JANUARY 2019 DATA UPDATE 9: PLAYING THE PRICING GAME!

Aswath Damodaran

Setting up the contrast

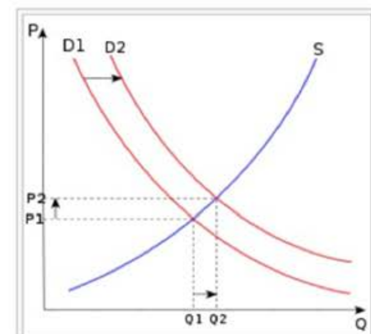
- In my last eight posts, I find that
  - The rise in risk premiums in both equity and bond markets in 2018 have pushed up costs of equity and capital
  - Companies across the globe are finding it difficult to generate returns on their investments that exceed their costs of funding
  - Many of them, especially in mature businesses, are returning more cash, much of it in the form of buybacks.
- To complete my data update series, by looking at how market pricing varies across companies, sectors and geographies, and what lessons investors can draw from the data.

Value versus Price

Tools for intrinsic analysis
- Discounted Cashflow Valuation (DCF)
- Intrinsic multiples
- Book value based approaches
- Excess Return Models

Tools for "the gap"
- Behavioral finance
- Price catalysts

Tools for pricing
- Multiples and comparables
- Charting and technical indicators
- Pseudo DCF



INTRINSIC VALUE → Value → THE GAP
Is there one?
Will it close? ← Price ← PRICE

Drivers of intrinsic value
- Cashflows from existing assets
- Growth in cash flows
- Quality of Growth

