



DATA UPDATE 1 FOR 2023: SETTING THE TABLE

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https://www.stern.nyu.edu/~adamodar/New_Home_Page/data.html

Another ritual...

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- In [my last post](#), I talked about the ritual that I go through every year ahead of my teaching each spring.
- In this one, I will start on the first of a series of posts that I make at the start of each year, where I look at the data, both macro and company-level.
 - I will provide [motivation](#), if you need one, for why I create and share the data updates, followed up by a
 - [description of my data sample](#), which includes publicly traded companies listed and traded across the world,
 - as well as the [data variables](#) that I estimate and report.

Data: The Game is changing...

- It is perhaps a reflection of my age that I remember when getting data to do corporate financial analysis or valuation was a chore.
- To obtain company-level information, you needed to find its annual reports in physical form and for industry-level data, you were dependent on services that computed and reported industry averages, such as Value Line and S&P.
- The times have changed, and if there is a problem now, it is that we have too much data, rather than too little.

With negative consequences...

1. Data distractions: Faced with massive amounts of data, quantitative as well as qualitative, many investors and analysts find themselves distracted by immaterial, irrelevant and sometimes misleading data points along the way.
2. Data as a crutch: At the other extreme, there are some who believe that they answer to every question lies in the data, and that when seeking an input to value and corporate financial analysis, the data will provide it. Rather than make their best judgments or reason their way, when faced with estimation challenges, they embark on a search for more data, and if they do not find it, they give up.
3. Data bias: There is the canard that data is objective, as opposed to estimates or judgments, which are subjective. That is not true! In my experience, data is malleable, and if there is enough of it at your disposal, you can screen it and selectively find and quote data to support whatever viewpoint you want to advance.

A Better use for Data

1. Get perspective: One of the challenges that anyone doing business analysis, investing or valuation faces is getting a measure of what comprises a reasonable value for any business metric.
2. Mean reversion: I am not a knee-jerk believer in mean reversion, but the tendency to move back towards averages is a strong one. That said, to use mean reversion in analysis or investing, you need to know what these averages are, and data can help in that pursuit.
3. Counter made-up numbers: It remains true that people (analysts, market experts, politicians) often make assertions based upon either incomplete or flawed data, or no data at all.
4. Check rules of thumb: Investing and corporate finance are full of rules of thumb, many of long standing. For example, I have seen it asserted that a stock that trades at less than book value is cheap or that a stock that trades at more than twenty times EBITDA is expensive.

