DATA UPDATE 1 FOR 2020: SETTING THE TABLE

Aswath Damodaran
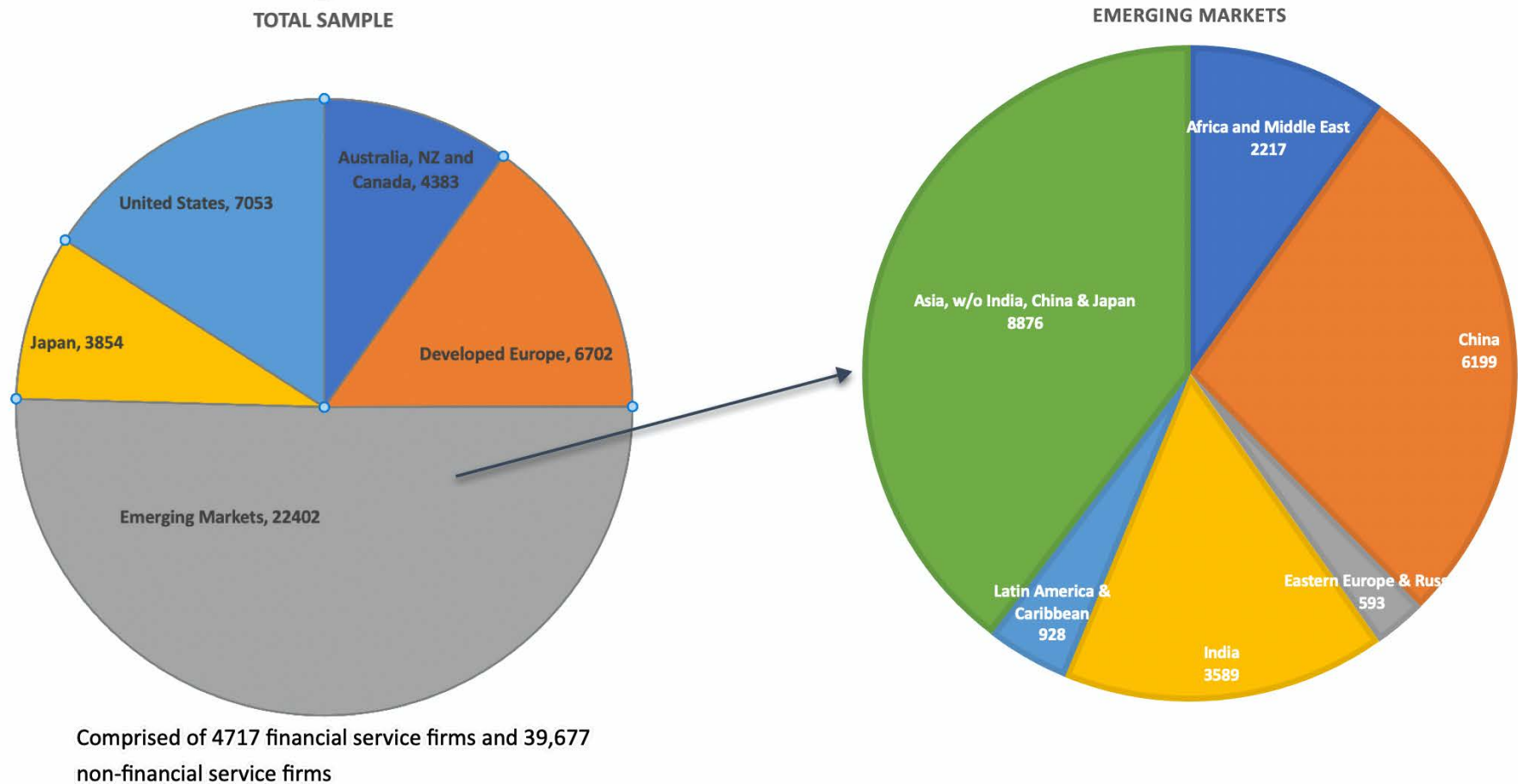
Time for Moneyball

□ Starting in the early 1990s, I have spent the first week or two of every new year playing my version of Moneyball, downloading raw market and accounting data on publicly traded companies and using that data to compute operating, pricing and risk metrics for them.

□ This year, I got a later start than usual on January 6, but as the week draws to a close, the results of my data exploration are posted on my website and will be the basis for a series of posts here over the next six weeks.

□ As you look at the data, you will find that the choices I have made on how to classify companies and compute metrics affect my findings, and I will use this post to cast some light on those choices.

Raw Data: Crediting the Sources

- We live in an age when accessing raw data is easy, albeit not always cheap, and the tools to analyze that data are also widely available.

- My raw data is drawn from a variety of sources, ranging from S&P Capital IQ to Bloomberg to the Federal Reserve.

