Sources of Investment Returns
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Summary: the asset management lexicon is rife with imprecise language conflating the sources of investment returns with implementation approaches and even intent. I propose a back-to-basics approach with a parsimonious and spanning set of sources of investment returns - risk premia, alpha, and arbitrage – as the foundational layer of consideration. Matters of asset class, implementation approaches (long-only, long-short, quantitative, fundamental, etc.), and horizon are considered on top of this foundation of sources of return. True arbitrage is uncommon and generally not significantly accessible to institutional investors, so they should be focused on risk premia and alpha.

The language of modern investing started out with the clarity and parsimony of alpha and beta. We began to lose precision when terms like active, passive, and enhanced joined the party. Fast forward to today and we find ourselves awash in a sea of imprecise and often contested jargon, including terms such as smart beta, alternative beta, and the like[i].

These terms mix a shorthand for the *sources* of investment returns with some type of implicit suggestion of implementation and perhaps even intent. This lack of precision is a great part of the confusion and disagreement over these concepts.

I would like to propose a more general framework for ascribing and describing sources of investment returns, one that is distinct from, and independent of, implementation considerations. I submit that this framework has implications for how investors and managers should structure both their thinking and their organizations. First, some bold claims.

The ongoing discussions and debates surrounding active vs. passive investing or alpha vs. beta are meaningless. There is no such thing as "passive investing". All investing is active. Beta is a coefficient, not an investment strategy. Ergo, there is no such thing as "smart beta" or "alternative beta". While we're at it: there is no such thing as a risk-free investment.

With that out of the way, let's move on to the framework. I posit exactly three categorical sources of investment returns:

1. Risk premia
2. Alpha
3. Arbitrage

The general source of returns for risk premia is compensation for bearing risk (typically a systematic risk).

The general source of returns for alpha is an information (e.g., access, processing, accuracy, influence, speed, etc.) or behavioral (e.g., bias, constraints, rationality, etc.) advantage.

The general source of returns for arbitrage is the ability to exploit and close price differentials across "markets" (loosely defined).

One can attempt to time within any of the categorical sources of return, but the act of timing doesn't change the actual source of the returns.[ii]

Investors use the terminology "equity index investing" as a short-hand phrase to describe an approach for harvesting a *portion* of the *public* market equity risk premium. (Note, I said "public market equity". To earn the *total* equity risk premium, one would also need to include private equity, at a minimum[iii].) Unfortunately, investing in an S&P500 index fund won't earn you the theoretical public market equity risk premium. Neither will investing in a diversified global public equity index fund. Only by purchasing a portion of every equity will you earn that premium[iv]. And even if you do purchase a piece of every equity, you will have to manage the strategy actively – for example, dealing with firms that go defunct or taken private, and new entrants, as well. The strategy may be low activity, it may be rules based, it may even be automated, but it is not "passive". You don't set it and forget it.[v]

Shifting our attention to a factor risk premium, such as equity value, we can immediately note similarities to the asset class risk premium example just covered. As in the asset class case, there are multiple shorthand representations for describing the underlying premium: B/P, or a blend of B/P + D/P + E/P, or many other variations. Though it may be harder to agree on a definition for a particular factor risk premium as compared to an asset class risk premium, in neither case can one invest truly passively. In the factor case, rebalancing to maintain exposure to the factor in question is a minimum requirement.

The fact that equity value has continued to benefit investors, despite being well-known, demonstrates that there is an explanation beyond information-based alpha. As is well-documented in the literature, the source of returns for many factors, such as those often called smart beta, is a blend of risk premium and alpha[vi]. The fact that factors don't map 1:1 to sources of returns is not a shortcoming. On the contrary, the framework provides a consistent structure for better understanding investment performance of non-asset class factors.

We can consider these three categorical sources of return as loci along a continuum with some allowance for definitional grey area between the three descriptors[vii]. (This is a framework for considering markets and human behavior, not physics.)

A simple diagram to (loosely) link the framework to other concepts is drawn below:

Risk premia	< --------- > **Alpha** < -------- >	**Arbitrage**
Long horizon	< ---------- >	Short horizon
Not eroded by competitive trading	< ---------- >	Eroded by competitive trading[viii]
Return is compensation for risk	< - > Return is probabilistic < - >	Return is nearly certain
Risk pursuing	< ---------- >	Risk avoiding
Benchmarks	< ---------- >	No benchmarks
Low(er) cost to access[ix]	< ---------- >	High(er) cost to access

Survives efficient markets < ---------- > Killed by efficient markets

Stepping back a bit from the framework, I think that the risk premia – alpha – arbitrage continuum is actually the correct way for an asset owner or investor to organize their thinking about their investment activities. Maximal diversification comes from exposure to all three categorical sources of returns *at all available horizons*.[x]

