Computers Cannot Understand the Coronavirus

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Traditional Quant Factors like Value, Growth, and Quality will become virtually meaningless as the impact of the coronavirus hits company financial statements, introducing murky data and volatility into a number of line items. While the Q1 financial statements will give us an indication of the coming impact on company reports, we should brace ourselves for large changes in financial statement reporting for at least the next two years as companies manage through and then recover from the coronavirus crisis. Until that time, betting on simple fundamental metrics may be no better than flipping a coin or having a blindfolded monkey throw darts to make stock picks.

Given these challenges, Quants should be studying how the coronavirus shock will impact the assumptions and input data going into their financial statement models and adjusting them as needed. The status quo is not a solution.

The Big Picture

With the current global economic shutdown, we are entering unknown territory. Traditional company financial datasets, which typically go back to the 1960s and 1970s, do not contain periods as extreme as the one that we are experiencing today. Financial models are not "trained" to handle the speed of change that is rapidly playing out in companies' businesses and financial reports. We learned some lessons from previous episodes, particularly the 2008-2009 financial crisis, but, like the rest of the world, quant models are not fully prepared for the changes that will hit in Q2 and beyond.

From a financial modeling perspective, the major shocks that we need to prepare for include:

- Negative or minimal earnings for a significant share of companies
- Shrinking book values
- Volatile growth trends
- Unreliable dividends

We expect these shocks to hit the financial statements hard in the next 1 – 2 years, creating large distortions in company financials and growth trends. All standard fundamental measures will be impacted, making it increasingly hard for investors to understand a company's value, growth, and quality characteristics. While, in a best-case scenario, the most severe impact in companies' financials should occur in the next year, we can expect growth rate and time series calculations to be distorted for 3 to 5+ years. The disruption in both the current and trend fundamentals will create an enormous challenge to the systematic categorization of companies into factor portfolios.

The Impact on Fundamental Factors

To illustrate the scope and potential impact of the coronavirus crisis on key fundamental measures, the table below provides our view of the magnitude of the expected impact on the fundamental metrics used by MSCI to construct their Value, Growth, and Quality factor benchmarks and ETFs.

MSCI Factor	Metric	Overall Impact	Temporary Distortion (1-2 years)	Long-term Distortion (3 years +)
Value				
	Book to Price	+ +	+ +	+
	Forecasted Earnings to Price	+	+	-
	Dividend Yield	+ + +	+ + +	-
Growth				
	Long-term Forecasted Growth Rate	-	-	-
	Short-term Forecasted Growth Rate	+ + +	+ + +	-
	Internal Growth Rate	+ + +	+ + +	-
	Long-term Historical Growth Trend (5 year)	+ + +	+ + +	+ + +
	Long-term Historical Sales Growth Trend (5 year)	+ + +	+ + +	+ + +
Quality				
	Return on Equity	+ + +	+ + +	-
	Balance Sheet Strength	+ +	+ +	-
	Stability of Earnings	+ +	+ +	+ +

These are just our expectations, but the bottom line is that every key metric that uses reported financial information will be impacted, and that these extreme numbers will not be fading from the traditional metrics any time soon. For the Value components, we anticipate that the traditional summary measures of value from the balance sheet and income and cash flow statements will be impacted in the years to come. For Growth, the longer-term historical growth rates will be distorted for years by the coming large declines followed by expected rebuilding in sales and earnings. The forecasts of future earnings components are highly uncertain currently as analysts struggle to update their predictions. Each of the Quality components is also likely to see large and variable changes across companies in the coming quarters and, in the case of the 5-year earnings growth variation measure, for years to come. Indeed, the coronavirus shutdown has already impaired many high quality companies.

Financial Statement and Forecasting Challenges

The impact on financial statements as well as other data quants rely on will be large and varied, making assessments of value and forecasts of growth extremely challenging.

Here are some of the ways financial statement line items are rapidly evolving and their impact on investors and financial models:

Income Statement	Balance Sheet	Cash Flows
Sharp drop in sales, expenses, operating income, and tax rates Large impairments and "one time" hits to earnings from balance sheet changes Restructuring charges Increased reserve accounting expense (banks/financials)	Large asset impairments • goodwill • oil reserves • plant and property • value of investments Increase of debt and cash on hand to fund operations Increased pension liabilities Asset sales and leasebacks Mark-to-market accounting Increased bad debt allowance	Reduction in capex Reduction or elimination of dividends paid out Reduction or elimination of share buybacks Reduction in M&A spending Increase in cash from debt offerings, equity offerings, and asset sales

Key Impact on investors

Weak earnings Contraction in margins and profitability	Reduction in book values Increase in leverage	Cash for investors and investment will decline Cash will be used to fund operations and pay off debt

Financial Modeling Challenges

Valuing stocks with negative or minimal earnings Distinguishing between recurring earnings and nonrecurring earnings	Asset valuation - Timing and size of impairments due to management discretion Market-to-market accounting	Valuing stocks with negative cash flow Treatment of dividend and share buyback cuts, and negative payout ratios
All Growth Rate Calculations		

In addition to these financial statement items, forecasts of company financials are increasingly unreliable. Companies are withdrawing guidance, many analysts have been slow to update their estimates (leaving stale overly optimistic estimates in place) or reluctant to be overly pessimistic, and the dispersion of estimates and potential outcomes is extremely high. At this juncture, we believe it is risky to make decisions on company valuation based on consensus forecasted earnings yield, a common component of value ETFs and indices.