- There are two rules that I try to follow.
  - The first is to be careful about attributing sources for the raw data
  - The second is to not undercut my raw data providers by replicating their data on my site, if they have commercial interests.

The Sample

TOTAL SAMPLE

- United States, 7053
- Australia, NZ and Canada, 4383
- Developed Europe, 6702
- Japan, 3854
- Emerging Markets, 22402

EMERGING MARKETS

- Africa and Middle East 2217
- China 6199
- Asia, w/o India, China & Japan 8876
- Eastern Europe & Russia 593
- India 3589
- Latin America & Caribbean 928

Comprised of 4717 financial service firms and 39,677 non-financial service firms
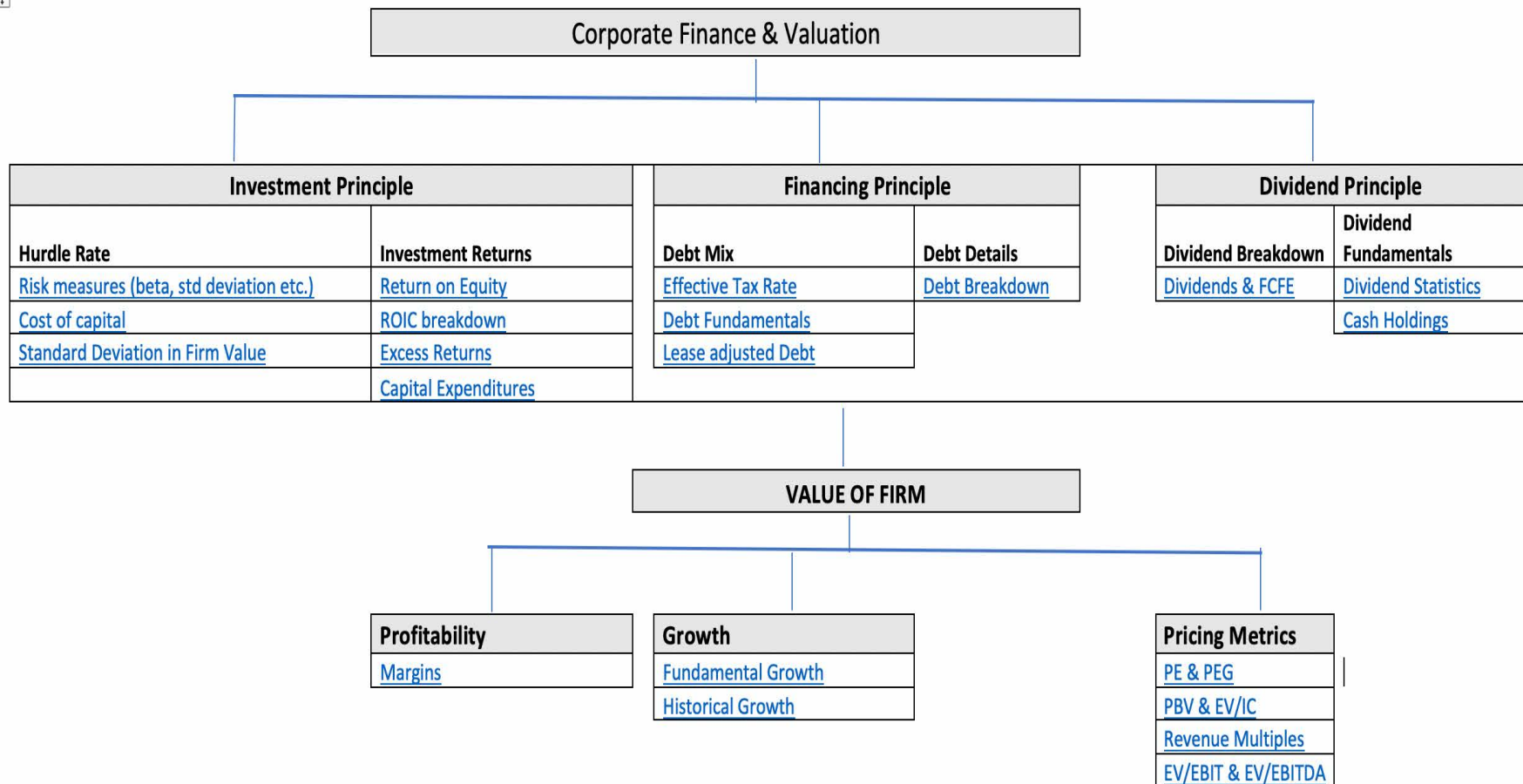
Data: Broad Groups

- The first is *macro data*, where my ambitions tend to be modest, and the only numbers that I update are numbers that I need and use in my valuation and corporate financial analysis.

- The second is *business data*, where I consolidate the company-level data into industry groupings, and report statistics on how companies invest, finance their operations and return cash (dividends and buybacks).

