The Five Sources of Return

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Asset owners are swamped by a multitude of assets and investment strategies. However, behind all the noise, there are only five underlying sources of return. Profitable investing necessitates both an understanding of such underlying sources of return, as well as, the skills to harvest them.

For an investment strategy to be profitable, there must be underlying profit opportunities which the strategy can exploit. Thus, profitable investing necessitates both an understanding of these underlying profit opportunities and the skills to harvest them. Without such understanding, return generation is dominated by unreliable randomness rather than by a repeatable process.

Historically, the most dependable, and easiest to access, source of real excess return[1] was simply to hold a diversified portfolio of equities. Among publicly traded assets, only equities are unambiguously net wealth. All other assets are side bets that cancel out; There is as borrower for every lender and there are always two opposing counterparties in contracts pertaining financial claims. Thus the equity risk premium is the only source of excess return that can be earned by all asset owners at the same time. Provided there is growth in the labor force and its productivity is improving, the equity risk premium is positive over the long haul.

A persistent, albeit less accessible, source of return is the compensation received for providing a service, such as providing liquidity or transferring risk. These are side bets that cancel out when strictly considering the two sides of the trade. However, because there is a utility being provided, the provider of the service expects to get compensated, and the buyer finds it reasonable to pay for it. We don't expect to get an insurance on our house for free. However, it requires skills to understand the risk assumed, thus this source of return is less easily accessible than the equity risk premium.

The most difficult, least accessible, source of return is to turn a profit from outwitting the other side of the trade. Because there is no utility provided to the parties involved beyond the financial effect of the trade, only a pure transfer of wealth, this source of return is zero sum. Whereas it may be true that transferring wealth from 'dumb money' to 'smart money' improves capital allocation and thus wealth, the benefit accrues to the greater society and not directly to the losing side of the trade (as in the case of risk or liquidity transfer).

Sources of return should not be confused with asset classes or investment strategies. An asset class, or investment strategy, can be comprised by one or several different sources of return. Some of these sources are easy to access and others more difficult. It is the underlying sources of return, as well as how to efficiently access them, that must be understood by investors to construct robust investment portfolios. In my view, there are only five underlying reasons, or sources of return, available to the owner

of capital:

- Macro risk premiums
- Rebalancing bonus
- Speculative risk premiums
- Crisis alpha
- Alpha

Macro risk premiums

The expected excess return of risky assets reflects the risk of exposure to economic environments that are unfavorable for the assets. Economic environments can be described as combinations of growth and inflation and the two vectors may be combined into four different economic regimes. Such economic regimes represent ‘good’ or ‘bad’ times for different categories of assets or investment strategies. The macro risk premium is the compensation for holding the asset class, or investing in the strategy, should its respective ‘bad time’ occur. The four economic regimes resulting from different combinations of growth and inflation can be described as follows:[2]

Stagflation

Rising inflation and slowing growth represent the stagflation regime. This is the most challenging environment for investors. Normally, central banks would rise interest rates to squeeze out inflation. Slowing growth and rising inflation is a toxic mix for both equities and credit. Rising rates is bad for bonds. If interest rates are lower than inflation it is good times for precious metals, but when central banks eventually raise rates to squeeze out inflation, cash is king. Inflation-linked bonds is an asset class that typically does well in this environment. Active management works better than passive, as inflation is polarizing the financial performance among firms. It’s a good regime for the short side of equities, as well as, for global macro strategies. The 1970s represent a good example of this regime.

Deflationary Bust

Another difficult regime for investors. Here growth and inflation are slowing and, during particularly bad outcomes, inflation turns into deflation. Cash and government bonds are examples of assets that tend to do well in this environment. When market actors anticipate that central banks will lower interest rates to reflate the economy, precious metals tend to do well. Alternatively, if the situation is so severe that the market fears a collapse of the fiat-based monetary system, gold would typically be the go-to asset. Equities, credit, and other growth-oriented assets perform poorly in this regime. Because credit and liquidity risk is rampant in this regime, many strategies that would be expected to do well, do in fact poorly. One example is equity market neutral that lost money in 2008 due to credit-related contagion. Apart from the 2008 financial crisis, good examples of this regime are the 1930s, when many countries

went through a deflationary bust, and Japan, which was in a deflationary bust regime from 1989 to 2012.