Company Example

To demonstrate how it will be increasingly difficult to understand a company's value, growth, and quality characteristics, it can be helpful to examine specific companies. Throughout this example, we attempt to illustrate what simple financial metrics could look like over the next year to create a "before" and "after" coronavirus picture. While our "before" view uses historical data that is based on company reports, our "forecasts" for next year are finger-in-the-air estimates meant simply to demonstrate potential outcomes. Our goal is not to highlight these future outcomes, but rather to show the danger of using naïve measures to analyze companies.

Disney vs. Netflix

Both Disney and Netflix are leaders in entertainment and video streaming. Disney is typically considered a high quality, mature growth stock, while Netflix is a fast-growing company with strong sales growth, but limited earnings and cash flow. Under normal circumstances, investors with an earnings and valuation focus would favor Disney over Netflix. However, the shutdown of Disney's theme parks and other related challenges will turn Disney's financial and valuation picture upside down over the next year.

"Before" Numbers (trailing 1Y)		
	Disney	**Netflix**
Price to Earnings	**16**	91
Price to Book	**2.0**	21.7
Dividend Yield	**1.8%**	0%
ROE	12.6%	**23.9%**
Earnings Growth (1 YR)	-19.0	**54%**
Sales Growth (1 YR)	8.3	**28%**

"After" Numbers (forecasted 1Y)	**Disney**	**Netflix**
Price to Earnings	110	**63**
Price to Book	**2.2**	16.1
Dividend Yield	**1.8%**	0%
ROE	**2.0%**	**25.7%**
Earnings Growth (1 YR)	**-85.5%**	**45%**
Sales Growth (1 YR)	**-20.0%**	**20.7%**

In our “after” scenario, Disney’s financials rapidly decline over the next 12 months, making it appear expensive on a forward earnings basis and extremely unattractive on growth and quality metrics. Meanwhile, Netflix’s growth remains robust and its valuation, while stretched, looks more attractive on near-term trailing earnings than Disney. Netflix’s growth story remains clear while Disney’s characteristics become completely murky as its value, quality, and growth profile are compromised.

Moreover, we expect further financial metric distortions to occur when Disney recovers from the shutdown. For example, if Disney can restore its earnings to 2019 level in two years’ time, its sales and earnings growth numbers will get an enormous artificial boost that will give it a superior short-term growth profile to Netflix.

One Year Growth in Year 2 (April 2020 to April 2021)	**Disney**	**Netflix**
Earnings	588%	39%
Sales	25%	17%

Conclusion

Rules based investing and computer algorithms are only as good as the data going into them. As they say, garbage in equals garbage out. It is critical that investors ensure that the output from their models is consistent with their investment objectives and beliefs.

While there are many challenges with financial and forecasting data in today’s environment, there are opportunities for investors who actively adapt their analysis and information to capture market inefficiencies. We believe it is important for investors to integrate a long-term perspective into their financial modeling and use market data like beta, investor sentiment information, and alternative data to supplement their investment decision-making process.

Appendix

Recent Company Examples of Changing Line Items

Change	Examples	Impact
Loan Loss Provisioning	JPMorgan $8.3 B Bank of America $4.8 B	Increase in provision for bad loans, income statement expense
Goodwill Impairment	Baker Hughes $15 B	Reduction in assets, book value, and earnings
Oil Impairment	BP $1 B Royal Dutch Shell $800 M	Reduction in assets, book value, and earnings
Sales and Leasebacks	Delta $1B Big Lots $725 M	Increase in cash, lease assets, and lease liabilities. Decrease in PP&E. New cash expense for lease payments on income statement
Drawing Credit Line	FedEx $1.5 B AmBev $9 B Carnival Corp $17 B	Increase in cash, debt, and leverage. Future increase in interest expense
New Debt Offering	Ford $8 B Exxon $9.5 B	Increase in cash, debt, and leverage. Future increase in interest expense
Equity Issuance	Darden Restaurants $400 M	Increase in cash, dilution in shares
Share Buyback Suspension	Intel McDonald's Chevron	Eliminates source of earnings growth
Dividend Suspension	Boeing Marriott	Increase in cash to fund loss-making operations