
				12/31/2020		

Conditional format rules   ✕

Single color   **Color scale**

Apply to range

G3:G17 ⊞

Format rules

Preview

Default
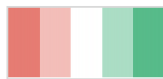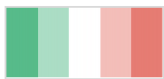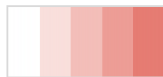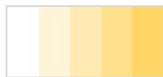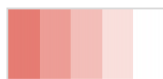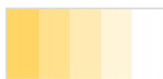
Conditional format rules   ✕

Format rules

Preview

Default
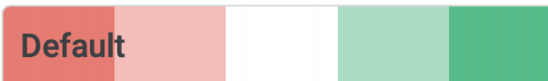
Minpoint

Min value ▾		🪣▾
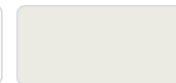
Midpoint

Number ▾	0	🪣▾

Maxpoint

Max value ▾		🪣▾

Cancel   **Done**

SORT & FILTER DATA

- See example

THE IFERROR FUNCTION

Sample Usage

`IFERROR(A1,"Error in cell A1")`

`IFERROR(A2)`

General usage

Returns a blank if $test$ is an error and $value$ is null; returns the $value$ if $test$ is an error and $value$ is not null; returns the $test$ if it is not an error.

IFERROR : General Usage

Result	Formula
Division by zero	=IFERROR(1/0, "Division by zero")
	=IFERROR(#N/A,)
Unknown range name	=IFERROR(#NAME?, "Unknown range name")
Google	=IFERROR("Google",)
TRUE	=IFERROR(TRUE(), FALSE())

SECURITY

- Don't put account numbers or names in Google spreadsheet

- Only share spreadsheet with those you trust

- Secure your Google account with two factor

QUESTIONS?