Inflationary Boom

A more positive economic environment for investors is the inflationary boom regime. Here stocks, and even more so commodities, tend to do well. Commodities are part of the inflation measure, hence the asset class is perhaps the safest bet in this environment. Rising inflation is negative for valuation multiples in the stock market so performance of the asset class becomes a 'tug of war' between the inflation-induced rise in earnings and a lower valuation multiple. Inflation is polarizing business performance and expanding the opportunity set for active investment strategies. The period from 2002 to 2008 is an example of this regime.

Dis-Inflationary Boom

The true 'goldilocks climate' for risky assets. Stocks enjoy the combination of rising earnings and expanding valuation multiples. Governments bonds deliver both coupons and capital gains as disinflation is lowering the term premium. All financial assets do well in this environment. The period from 1990 to 1998 was a classic example of dis-inflationary boom.

Both risky assets and investment strategies are compensated for the expected risk of losing money in their respective 'bad' economic regimes. The equity risk premium, for example, is not a general 'risk premium', but a specific compensation for bearing the risk of stagflation or a deflationary bust. A creditor lending money at a fixed rate is compensated for higher interest rates and default risk and earns the 'credit premium'. Government bond investors lend money at a fixed rate instead of holding cash at a variable rate. In a stagflation or inflationary boom scenario, they would be better off with cash, thus they need compensation for bearing the risk of higher future cash rates and inflation. This is the 'term premium'.

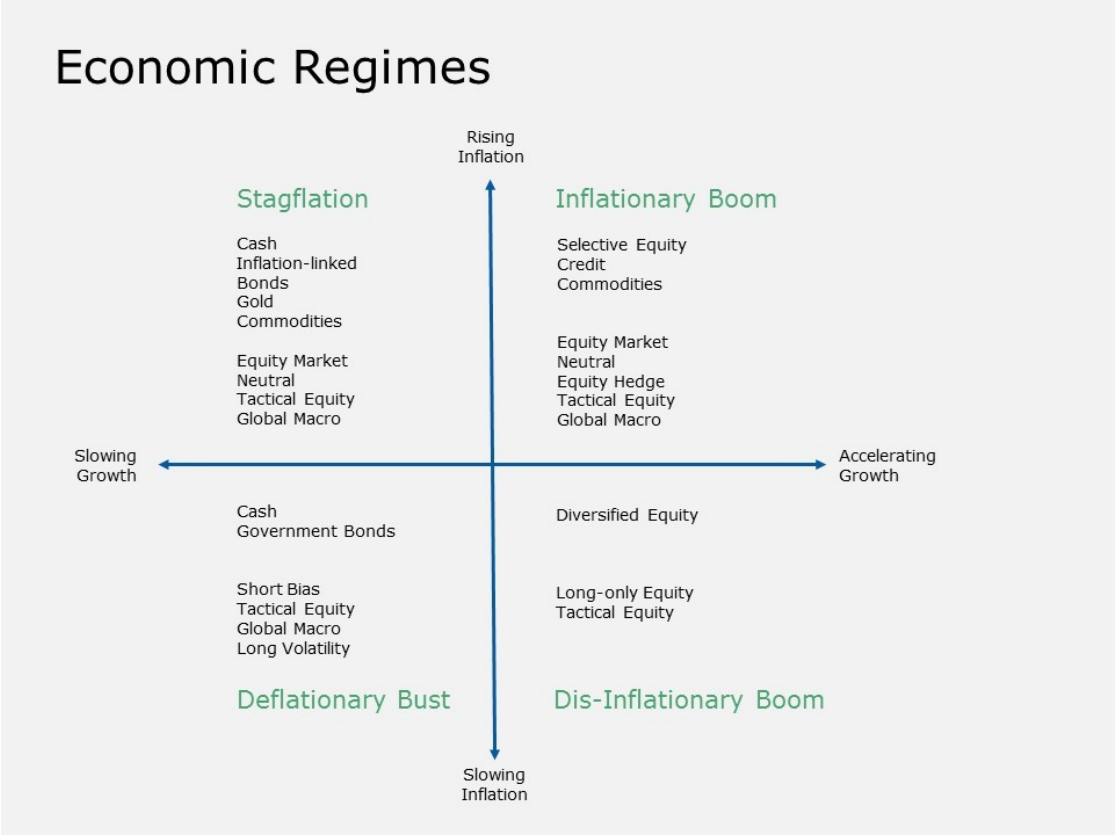
Note that the traditional '60/40' portfolio, or any portfolio holding just bonds and equities, struggles in two of the four economic regimes. During stagflation both equities and bonds do poorly, and in the deflationary bust regime, equity losses swamps any return generated by fixed income positions. Levering the fixed income side of the portfolio to a similar risk level as equities, in what is called 'risk parity', is hardly a solution. Although we would expect it to improve the portfolio performance in the deflationary bust scenario, it would increase the downside risk in a stagflation regime.