Drivers of "the gap"
- Information
- Liquidity
- Corporate governance

Drivers of price
- Market moods & momentum
- Surface stories about fundamentals

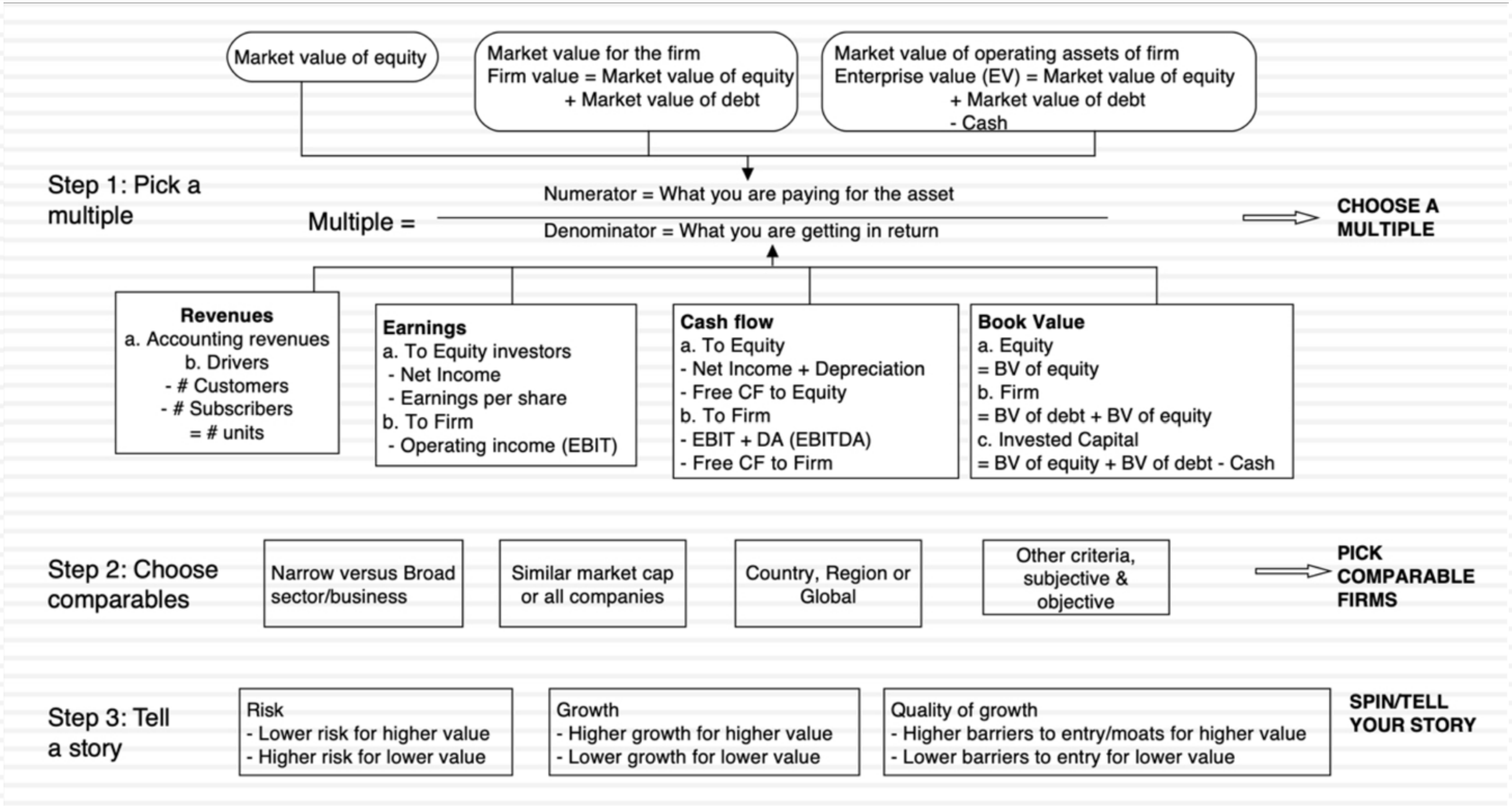
Different Investment Philosophies

- Efficient Marketers: The two processes will generate the same number, and any gap that exists will be purely random and quickly closed.
- Investors: If you are an investor, whether value or growth, and you truly mean it, your view is that the pricing process, for one reason or the other, can deliver a price different from your estimate of value and that the gap that exists will close, as the price converges to value.
- Traders: If you are a trader, you play the pricing game, effectively using your skills at gauging momentum and forecasting the effects of corporate news on prices, to buy at a low price and sell at a high price.

The Dangers of Delusional Thinking

- Market participants are most exposed to danger when they are delusional about the game that they are playing.
  - Most portfolio managers, for instance, claim to be investors, playing the value game, while using pricing screens (PE and growth, PBV and ROE) and adding to their holdings of momentum stocks.
  - Many traders seem to think that they will be viewed as deeper and more accomplished if they talk the value talk, while using charts and technical indicators in the closet.
- Bottom line: Play the game that you came to play, without apologies or subterfuge, and play it well. There is no one righteous path to investment riches.

