# A Donor Within

I would like to start this paper by making a pledge to the Bill & Melinda Gates Foundation for $200B+ to be provided over the next 40 years. One thing I know is that I will not live long enough to complete my pledge. It has however the advantage that I do not need to be there for it to reach and exceed its objective.

A few years back, I determined what would be the best use for my trading strategies. My first choice was to give the ones I liked best to the Bill & Melinda Gates Foundation, and it still is. At the time, I prepared introductory letters, but never sent them being too shy and too afraid of being rejected. I still am.

How I arrived at the decision to give my trading strategies to the Foundation was simple. First, I believe in what they do and do so well. Second, I could never do as much as they already did or will do in the future. I do not have the means or resources to have an impact. What I excel in however is designing investment/trading programs. And that is where I think I could contribute the most to a great cause: by helping the Foundation do more.

I realized early that this would be an uphill battle of monumental proportions. I would first have to convince the Foundation that I could add something to their current portfolio management procedures when they already have some of the best financial advisers on hand. Second, I would have to demonstrate that my trading/investment strategies could do better than their own long term expectations. Third, I would have to show that my programs could indeed make a big enough difference not only to warrant further investigation but to at least benefit from some partial implementation. Three major hurdles not easily resolved. One argument I was left with was: if you don't let anyone know what you want or can do, how could anyone ever respond?

So, what follows all leads to how and why I reached my decision. First by showing that it can be done, then by building scenarios of what the Foundation could do by doing a little extra. Most of the argumentation will be to show that the Foundation's Trust should be allowed to grow as big as it can, since in the end, the Trust could be the Foundation's biggest contributor in providing grant money and thereby enabling it to do a lot lot more.

To complete my pledge requires that some of my trading programs be implemented and operated over the next 40 years. To me, that the increase in the Foundation's assets comes from its asset management programs or from outright contributions from its donors is about the same; it is still added money that the Foundation can use.

There is a trading philosophy behind my methods, most of it about the same as expressed by Mr. Buffett over the years. It's only that I've managed to put part of this methodology into code. I'm convinced that sooner or later, someone else will be able to rebuild about the same trading procedures and achieve about the same results or better. It's just a question of time.

## The How

This all started, small and slow, some years ago. You design a stock trading strategy, and it performs better than expected. You dig in the code to find out why and find a typing error as the main cause (I'm dyslexic, so this is no surprise). Most would simply correct the single character error (> instead of <) and be done with it. But, in my case, it opened up a door to further research in order to find out the why that logical error was generating more profits than expected. I wanted to understand the principles involved and see if they could be applied elsewhere in other trading scenarios. What might be considered a logical error by some can turn out to be a desired feature. From there, my questions became: how far can I push these notions? What improvements could I bring to these procedures? Can I transform existing programs to follow these software routines? All very legitimate questions, all deserving investigation.

The more I dug into the intricacies of these trading procedures, the more I found ways to improve on the design. Bit by bit, refining the whole process was increasing the performance level to new heights. At times, I could do this within a few hours, and at others, it would take me months of research to break through what I called mathematical walls: the finding of how to program what I had in mind.

## The Math

The more I researched and tested my trading programs, the more I found I could do even better. I was also in need of worthwhile explanations. Why was no one advocating such trading practices? Shouldn't this be known to the investment community or be in financial publications? Shouldn't these procedures be part of all portfolio manager's arsenal of trading tools?

At one point, as my research progressed, I translated my findings into its current mathematical model. The model I adopted is based on Schachermayer's 2000 research notes which defined a portfolio payoff matrix as follows:

$$A(t) = A(0) + \Sigma(\mathbf{H}.*\Delta\mathbf{P}) \tag{1}$$

which translates to: assets over time can be viewed as the sum of the initial assets put into play plus the cumulative sum of all generated profits and losses over the investment/trading interval. And from such a model, I could view a portfolio's trading history as a single block. From it, I could explore other notions and possible outcomes. I stopped looking at a portfolio in the Markowitz sense, from period to period, to look at it from the point of view of its whole trading history.

From the above expression, it becomes evident that a portfolio can turn a profit over its lifetime only if: $\Sigma(\mathbf{H}.^*\Delta\mathbf{P}) > 0$. There is no need to play this investment game if, for instance, in some 20+ years, all the efforts to increase portfolio value result in: $\Sigma(\mathbf{H}.^*\Delta\mathbf{P}) < 0$; meaning that the portfolio failed to even make a buck.