An alternative to the traditional equity / fixed income approach was devised by Harry Browne in 1982. Following the stagflation years 1968 to 1982, investors were frustrated as nothing worked well for them. Mr. Browne came up with 'The Permanent Portfolio' consisting of equal portions of equities, bonds, cash and gold as a remedy. His idea was that investors should hold a portfolio where at least one part of the portfolio did well in any combination of growth and inflation.

A true 'all-weather' portfolio must be diversified for all kinds of economic climates. It requires thinking *structurally*, as opposed to *statistically,* about diversification since some of the regimes may only have

occurred a long time ago, when statistics were poor or there were no statistics at all[3]. A structurally diversified portfolio should be made of four books, each book expected to perform well in at least one of the four economic regimes.

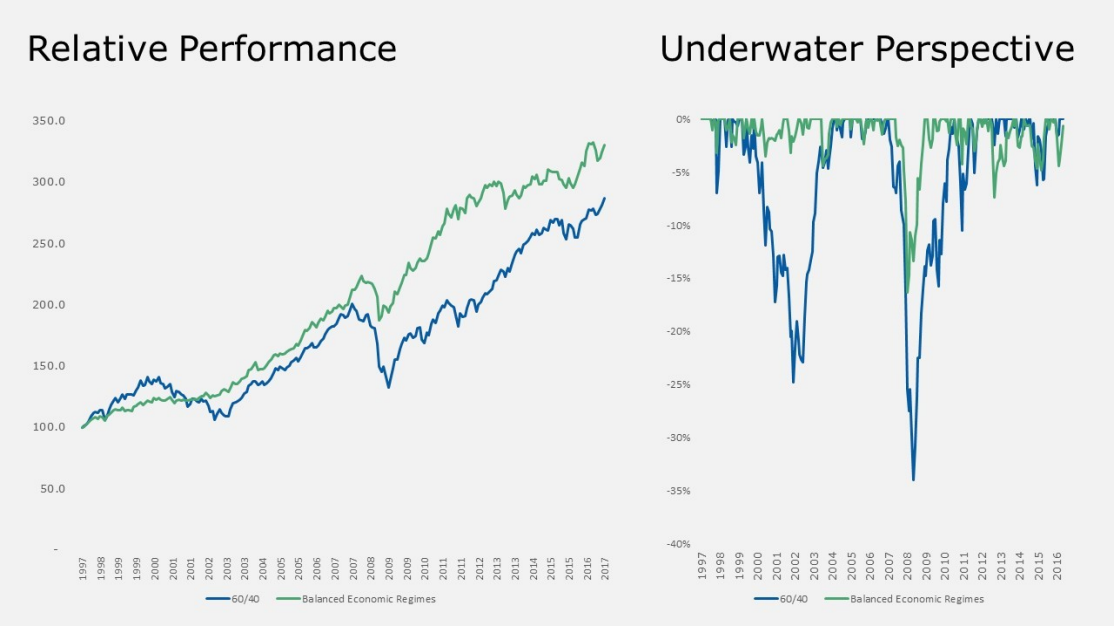
The chart below provides an overview of typically 'good times' for some major asset classes and investment strategies. Please note that there is considerable variation in how strategies are implemented, thus real portfolios could behave quite differently from the stylized case illustrated here. Our categorization, therefore, should be viewed just as a guideline, showing what can be normally expected within in each strategy bucket.