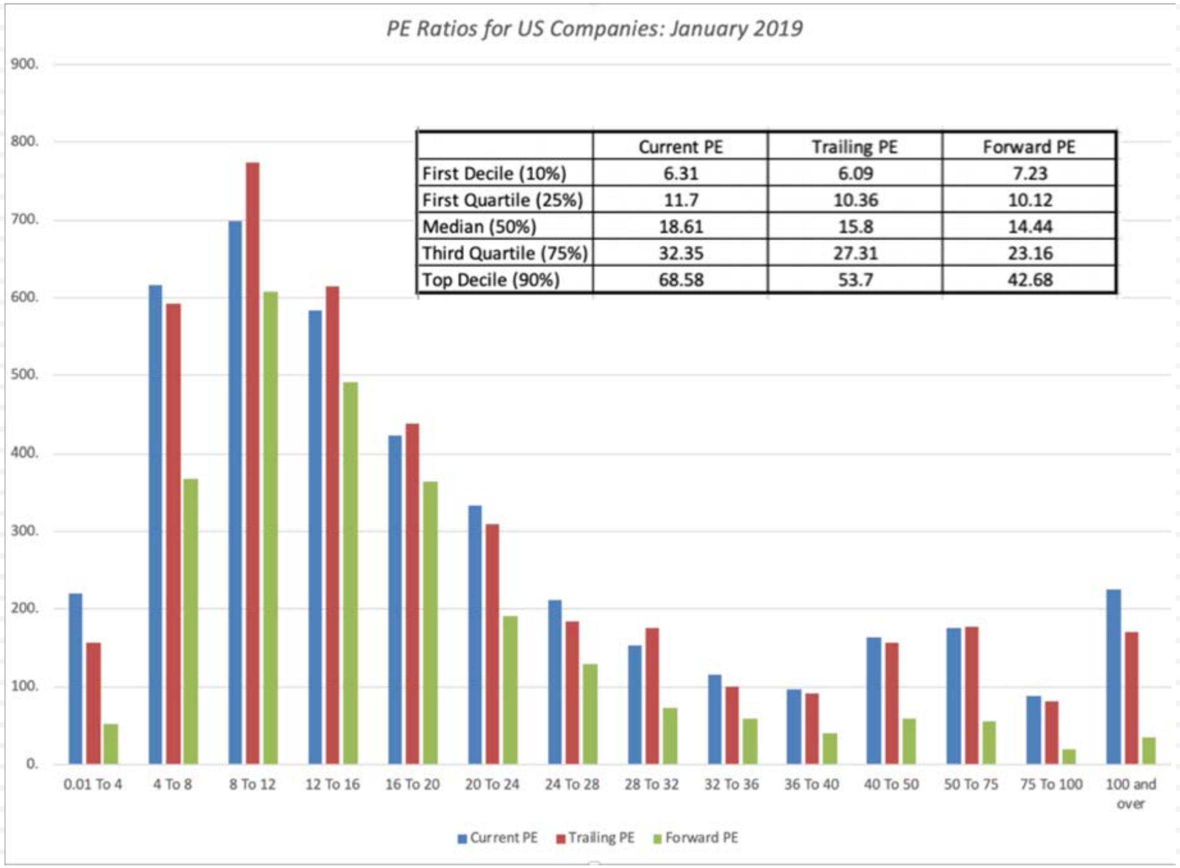
The Pricing Process



Let the data talk..

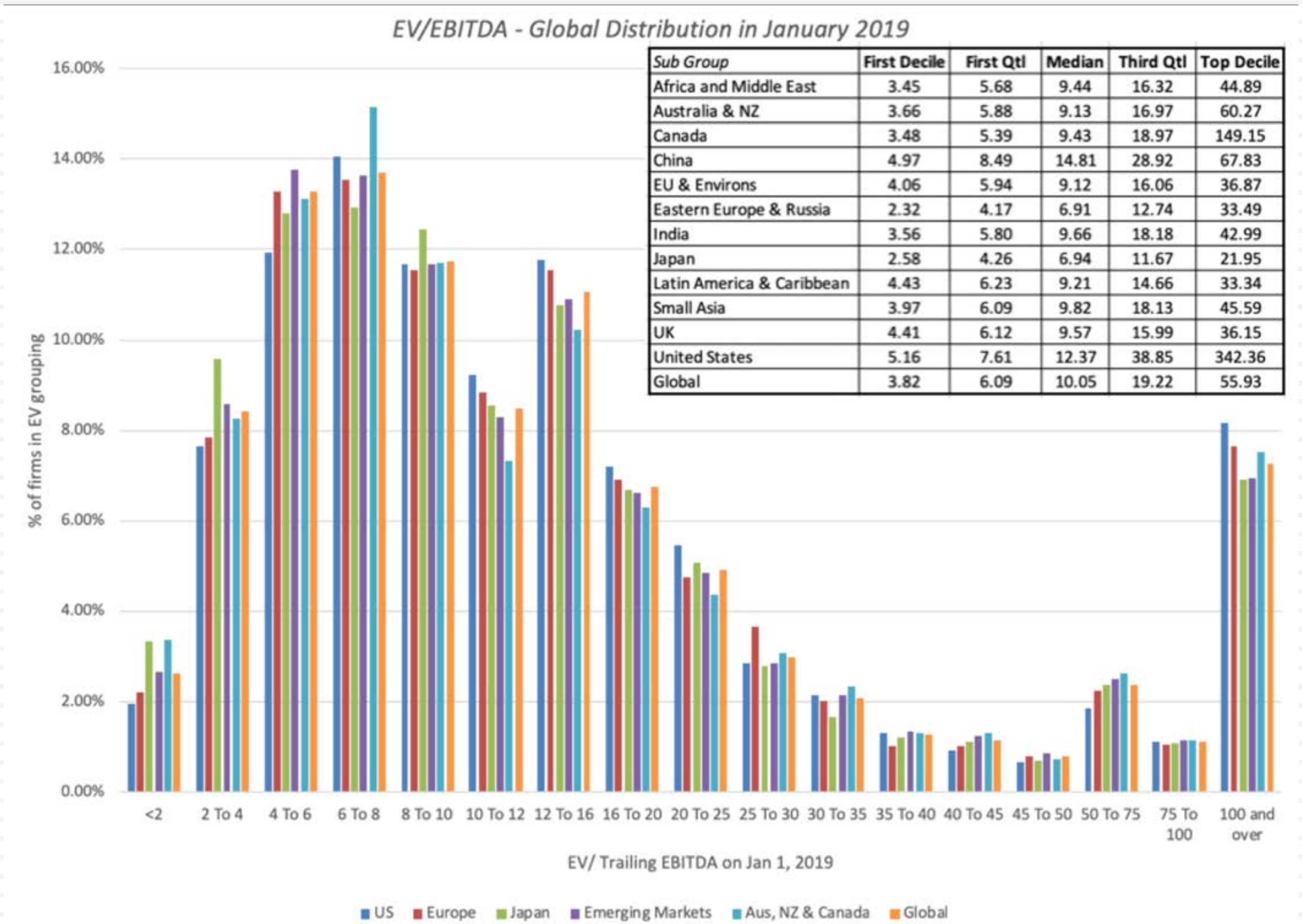
1. Pricing is relative. Absolute rules make no sense in a relative world.
2. Markets have a lot in common, but the differences can be revealing.
3. Book value is over rated.
4. Most stocks that look cheap deserve to be cheap.
5. In pricing, what is priced in matters more than what should be priced in.