Note the omission of asset class as a dimension in this framework. That is deliberate. However, as a concession to the practicalities of how the rest of the world is organized and how people are trained and pursue their careers, we can agree that an asset owner or investment firm may select asset class as an organizational axis.[xi]

Note also the omission of methodologies, techniques, or descriptors such as quantitative, fundamental, behavioral, technical, engagement/activist, factor investing, etc. That is deliberate. Those are simply choices for how one may capture returns, in particular, alpha[xii]. Different firms may make different choices along this axis. It may be that utilizing multiple approaches is more diversifying as compared to utilizing fewer. Along the same line, we don't focus on implementation approaches – long-only, long-short, etc. – in a discussion on sources of returns. Most long-only strategies can be mapped to a combination of risk premia and perhaps alpha, as their sources of returns.[xiii] "Factor investing" is a phrase that represents a very broad idea encompassing both risk premia and alpha, as well as long-only and long-short approaches. It is a wonderfully descriptive phrase to help illuminate systematic/quantitative investing ideas to non-quants but by itself lacks specificity for purposes of understanding sources of returns and by extension, diversification.

Finally, note the absence of a risk-free investment in this framework. While there are investments that may have very low inherent risk, there is no investment that is truly risk-free. Investors earn a rate of return on a government bond because there is some risk of default (among other risks)[xiv]. We use the "risk-free" terminology as a short-hand for some basic investment against which others are measured or as the end point of the capital allocation line, but we should acknowledge that these basic investments are themselves delivering a risk premium.

All the views expressed in this paper are mine[xv] and do not necessarily represent the views of my employer.

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[i] A quick peek through recent literature will expose you to the following non-spanning terminology: active, alpha, alternative beta, alternative beta premia, alternative risk premia, beta, dynamic factors, enhanced, exotic beta, factor investing, factor premia, factor tilts, hedge fund risk premia, market risk premia, passive, return premia, risk premia, smart beta, static factors, and style premia. If you look a little harder you'll even find "portable beta". In local contexts, these terms may make sense but they lack universality thus limiting their usefulness in discussing and formulating policy. In addition, though I am a "quant", I am dissatisfied that most of these terms and the frameworks they imply essentially ignore fundamental alpha.

[ii] It is worth spending a little more space on timing. There are at least four ways to think about timing in the context of this framework, and with each, the framework still stands:

- Timing as a fourth locus along the continuum. I will admit that I don't really like this thinking. Besides destroying the parsimony of having just three sources – an aesthetic consideration, perhaps – timing is about *skill* at earning returns, rather than an actual *source* of returns itself.
- Timing as part of "alpha". It is hard to argue with this. One aspect of this categorization that doesn't satisfy my aesthetic leanings is the conclusion that if one times risk premia exposure, the timing then moves risk premia to the alpha section. But an alternate interpretation is that only the timing aspect is part of the alpha section. Overall, I think this is the best characterization of timing. Skill at harvesting risk premia or earning alpha is itself alpha. In a similar vein, implementation skill should also be characterized as part of the edge that gives you alpha. I'm still trying to decide if I'd call implementation skill an information edge or a behavioral edge; it seems to be a bit of both.
- Timing considered to be horizon diversification. This is intriguing. I admit a fondness for the idea of horizon diversification. But it is also a conceptual stretch. It makes sense if you are (for example) either exposed to a factor

(at any horizon) or not (thus horizon = 0), but if you change signs on a factor, sometimes betting one way and then sometimes the opposite, there is more than horizon selection going on.

- Timing as part of (take your pick) portfolio construction or shifting between more risky and less risky factors (i.e. cash, bills, etc.). The act of timing is a rebalancing of the entire portfolio of bets.

[iii] It is interesting to consider the relationship of the public equity risk premium to the total equity risk premium. According to The Economist, there were 7,322 listed American companies in 1996. Today (2017) there are 3,671. https://www.economist.com/news/business/21721153-company-founders-are-reluctant-go-public-and-takeovers-are-soaring-why-decline Fewer companies go or remain public which perhaps suggests that the *representativeness* of the public equity market as a proxy for the total equity market may be changing.

[iv] This framework also neatly puts to rest the question around the value or use of capitalization weighting. To the extent the equity risk premium is axiomatically defined by capitalization weighting of all equities, then attempts to earn that risk premium should be (mostly) cap-weighted. If you "index" with an intentionally different weighting scheme, you have introduced additional risk premia and/or alpha into the equation and you thus stand a chance of outperforming a cap-weighted benchmark over appropriate horizons (unless you've introduced noise). But that outperformance is due to risk premia diversification and/or alpha, which is not the same as "better" indexing, whatever that may actually be. The focus here on sources of return also allows us to neatly sidestep on-going debates about whether or not markets (or cap-weighted indexes) are efficient. It is simply not germane.