- The third are *my data archives*, where you can look at trend lines in the statistics by accessing my statistics from prior years.

Macro Data

- <u>Risk free rates in currencies</u>: I update my currency risk free rates, starting with the government bond rates, and then netting out default spreads and <u>report them here</u>. I also update an intrinsic measure of the US dollar risk free rate, obtained by adding the inflation rate to real GDP growth each year, and report the time series in <u>this dataset</u>.

- <u>Equity Risk Premiums</u>: I update the historical risk premium for US stocks, by bringing in 2019 returns on stocks, treasury bonds and treasury bills <u>in this dataset</u>; my updated geometric average premium for stocks over US treasuries. I estimate the i<u>mplied ERP to be 5.20% at the start of 2020</u> and report the <u>year-end estimates of the premium going back to 1960</u> in this dataset.

- <u>Corporate Default Spreads</u>: I break down bonds into bond rating classes (S&P and Moody's) and report my estimates of default spreads at the start of 2020 in <u>this spreadsheet</u> .

- <u>Corporate Tax Rates</u>: I am grateful to KPMG for going through tax codes in different countries and compiling corporate tax rates, which I reproduce <u>in this dataset</u>.

- <u>Country Risk Premiums</u>: At the start of 2020, I use my approach, flaws and all, to estimate equity risk premiums for 170 countries and report them <u>in this dataset</u>.

Micro Data

Corporate Finance & Valuation

Investment Principle		Financing Principle		Dividend Principle	
Hurdle Rate	**Investment Returns**	**Debt Mix**	**Debt Details**	**Dividend Breakdown**	**Dividend Fundamentals**
Risk measures (beta, std deviation etc.)	Return on Equity	Effective Tax Rate	Debt Breakdown	Dividends & FCFE	Dividend Statistics
Cost of capital	ROIC breakdown	Debt Fundamentals			Cash Holdings
Standard Deviation in Firm Value	Excess Returns	Lease adjusted Debt			
	Capital Expenditures				

VALUE OF FIRM

Profitability	Growth	Pricing Metrics
Margins	Fundamental Growth	PE & PEG
	Historical Growth	PBV & EV/IC
		Revenue Multiples
		EV/EBIT & EV/EBITDA

Archived Data

□ When I first started compiling my datasets, I did not expect them to be widely used, and certainly did not believe that they would be referenced over time.

□ As I starting getting requests for datasets from earlier years, I decided that it would save both me and you a great deal of time to create an archive of past datasets.

□ As you look at these archives, you will notice that not all datasets go back in time to the 1990s, reflecting first the expansion of my analysis from just US companies to global companies about 15 years ago and second the adding on of variables that I either did not or could not report in earlier years.

The Rationale for Data Analysis

- <u>It gives me perspective</u>: It gives me perspective not only on what comprises normal in corporate financial behavior, but also on the differences across sectors and geographies.

- <u>Possible, Plausible and Probable</u>: I have long argued that the valuation of a company always starts with a story but that a critical part of the process of converting narrative to value is checking the story for possibility, plausibility and probability. Having the global data aggregated and analyzed can help significantly in making this assessment.

- <u>Rules of thumb</u>: In spite of all of the data that we now have available, investors and companies seem to still rely on rules of thumb devised in a different time and market. Using the global data, we can back up or dispel these rules of thumb and perhaps replace them with more dynamic and meaningful decision rules.

- <u>Fact-based opinions</u>: Many market prognosticators and economists seem to have no qualms about making up stuff about investor and corporate behavior and stating them as facts. Those "facts" are now driving political debate and may well lead to change in policy, but these are more opinions than facts, and the data can be arbiter.

The Rationale for Sharing

- Nothing that I am doing is unique, and I have no secret data stashes. In short, anyone with access to data (and there are literally tens of thousands who do) can do the same analysis.

- I lose nothing by sharing, and I gain a great deal in karmic payoffs.

- So, please use whatever data you want, and in whatever context, and I hope that it saves you time and helps you in your decision making and analysis.

The Caveats

- Data is not objective: The notion that using data makes you objective is nonsense. In fact, the most egregious biases are data-backed, as people with agendas pick and choose the data that confirms their priors.

- Crowds are not always wise: One of the strongest forces in corporate finance is me-tooism, where companies decide how to invest, how much to borrow and what to pay in dividends by looking at what their peers do. In my datasets, I offer them guidance in this process, by reporting debt ratios and dividend payout ratios for sectors, as well as regional breakdowns. The implicit assumption is that what other companies do, on average, must be sensible, but that assumption is not always true. This warning is particularly relevant when you look at the pricing metrics (PE, EV to EBITDA etc.) that I report, by sector and by region. The market may be right, on average, but it can also over price or under price a sector, at times.