As a simple example, below I have built a structurally diversified portfolio. It holds four books that are crudely risk adjusted. Equities and commodities are assumed to be high-risk and bonds to be medium-risk. In addition to bonds and equities, the portfolio holds inflation linked bonds (TIPS) and precious metals. Using only these four asset classes, all four regime books can be populated.

The chart 'Underwater Perspective' shows that the structurally diversified portfolio offered less downside risk than the 60/40 during the two deflationary busts that occurred during the period. The structurally

diversified portfolio holds 20% instead of 60% equity, and this is the reason behind the lower drawdowns.



Interestingly, the lower equity allocation of the structurally diversified portfolio did not cause performance drag over the full period as it actually generated higher compound return than the 60/40 portfolio. By reducing the drawdown through better diversification, the compound rate of return is dramatically improved (a 50% loss requires a 100% subsequent return just to get even).

History should only be used for illustrative purposes, as future performance will depend on future asset class returns. It is nevertheless interesting that the period did not include a stagflation regime, in which we would expect the structurally diversified portfolio to truly outshine the 60/40. It is true that falling interest rates provided a tailwind to the term premium, but stocks have a duration of about 50 years and were thus a bigger beneficiary of lower rates than bonds were.

Macro risk premiums are relatively dependable and easily accessible. In order to harvest them effectively and efficiently, however, it is necessary to consider two market characteristics. Firstly, 'bad times' for which the compensation is due, do not occur at the same time for all asset classes or for all types of investment strategies. Secondly, the compensation for bearing macro risks is cyclical, driven by supply and demand of the assets. Thus, the key to effective and efficient harvesting of macro risk premiums is to diversify – structurally, not just statistically - across different economic regimes.

Rebalancing bonus

The rebalancing bonus stems from diversification, which is said to be the only 'free lunch' available to investors[4]. As seen by the example below, diversification increases compound returns by dampening return volatility.

	Year 1 Return	Year 2 Return	Average Return	Two-Year Total Return
Portfolio 1	0%	0%	0%	0%
Portfolio 2	-50%	50%	0%	-25%

Both portfolios have an *average* annual return of zero and appear to be the same thing. However, Portfolio 2 has a lower *compound* return because of its higher return variability. It drops 50% in year 1 and recovers to only 75% of invested value in year 2. Diversification adds to a portfolio's compound return because the lower volatility realized from diversification increases the spread between average and compound returns.

By selling a portion of an investment that has outperformed and using the proceeds to buy more of an asset that has underperformed, return is generated from 'pumping the volatility'. This can be undertaken at fixed periodic intervals, or when assets exceed pre-specified target ranges, or through forecasting a reversal. This is the rebalancing bonus.

The size of any rebalancing benefit must be seen relative to the difference in return between the assets. Empirical observations demonstrate that rebalancing often yields significant excess returns, but only when the return differences are small. Rebalancing penalizes the investor when asset return differences are large. Thus, the rebalancing bonus from individual stocks is less clear than the benefit from rebalancing between asset classes or investment strategies where long term difference in performance tend to be less significant.

In order to evaluate the potential benefit available from rebalancing, William Bernstein[5] devised a formula that approximates the 'bonus' received by rebalancing across assets:

$$RB_{1,2} = X_1X_2 [SD_1SD_2 (1-CC) + (SD_1-SD_2)^2/2]$$

$RB_{1,2}$ = Rebalancing bonus from combining asset 1 and asset 2

X_1X_2 = Weights of asset 1 and 2 respectively

$SD_{1,2}$ = Standard deviation of asset 1 and asset 2 respectively

CC= Correlation coefficient

Assuming all else equal, the formula tells us that:

- The closer we get to a 50/50 mix (or equal weights for multiple assets), the greater the rebalancing bonus.
- A higher standard deviation of either asset result in a higher rebalancing bonus.
- Lower or, even better, negative correlation improves the rebalancing bonus.
- A larger difference in the standard deviation of the assets results in a greater rebalancing bonus.