[v] Antti Ilmanen makes a similar point in "*Expected Returns: an Investor's Guide to Harvesting Market* Rewards" on pp. 249-250. For a related take on this idea, see http://www.businessinsider.com/the-myth-of-passive-investing-2014-9

[vi] For example, see pp. 261-267 in Ilmanen's "*Expected Returns*" and also p. 211 in Andrew Ang's *"Asset Management: A Systematic Approach to Factor Investing"*.

[vii] The conceptual distinction between risk premia and alpha is pretty clear but the *attribution* of factor returns to premia and alpha sources may be challenging for factors such as value, as noted. There may be some grey area between high frequency trading alpha and arbitrage, as well as between alpha and regulatory or tax arbitrage strategies available to some investors due to a structural advantage. To the extent most institutional investors are focused on risk premia and alpha, this should not be an issue. Also, others have classified sources of return using a continuum. For example, see Carhart, Cheah, De Santis, Farrell, Litterman "*Exotic Beta Revisited*" http://www.cfapubs.org/doi/pdf/10.2469/faj.v70.n5.4 or Wellington Management's Viewpoints January 2015. https://www.wellington.com/en/view_pdf?file=UHVibGljfFNtYXJ0LWJldGEtYWx0ZXJuYXRpdmUtYmV0YS1hbmQtZmFjdG9yLWludmVzdGluZ18xLnBkZg%3D%3D

[viii] The erosion descriptor is used rather than something like scalable < -- > unscalable. While most of the risk premia institutional investors focus on are scalable, there exist risk premia that are not scalable. I can earn a risk premium by insuring my neighbor's garden barbeque against rain, and that is not scalable. The early innovators in index arbitrage had a great deal of scale. To the extent that all these continua are loosely linked to the three sources of returns, it is admittedly partially an aesthetic consideration that leads me to use erosion rather than scale as the continuum. Showing scalability in addition or instead does not break the framework.

[ix] In fact, I'd advocate for a flat rate to access risk premia, not an AUM-based fee. The flat rate of course would be lower for public equity risk premia than for something like carry or a private asset class risk premium. For a nice discussion of fee structures, including a history, see pp. 504-506 in Ang's "*Asset Management*'.

[x] That is, horizons available to that specific investor. It also goes without saying that one can also diversify *within* each source of return. How diversified one should be within each return source should be informed by one's objective function. Diversification is not a panacea.

[xi] After organizing along sources of return, I think the next critical axis along which to organize is that of research and implementation. Not separating fundamental, quant, macro, etc., research teams minimizes silos and prevents great ideas from falling between the cracks. Note that the shorter the horizon, the closer the research and implementation teams will need to operate. Depending on one's appetite for moving further away from the mainstream, one can consider alternate (or additional) axes of organization. One that was suggested to me involves focus on balance sheet, technology, and relationships as the *channels* for capturing returns. (To those, I'd probably add information, but there is more thinking to be done here.)

[xii] There is a distinctive richness to alpha and it may be worth putting together a separate piece on a framework for a firm to benefit from the richness inherent in the consideration of alpha. In addition to the just stated myriad of approaches, one can also consider alpha along a forecast horizon axis where short horizon alpha is characterized by emphasis on price (a la HFT) and long horizon alpha is characterized by valuation (a la Warren Buffett) with a very interesting blend in between the extremes. Additionally, the engagement/activist approach to alpha is particularly interesting. Think of it as one side of a continuum of information gathering and analysis: financial statement analysis, to listening to conference calls, to meeting with management, to giving suggestions to management, to taking a stake in a company and influencing outcomes, to

purchasing a company outright. With financial statement analysis, the investor has very little influence advantage; with partial or full ownership, the investor has a large influence advantage. Once an investor starts influencing the outcomes, it is hard(er) to decouple the actual alpha added since there is something analogous to the Heisenberg uncertainty principle coming into play – the act of engagement or activism presumably changes the outcomes, but one can't tell by how much. This Heisenberg-esque principle also comes into play when quants trade; the act of trading influences the subsequent returns. It is hard to escape this measurement issue except in paper portfolios.

[xiii] I think this is a more precise and descriptive decomposition compared to the more common alpha + beta.

[xiv] My thinking here is not original. For example, see https://blogs.cfainstitute.org/investor/2012/03/20/rethinking-the-risk-free-rate/, as well as p. 143 in Ang's "*Asset Management*".

[xv] It takes a village. The short length of this piece belies the number of people who served as valuable sounding boards during its development. I would like to thank my colleagues Matt Davis, Brendon Freeman, Frank Ieraci, Emre Konukoglu, Dominik Kramarz, Andrew Meisel, Poul Winslow, Selwyn Yuen, Paul Zalessky, and Philippe Zaugg, as well as former colleague Mary Vyas, for their insights and thinking when confronted with earlier versions of this paper. The paper is better for their insights. To the extent there are inconsistencies or holes in the thinking, credit for that remains solely with me.