1. Absolute Rules in a Relative World: PE



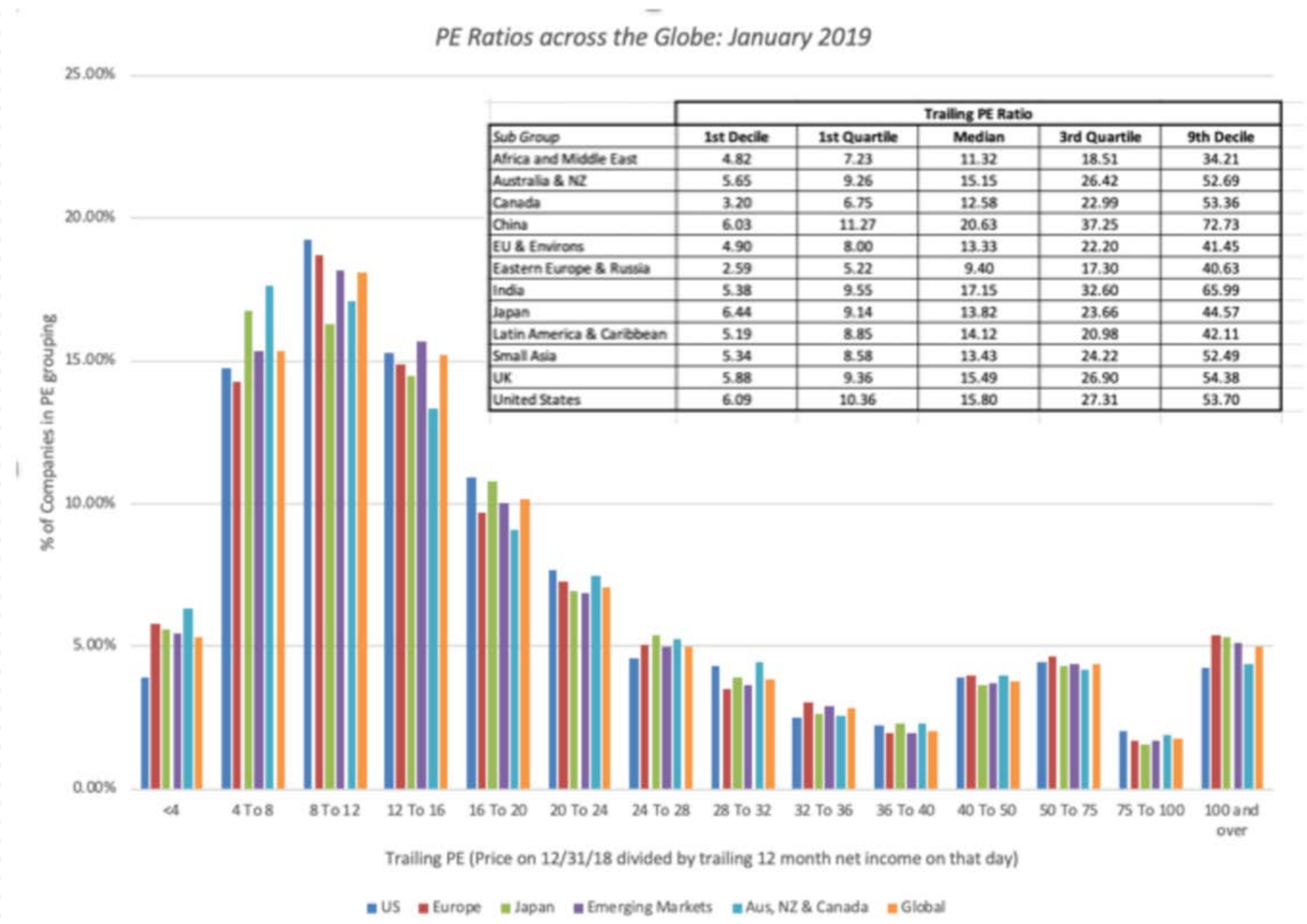
	Current PE	Trailing PE	Forward PE
First Decile (10%)	6.31	6.09	7.23
First Quartile (25%)	11.7	10.36	10.12
Median (50%)	18.61	15.8	14.44
Third Quartile (75%)	32.35	27.31	23.16
Top Decile (90%)	68.58	53.7	42.68