Speculative risk premiums

Speculative risk premiums don't come from asset class exposures but from intelligent investment strategies. Although there appear to be a winner and a loser in trades involving in transfer of risk or liquidity, speculative risk premiums are not zero-sum because some investors are willing to pay others to take risk from them or gain access to liquidity. Other investors are willing to overpay for certain attributes like income, or even sleep at night.

Risk transfer trades have been in existence for hundreds of years and a classic example from the 1630s is the miller who hedges the market risk of wheat by selling futures contracts. He is giving up returns to speculators who carry the inventory risk forward until the bakers buy the flour. However, by offloading the price risk, the miller can run a bigger operation and focus on operational risks which he can control. Economies of scale lead to higher profits for the miller. Although he is losing on his hedge, the trade allows him to make more money from a bigger operation. Today the phenomenon is known as the commodity hedging premium which occurs when hedging demand exceeds hedging supply on either the long or short side.

Risk transfer in financial markets takes place when speculators are paid by the hedgers, who either don't have the skills to understand the risks, or are happy to pay the speculators to 'carry the inventory forward' until they can understand the value, or when speculators provide inventory to the market and investors willingly overpay for it.

During a bear market, for example, value investors step up and buy stocks from shareholders that want to get out as they perceive the risk too high, or because they must sell for solvency reasons. Value investors 'carry the inventory forward' until the investors are comfortable to buy back the stock when the future looks brighter. A recent example of speculators providing inventory is the 'stability trade'[6]. Here hedge funds have provided inventory to investors desperately seeking yield by short selling such stocks to investors willing to overpay for them. Investors are willing to pay for current income by sacrificing some of their long-term total return.

Because speculative risk premiums represent a compensation for a risk transfer, and not an anomaly (or alpha), we should not expect them to be arbitraged away. They are, however, cyclical in nature as profitable premiums typically attract capital and the premium is competed away. Once premiums become low, a capital flight brings profitability back again. The fatness of speculative risk premiums is a function of the balance between demand from 'hedgers' and supply from 'speculators'.

Crisis Alpha

Crisis alpha represents a sub-set of speculative risk premiums. Because investors, as a whole, are net long equity, falling equity markets cause the most pain. Crisis alpha represents profits earned during equity market crises. Aversion to losses means that these are times when investors are particularly prone to be governed by behavioral biases and emotional decision making. When investors all turn in the same direction, liquidity disappears, credit issues surface and fundamentals become less relevant. Importantly, true crisis alpha strategies should not carry liquidity or credit risk. It does not help much to make 'paper profits' in a crisis alpha strategy if there is no liquidity for its realization. Furthermore, true crisis alpha strategies should not be exposed to direct or indirect (contagion) credit risk. This means that that the strategies should be directional in nature and implemented using liquid exchange-traded instruments. Crisis alpha strategies are all about seeking pure price risk.

Allocation to crisis alpha strategies may significantly improve portfolio performance in times of equity market crises. Protection during periods of market distress allows investors to reallocate to riskier assets in the aftermath of the event when expected returns are the highest. In other words, crisis alpha offers a fat rebalancing bonus. Allocation to crisis alpha strategies is also beneficial to investors who can lever up the portfolio and thus earn a higher return than they otherwise would without the protection offered by such strategies.

Crisis alpha strategies should be evaluated on their trade-off between certainty of the protection and cost in terms of performance drag. There are five categories of crisis alpha strategies that are valuable on said trade-off: equity short bias, systematic trend-following, tactical equity, quality-minus-junk equity

and long volatility.