The first notion implied in the above expression is that you can't expect, long term, to beat the market. The expected value of a long term investment program is to achieve about the same average outcome as a market index which in itself translates to a Buy & Hold investment strategy.

This strategy in payoff matrix notation could be written as: $A(t) = A(0) + \Sigma_i (h_0\mathbf{I}.^*\Delta\mathbf{P}_i)$ where $h_0$ is the initial quantity of shares bought in each of the $i$ stocks and where $\Delta\mathbf{P}$ is the price variation matrix from period to period over the life of the portfolio.

Another way of expressing the same thing would be: $A_p(t) = A(0)^*(1 + r_p)^t$ where $r_p$ is the average portfolio rate of return over time. The same could be said if you bought the entire market, or a representative large sample of stocks: $A_m(t) = A(0)^*(1 + r_m)^t$ where $r_m$ is the average long term market rate of return. The larger the stock sample used, the more $r_p$, the average portfolio return, would tend to the average market return ($r_p \rightarrow r_m$). As consequence, the portfolio's long term performance would tend to the average market return.

## Existing Theories

Academic paper after academic paper make the point that the most expected outcome of a long term stock investment/trading strategy is to achieve about the same as everyone else: results which center around the secular average market return (minus frictional costs).

One could accept such conclusions, be done with it, and consequently, simply invest in index funds, thereby achieving long term averages as if by default. No hard work, just pick a few well diversified index fund, then wait for the duration and you win about the same as everyone else.

But you end up only getting average performance, no alpha.

Over the long term, the US stock market has averaged a little less than 10% CAGR (including reinvested dividends). This in turn becomes your own most expected long term outcome just

as it is for everyone else.

If you want to do more, long term, return wise; you will have to do more to generate some visible alpha. This alpha can be extracted as in the following expression:

$$A_p(t) = A(0)*(1 + r_p)^t = A(0)*(1 + r_m + \alpha)^t \qquad (2)$$

where one's portfolio return $r_p$ is decomposed into its two parts: what the market offers $r_m$ and your alpha. Generating this extra performance as a result of the portfolio manager's skill set. The more expertise ($\alpha > 0$) you can put in managing your long term portfolio, the better your performance level will be. A long term investment portfolio is a compounded return endeavor and the difficulty resides in maintaining the alpha as high as possible over the entire portfolio's life. It is not just a question of achieving a positive alpha here and there, but throughout the whole investment period. If no expertise ($\alpha = 0$) is brought to the game, one should not be surprise in achieving only long term averages close to the secular market returns.

## The Payoff Matrix

Long term alpha points are very hard to come by, and progressively, they get harder and harder to obtain the more you want to increase their value and the longer the time span you want to consider. Studies have shown that on average the majority of professional portfolio managers (say some 70%+) fail to generate long term performance levels that exceed the averages. Thereby generating some negative alpha ($\alpha < 0$) due in part to frictional costs like fees and expenses, not to mention, at times, under-performing stock selections.

There are not that many variables in the above portfolio payoff matrix expression: $\Sigma(\mathbf{H}.*\Delta\mathbf{P})$. You have the applied trading strategy matrix $\mathbf{H}$, which is also your stock allocation matrix, and the price variation matrix $\Delta\mathbf{P}$ of all the stocks in the portfolio from trade to trade and/or from period to period. The payoff matrix is a dynamic structure, you add a stock by adding a column to the matrices. You add a row for each day past, or period, and for each executed transaction (entry or exit). It has the advantage of telling you at all times the value of all the cumulated profits and losses generated by the trading strategy since its inception. You add along a row vector to obtain the portfolio value at any given time; or add by column to get each stock's contribution to the total.

All very simple, it has the advantage of forcing one to look at the big picture all at once; from start to finish in a single expression: $\Sigma(\mathbf{H}.*\Delta\mathbf{P})$. This way you can separate the profit and loss generation over any time horizon into its two main constituents: an investment/trading strategy matrix $\mathbf{H}$ applied to a price variation matrix $\Delta\mathbf{P}$.

In its simplest configuration (1x1 matrix), you have the profit or loss generated by a single trade: $Q * (P(out) - P(in)) = Q*\Delta P$. The payoff matrix is just a concise construct to sum all trades generated by a portfolio over its lifespan: $\Sigma_n(Q_n * \Delta P_n) \approx \Sigma(\mathbf{H}.*\Delta\mathbf{P})$. It is a portfolio's total

trading history in a single block of data. It can help answer some questions. Such as: is trading strategy B better than strategy A over the last 20 years using the same stock selection? This question could be easily expressed as: $\Sigma(\mathbf{H}(B).{*}\Delta\mathbf{P}) >? \Sigma(\mathbf{H}(A).{*}\Delta\mathbf{P})$. A simple simulation on past data would give the answer and would determine if, yes or no, strategy B would have outperformed strategy A over those 20 years.