And EV/EBITDA



Sub Group	First Decile	First Qtl	Median	Third Qtl	Top Decile
Africa and Middle East	3.45	5.68	9.44	16.32	44.89
Australia & NZ	3.66	5.88	9.13	16.97	60.27
Canada	3.48	5.39	9.43	18.97	149.15
China	4.97	8.49	14.81	28.92	67.83
EU & Environs	4.06	5.94	9.12	16.06	36.87
Eastern Europe & Russia	2.32	4.17	6.91	12.74	33.49
India	3.56	5.80	9.66	18.18	42.99
Japan	2.58	4.26	6.94	11.67	21.95
Latin America & Caribbean	4.43	6.23	9.21	14.66	33.34
Small Asia	3.97	6.09	9.82	18.13	45.59
UK	4.41	6.12	9.57	15.99	36.15
United States	5.16	7.61	12.37	38.85	342.36
Global	3.82	6.09	10.05	19.22	55.93

2. Markets have much in common…



	Trailing PE Ratio				
Sub Group	**1st Decile**	**1st Quartile**	**Median**	**3rd Quartile**	**9th Decile**
Africa and Middle East	4.82	7.23	11.32	18.51	34.21
Australia & NZ	5.65	9.26	15.15	26.42	52.69
Canada	3.20	6.75	12.58	22.99	53.36
China	6.03	11.27	20.63	37.25	72.73
EU & Environs	4.90	8.00	13.33	22.20	41.45
Eastern Europe & Russia	2.59	5.22	9.40	17.30	40.63
India	5.38	9.55	17.15	32.60	65.99
Japan	6.44	9.14	13.82	23.66	44.57
Latin America & Caribbean	5.19	8.85	14.12	20.98	42.11
Small Asia	5.34	8.58	13.43	24.22	52.49
UK	5.88	9.36	15.49	26.90	54.38
United States	6.09	10.36	15.80	27.31	53.70