Equity short bias typically incurs a performance drag during normal market conditions from being short the equity risk premium. It offers, however, high certainty of protection during equity market crises.

Systematic trend-following strategies offer persistent speculative risk premiums. Although they vary in size through time, the performance drag is limited over the long haul. Widespread use of drawdown, leverage and risk limits among investors amplify 'herding' behavior as these 'control mechanisms' are all triggered by losses, increased volatility and increased correlation. Such practices amplify market moves and are thus favorable to trend-following strategies. Crisis alpha from trend following strategies has shown an increasing efficacy over time, likely a direct consequence of growing implementation of control mechanisms among investors.

Tactical equity switches between net long and net short equities. It can be implemented in a discretionary fashion or be based on trend-following rules for commitment. Trend-based strategies have historically enjoyed zero performance drag (same performance as equities) and a decent certainty of protection.

Quality-minus-Junk market neutral equities. Strategies that are long quality firms with solid balance sheets and short badly managed firms with weak balance sheets do incur a slight performance drag but offer a relatively high certainty of protection.

Long volatility trades are attractive when implemented properly. Whereas simply buying put options offers a high certainty of protection, the performance drag is excessive. The same is true for buying short dated volatility futures. However, structured properly, long volatility strategies can offer good certainty of protection at reasonable performance drags.

Alpha

Alpha is strictly defined as a return in excess of both macro and speculative risk premiums. It is the holy grail of asset management as it offers a return that is independent of macro risks. Because alpha returns are idiosyncratic, solely generated by independent investment skill, true alpha is fully diversifiable. Thus a portfolio constructed of several alpha managers may potentially offer a substantial rebalancing bonus on top of their individual alphas. However, alpha tend to be fleeting in nature as it inevitably degrades due to innovation and competition. Eventually, it either goes away or becomes a risk premium.

Alpha is not only elusive for managers to capture, but also difficult for investors to measure. Long stretches of return data are required in order to conclude that a supposed 'alpha' is statistically different from zero. Because persistent alpha opportunities are not likely to exist and alpha is tough to measure, it is hard to identify alpha managers *ex ante*. However, we find that investment managers harvesting speculative risk premiums can be quite successful at adding alpha on top. Combining the two sources of return reduces implementation costs and the low correlation between the 'alpha' and the 'risk premium'

components adds the diversification bonus. A classic example would be a value oriented asset manager who is long the speculative value premium and creates alpha on top by avoiding 'value traps' from fundamental analysis of the stocks. Another example is short bias strategies where alpha may help to reduce the performance drag from being short the equity risk premium.

Bottom line

The only value of an economic asset to investors is the aggregate future cash flows they'll receive relative to the price they pay for the asset today. Various asset classes represent different types of financial claims on such cash flows. Both the cash flows and the financial claim are impacted by growth and inflation. If future growth turns out to be lower than expected, the structural relationship means that we should expect equities to fall and government bonds to rally resulting in a negative correlation. Alternatively, if inflation was to rise unexpectedly, without a commensurate unexpected higher growth outlook, both equities and bonds would tank and the correlation would be positive. Investors must think structurally around these relationships and not just look at historical observations. A deep understanding of the underlying sources of return as well as of the structural relationships between economic regimes, assets and investment strategies is critical to construct robust investment portfolios.

FOOTNOTES

1 By real excess return we refer to inflation adjusted return in excess of the 'cash' rate (short term government securities)

2 To my knowledge it was Harry Browne that first came up with this idea back in 1982 as he designed the 'Permanent Portfolio'. Later it was adopted and popularized by Bridgewater and others, in various versions of 'All Weather' funds.

3 In contrast, we note that many investors simply look at historical returns and conclude that fixed income is less risky than equities. This conclusion is derived from using only observations that do not include the stagflation regime in which bonds would be even riskier than equities. Furthermore, risk is measured using the standard deviation of nominal returns as opposed to the drawdown in the real value of the assets.

4 Eugene Fama

5 William Bernstein

6 The stability trade includes the «bond proxies» such as dividend paying, low volatility and low beta stocks.