Motive for sharing

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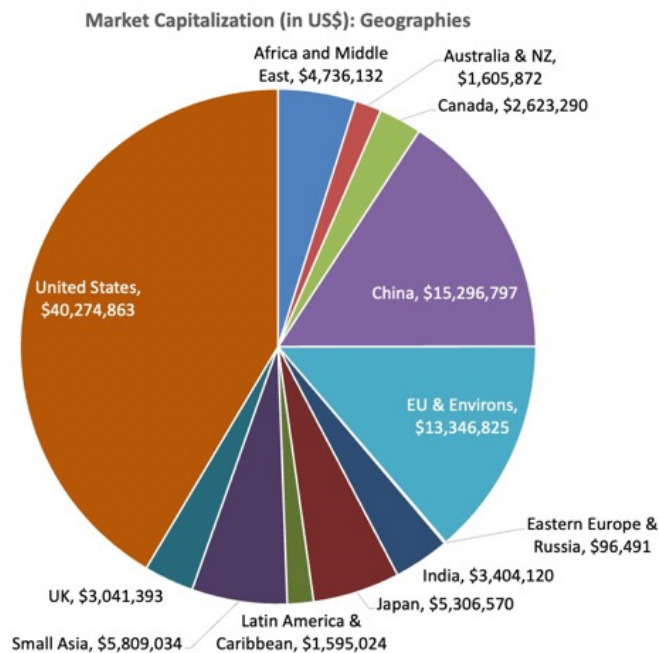
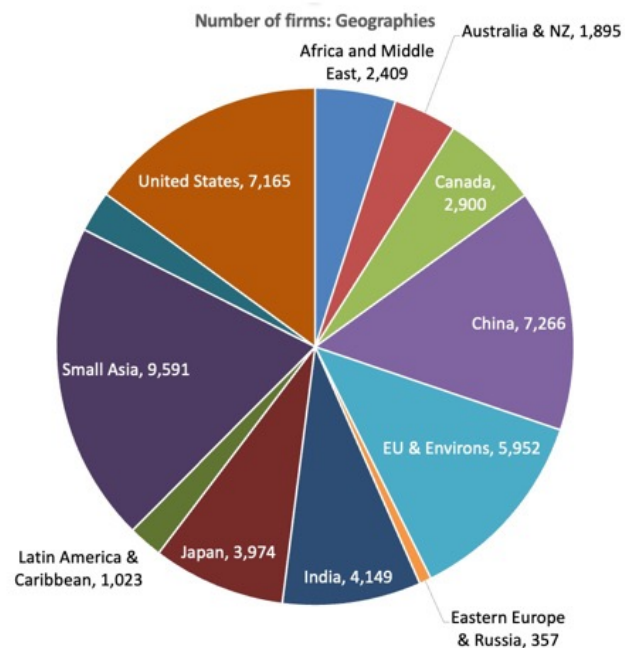
- When valuing or analyzing a company, I find myself looking for and using macro data (risk premiums, default spreads, tax rates) and industry-level data on profitability, risk and leverage.
- Rather than collecting this data each time I do an analysis, I realized that having these numbers computed and ready to go ahead of time not only saved time, but also allowed me to focus more on the company.
- I also realized that while these numbers are useful to me, they could be useful to others doing analysis as well, and I could not think of a single reason not to share what I had on hand.

Data Updates: A Short History

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- My first attempt at sharing data was in 1997, and it was limited to about a dozen data sets, all related to US companies, and I never expected many people to use it.
- This year, I am posting more than two hundred data sets, including more than a thousand data items, and covering global companies.
- While I hope that you find them useful, but to use the data best you should be aware of the companies that comprise my data universe, the data items I report on, the timing of the data and caveats.

Data Universe: Geographies



Sub Group	Number of firms	Aggregate Market Cap (millions US \$)	As % of Globe
Africa and Middle East	2,409	\$4,736,132.39	4.88%
Australia & NZ	1,895	\$1,605,872.46	1.65%
Canada	2,900	\$2,623,290.24	2.70%
China	7,266	\$15,296,796.92	15.75%
EU & Environs	5,952	\$13,346,825.11	13.74%
Eastern Europe & Russia	357	\$96,491.10	0.10%
India	4,149	\$3,404,120.44	3.50%
Japan	3,974	\$5,306,569.65	5.46%
Latin America & Caribbean	1,023	\$1,595,023.72	1.64%
Small Asia	9,591	\$5,809,033.82	5.98%
UK	1,232	\$3,041,392.67	3.13%
United States	7,165	\$40,274,862.82	41.46%
All firms in sample	47,913	\$97,136,411.33	100.00%

Data Items: Macro

- Much of my focus, when it comes to data, is on company-specific variables, rather than macro economic data, for two reasons.
 - ▣ The first is that there are other and much better sources for raw macroeconomic data than mine, and my favorite remains. [Federal Reserve Economic Data \(FRED\)](#).
 - ▣ The second is that in my line of work, my requirements are more micro or company-level.
- I do report on a few market-wide data items especially on risk premiums for both equity and debt, because I need them to estimate company-level hurdle rates and values.