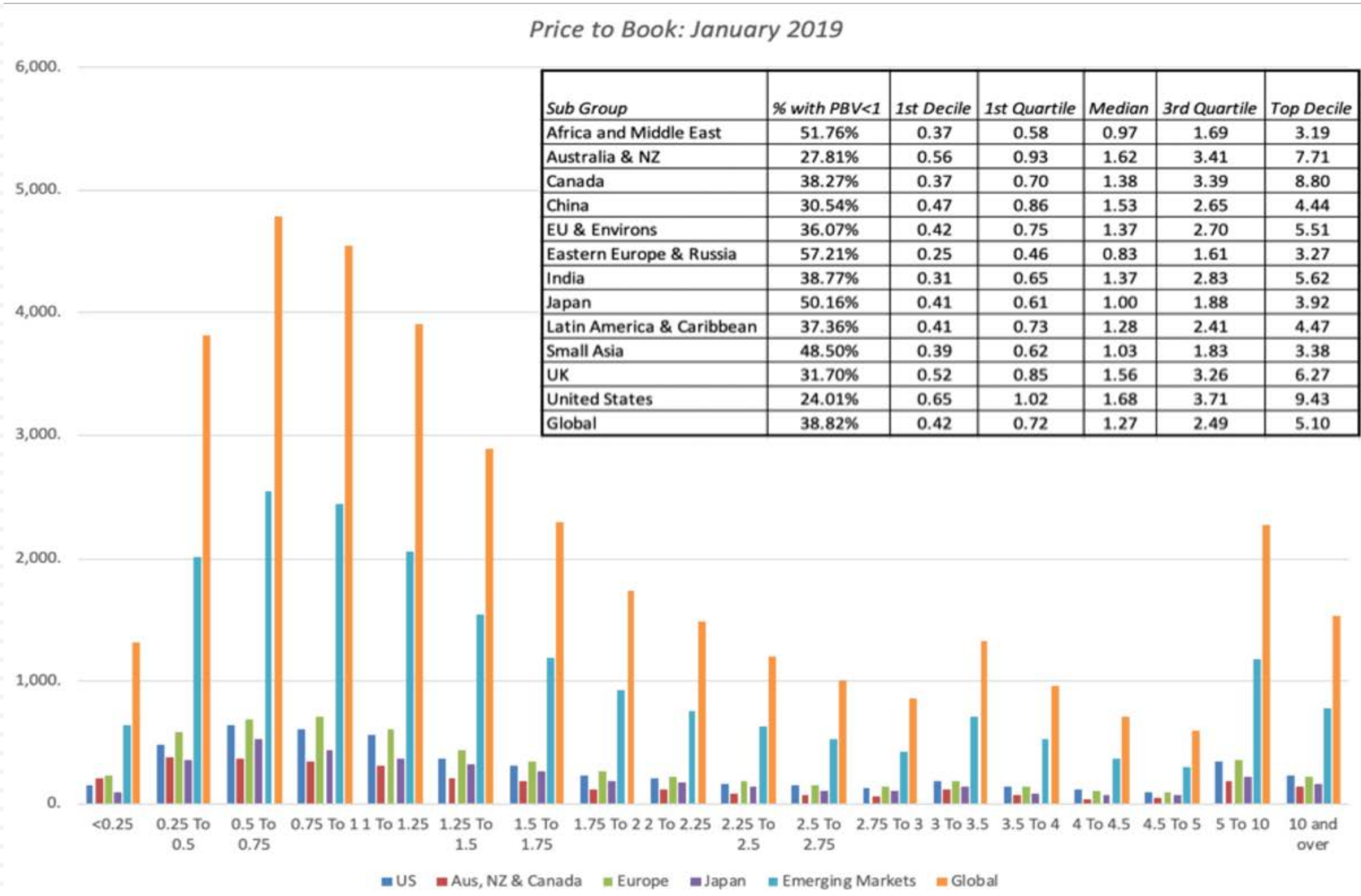
But the differences can be revealing & trip you up…

- Ignoring the commonalities across markets is a problem, but ignoring differences creates its own share of problems.
- A naïve investment strategy of buying the stocks with the lowest PE ratios across the globe, without heed to regions, will result in a portfolio weighted heavily with Russian, African and Middle Eastern companies.

3. Book Value is an overrated metric

- Stocks that trade at less than book value are considered cheap, and companies that build up book value are considered to be value creating. At the root of the "book value" focus are two assumptions, sometimes stated but often implicit.
  - Book value is a measure of liquidation value, an estimate of what investors would get if they shut down the company today and sold its assets.
  - Accountants are consistent and conservative in estimating asset value, unlike markets, which are prone to mood swings.

Price to Book Ratios: Global



Sub Group	*% with PBV<1*	*1st Decile*	*1st Quartile*	*Median*	*3rd Quartile*	*Top Decile*
Africa and Middle East	51.76%	0.37	0.58	0.97	1.69	3.19
Australia & NZ	27.81%	0.56	0.93	1.62	3.41	7.71
Canada	38.27%	0.37	0.70	1.38	3.39	8.80
China	30.54%	0.47	0.86	1.53	2.65	4.44
EU & Environs	36.07%	0.42	0.75	1.37	2.70	5.51
Eastern Europe & Russia	57.21%	0.25	0.46	0.83	1.61	3.27
India	38.77%	0.31	0.65	1.37	2.83	5.62
Japan	50.16%	0.41	0.61	1.00	1.88	3.92
Latin America & Caribbean	37.36%	0.41	0.73	1.28	2.41	4.47
Small Asia	48.50%	0.39	0.62	1.03	1.83	3.38
UK	31.70%	0.52	0.85	1.56	3.26	6.27
United States	24.01%	0.65	1.02	1.68	3.71	9.43
Global	38.82%	0.42	0.72	1.27	2.49	5.10

