

Do Robots Dream of Central Bankers?

The world's valuations have become dominated by the influence of central banks fighting currency wars. The most obvious side effect is that movements in equity prices have become highly predictable in the 1-2 year horizon, during which the impact of their QE-ish programs will last. The money force fed into markets helps the weakest the most. The index moves a mere 30%, the junk triples. The only issue is identifying the beneficiaries, and evaluating their new found competitive advantages accurately.

We have, almost by accident, applied our shoestring analytics firm in this direction. The results are beyond comprehension even for the very competent quant. They are decimating the returns of current technologies. We have a market neutral Sharpe (in English, the signal to noise ratio) circa 2.5, and with tight stops, it has been known to exceed 5 for a book that turns over every other month. The S&P 500 by reference, has a Sharpe of 0.25. In Silicon Valley parlance, this is insanely great.

Since the publication of Graham and Dodd's *Security Analysis* in 1934, money center finance has depended on armies of Ivy League grads poring through SEC filings and building EBITDA projections. It didn't really matter whether they were value investors or merger bankers, or whether they used pen and paper or, eventually, had figured out a new-fangled software called Lotus 123.

Black Scholes (1973), *The Pricing of Options and Corporate Liabilities*, marked the entrée of the quant, the one who said that life is much too uncertain for these 10 year forecasts, and, soon backed by Sun Microsystems workstations, applied a stochastic (i.e. randomized probability) model to the valuation of corporate securities.

This cycle is now over. In 1973, the tools did not exist to normalize data in scale. Doing it by one by one in an unstructured fashion for a large volume of firms remains virtually impossible. Today, however, sufficient computing power sits on every desk to automate this task. Our firm aims to model the entire MSCI All World Index - which did not, indeed could not exist in the seventies - by the end of the year with 24 PC's and a back of the envelope parallel artificial intelligence engine, the likes of which any PhD student at Chicago or MIT's computer science departments might offer a condescending smile, calling it nothing more than a simplified robotic control function. They would be wrong because it is built on the laws of risk aversion, not physics. To paraphrase Einstein, risk is like physics, only harder.

In a funny way, this does take us back to Graham and Dodd. But the world has moved on. The macroeconomic background often facilitates the technology. Since the thirties, the world had lived in a hot or cold world war, and the inflationary backdrop it created paid for free insurance

for errors in those EBITDA projections. Volcker's decision to fight that inflation created the performance risk that made paying for puts traded on the Black Scholes formula worthwhile.

Now, central banks ostensibly fighting deflation create enough skew to drown out the performance of the 90th percentile value investor. An early side effect, the dot com boom, caused the retirement of many exceptionally good managers who simply did not understand why companies could be valued per eyeball. More seriously, in $a/(r-g)$, the denominator became negative. Nor does stochastic calculus particularly help anymore, because now the risk free rate itself has become negative. In a world where negative yields years out the forward curve compress volatility, and consequently sustain exceptional valuations, legacy technologies fail outright.

What works now is:

- 1 Acute clarity on the pervasive influence of the central banks
- 2 Automation of gathering and normalization of globally sourced data
- 3 Mathematically consistent, cyclically adjusted extrapolation of the present into the future
- 4 A human overlay for event processing and reconciliation
- 5 A discount rate that integrates risks uniformly across varying business cycles

This leaves us with a highly scalable, automated DCF process that finds compelling opportunities around the globe facilitated by shifts in yield curves and currencies. Not merely a data scrubbing and scenario engine that could be constructed off Compustat decades ago, but an integration of economic relationships that truly works in a market neutral or risk adjusted outperformance standard imposed by today's institutional investors. The CAPM, a driver of academic research, has to be mentioned in this context. It is worthwhile to know the Beta or Fama French factors, but that is a small minority of the task. One must know the cash flow being discounted, and as importantly, what QE, the public investor's cost of information, and firm specific risks are doing to the opportunity set.

We still support only a sliver of a slice of finance. But inevitably, this is the way the world has to work until the excesses of mercantilist policies are exhausted. If the cold war is any guide, that could take decades.