Data Items: Company-level

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Risk Measures	Cost of Funding	Pricing Multiples
1. Beta	1. Cost of Equity	1. PE & PEG
2. Standard deviation in stock price	2. Cost of Debt	2. Price to Book
3. Standard deviation in operating income	3. Cost of Capital	3. EV/EBIT and EV/EBITDA
4. High-Low Price Risk Measure		4. EV/Sales and Price/Sales
Profitability	Financial Leverage	Reinvestment
1. Net Profit Margin	1. D/E ratio & Debt/Capital	1. Cap Ex & Net Cap Ex ((including acquisitions)
2. Operating Margin	2. Debt/EBITDA	2.. Non-cash Working Capital
3. EBITDA, EBIT and EBITDAR&D Margins	3. Interest Coverage Ratios	3. Sales/Invested Capital
Returns	Dividend Policy	Risk Premiums
1. Return on Equity	1. Dividend Payout & Yield	1. Historical returns on US stocks, bonds, and other asset classes
2. Return on Invested Capital	2. Dividends/FCFE & (Dividends + Buybacks)/ FCFE	2. Historical Implied ERP for US
3. Excess Returns (ROE minus cost of equity, ROIC minus cost of capital, EVA)		3. Equity Risk Premiums, by Country
		4. Bond Default Spreads
Growth Rates	Accounting Clean up	Tax Rates
1. Historical Growth Rate in Revenue/Earnings	1. Leases as debt: Effects	1. Marginal tax rates, by country
2. Sustainable Growth Rate in Net Income & Operating Income	2. R&D as cap ex: Effects	2. Effective tax rates

Data Timing

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- There is one final estimation detail that needs clarification. I did my updates in the last week (January 1- January 5, 2023), and used the most updated data that I could find on each company.
 - For market data, where the updating is continuous, that is data as of the January 1, 2023. Thus, market capitalization, interest rates and risk premiums, the data is as of that date.
 - For accounting flow items, in income statements and statements of cash flows, such as revenues, earnings and expenses, I used the data in the most recent twelve months of reporting; for most firms, that data is from October 2021 to September 2022.
 - For accounting stock items, from balance sheets, I use the numbers from the most recent balance sheet; again, for most firms, the numbers are from the balance sheets, as of September 30, 2022, or the most recent quarterly statements.
- While these timing differences may strike some as inconsistent, they do meet my timing consistency test, which is that they are the most updated numbers that decision-makers (CFOs and investors) would have as of January 1, 2023

Data Caveats

1. Mistakes and Errors: I am a team of one, and working with a data sheet with 47,313 companies and hundreds of data items can get daunting, as is updating individual excel sheets, by variable and region. If you find a mistake or mistakes, please bring it to my attention and I will fix it.
2. Judgment calls: I have made judgment calls starting with my creation of industry groups (which you may not like) and my assignment of companies into groups.
3. Company-level data: I do not provide company-level data for two reasons. One is that it would violate agreements that I (or NYU) have with my raw data providers and the other is that getting company-level data has become trivial. I know that most of you cannot afford a Bloomberg terminal or S&P Capital IQ, but you can get the data not just from Yahoo! Finance but also from a variety of online data services that are affordable and very well done.
4. Agenda: If you are using my data to advance a point of view that you hold, you are welcome to do so, but please be clear to make that clear. If you are in a fight (legal or online) and using my data as ammunition, you are entirely on your own, and I will not enter the fight on either side, unless you have a clarification question.
5. Staleness: I update my data once a year, and I will not return to do an update until January 2024; the equity risk premiums for the US will get updated every month and the equity risk premiums for other countries will get a mid-year update. While I have no compunctions continuing to use industry averages for risk, profitability and leverage over the course of the year, the pricing metrics (PE, EV/EBITDA etc.) will become dated as the year goes on, and especially so if the market moves up or down significantly.

The Posts to come

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- It is undeniable that 2022 was a tumultuous year, with inflation taking center stage, and driving markets.
 - In my next three posts, I will look at inflation's effects on equity markets (in post 2), government and corporate bond markets (in post 3) and other asset classes (real estate, collectibles and cryptos).
 - For those who had become somnolent about country risk, the year provided a reminder of how quickly country risk can flare up and change, with Russia's invasion of Ukraine a precipitating factor, and in my fifth post, I will look at the evolution of country risk during the year.
- In the three posts that follow, I will look at the shifts in corporate hurdle rates (in post 6), company debt-loads and worries (in post 7) and dividends/cash returned in post 8.
- In the ninth post, I will look at how market pricing changed during 2022, across sectors/industries (with technology taking the biggest hit) as well as across growth and corporate life cycles.