PBV across Industries

Industry	% PBV <1	Median PBV	Industry	% PBV <1	Median PBV
Software (Internet)	0.00%	3.93	Insurance (Life)	45.00%	1.03
Transportation (Railroads)	0.00%	2.63	Hospitals/Healthcare Facilities	47.37%	1.25
Utility (General)	0.00%	1.92	Homebuilding	48.00%	1.00
Heathcare Information and Technology	2.82%	3.46	Paper/Forest Products	50.00%	1.08
Chemical (Basic)	6.25%	1.89	Rubber& Tires	50.00%	1.13
Beverage (Soft)	7.14%	9.01	Steel	50.00%	1.06
Utility (Water)	8.33%	3.27	Oil/Gas (Production and Exploration)	54.25%	0.91
Power	8.89%	1.85	Shipbuilding & Marine	57.14%	0.71
Household Products	9.09%	3.49	Oilfield Svcs/Equip.	61.36%	0.77
Semiconductor	9.09%	3.00	Oil/Gas Distribution	66.67%	0.61

4. Most stocks that look cheap deserve to be cheap…

	Start with a basic intrinsic value model	*Divide both sides of the equation by the denominator of the multiple that you are trying to deconstruct,.*	You should end up with an intrinsic version of your multiple, which should relate it to fundamentals.
If Equity Multiple	Start with a dividend or FCFE model, preferably simple. Price= EPS * Payout / (r -g)	Divide your dividend or FCFE model by denominator of equity multiple. Prtce/Book = ROE * Payout / (r -g)	Intrinsic version of equity multiple, with drivers of value Price/Book = f(ROE, r, g, Payout)
If EV Multiple	Start with a operating asset value model, preferably simple. EV= EBIT (1-t) (1- RIR)/ (WACC -g)	Divide your operating asset model by denominator of EV multiple. EV/Sales = After-tax Operating Margin (1- RIR)/ (WACC -g)	Intrinsic version of EV multiple, with drivers of value EV/Sales = f(After-tax Operating Margin, RIR, WACC, g)

Looking for mismatches

Multiple	*Key Driver*	*Valuation Mismatch*
PE ratio	Expected growth	Low PE stock with high expected growth rate in earnings per share
PBV ratio	ROE	Low PBV stock with high ROE
EV/EBITDA	Reinvestment rate	Low EV/EBITDA stock with low reinvestment needs
EV/capital	Return on capital	Low EV/capital stock with high return on capital
EV/sales	After-tax operating margin	Low EV/sales ratio with a high after-tax operating margin

5. What is being priced dominates what should be priced…

- Markets, for the most part, are sensible, pricing in fundamentals when pricing stocks, but there will be exceptions, and sometimes large ones, where entire sectors are priced on variables that have little to do with fundamentals, at least on the surface.
- This is especially true if the companies in a sector are early in their life cycles and have little to show in revenues, very little (or even negative) book value and are losing money on every earnings measure.
- Desperation drives investors to look for other variables to explain prices, resulting in companies being priced based upon website visitors (at the peak of the dot com boom), numbers of users (at the start of the social media craze) and numbers of subscribers.

Pricing Twitter in 2013

- In 2013, ahead of its IPO, I valued Twitter's equity at about $11 billion (or $17-18 per share)
- I priced Twitter ahead of its IPO in 2013, looking at its user base (about 240 million at the time) and what markets were paying per user at the time (about $130) to arrive at a pricing of $24 billion, much closer to the actual pricing, right after the IPO.
- It is therefore neither surprising nor newsworthy that venture capitalists and equity research analysts are more focused on these pricing metrics, when assessing how much to pay for stocks, and companies, knowing this, play along.

Conclusion

- I do believe in intrinsic value, and think of myself, more as an investor than a trader, but I am not a valuation snob.
- I chose the path I did because it works for me and reflects my beliefs, but it would be both arrogant and wrong for me to argue that being a trader and playing the pricing game is somehow less worthy of respect or returns.
- In fact, the end game for both investors and traders is to make money, and if you can make money by screening stocks using PE ratios and timing your entry/exit by looking at charts, all the more power to you!