As was stated before, one's portfolio is expected to achieve about the same as the secular market trend ($r_p \rightarrow r_m$). And if such is the case, then both trading strategies should be expected to perform about the same: $E[\Sigma(\mathbf{H}(B).{*}\Delta\mathbf{P})] \approx E[\Sigma(\mathbf{H}(A).{*}\Delta\mathbf{P})]$. They would have about the same expectation which kind of answers the above question. Different routes will be used (strategies) but they would tend to end up at about the same place. This should also be why you see so many trading strategy performing about the same as the Buy & Hold: $E[\Sigma(\mathbf{H}(B).{*}\Delta\mathbf{P})] \approx E[\Sigma(\mathbf{H}(A).{*}\Delta\mathbf{P})] \approx E[\Sigma(\mathbf{H}(B\&H).{*}\Delta\mathbf{P})]$.

Why go in such details to describe the application of a trading strategy on a selected number of stocks? Simple, that you treat one or a thousand trades, you can use the same formulas to express the results. Therefore, when ever I see: $\Sigma(\mathbf{H}.{*}\Delta\mathbf{P})$, I know that the outcome of the expression has for result the total generated profits and losses from all trades taken over the entire life of the portfolio. I might not see the size of the payoff matrix (number of rows and columns), but it will express the portfolio's total payoff. As an example, the 25 year tests on the 30 DOW stocks shown below required matrices of size: 6,500 trading days x 30 stocks, some 195,000 data elements for each of the matrices involved in the calculations.

## The Trading Strategy

The trading strategy is composed of the ongoing running total of shares held in inventory in each stock, and it can itself be expressed as: $\mathbf{H} = \mathbf{B} - \mathbf{S}$, where the holding inventory $\mathbf{H}$ is the result of all shares bought $\mathbf{B}$ minus all shares sold $\mathbf{S}$ over the entire portfolio's trading history. Therefore $\mathbf{H}$ is a valid surrogate for the trading strategy.

If the outcome of a trading strategy, any trading strategy, can be expressed in this condensed payoff matrix format, then we can analyze its composition, structure and find ways to improve on end results. The expression for a portfolio's time function: $A(t) = A(0) + \Sigma(\mathbf{H}.{*}\Delta\mathbf{P})$ will hold what ever the size, number of trades or duration. The payoff matrix itself: $\mathbf{H}.{*}\Delta\mathbf{P}$ only speaks about generated profits or losses over the trading interval. It does not speak of time directly, but of each closed and still opened trades, that they generated profits or losses. A better stock selection will be reflected in the $\Delta\mathbf{P}$ matrix while a better trading strategy will show its merits in the holding's matrix.

Another way of looking at the output of a payoff matrix would be to decompose it into its parts which would list all the trades in sequential order. From 1 to *n* for the purchases, and from 1 to *d* for sales since you could aggregate several purchases into one sale.

$$A(t) = A(0) + \Sigma_d(\Sigma Q_n)^* P_d - \Sigma_n(Q_n * P_n) \qquad (3)$$

This expression says the same as the portfolio's payoff matrix: $A(t) = A(0) + \Sigma(\mathbf{H}.^*\Delta\mathbf{P})$. It's only that the trades have been sequenced for *i* to *n* as a vector. Equation (3) states that the generated profits and losses are simply the proceeds from all sales minus their respective costs. Note the placement of the parentheses in the above calculation.

All this to say that there are mathematical expressions that can resume all trading or investment activities of a portfolio that it be over a past or future time period.

## My Alpha Generation

I know the ins and outs of my trading strategies in detail; the what and why they do what they do. I know they could be an addition to what is already being done by the Foundation's trust unit. I'm not the one to say how, where or to whom the Foundation should make grants. I agree with all it does. My area of expertise is not there, it is in the back office, the management of stocks over the long term. It is a very focused area: all centered around the management of programs designed to control long term stock inventories. These are programs you add to existing machines and are being offered free to the Foundation.

I have these two trading strategies which could be used, in combination, or maybe even some others that could be a good fit for the Foundation. To be more specific, its Trust unit which manages its assets. These strategies are designed with a long term vision and have been tested on the 30 DOW stocks over the last 25 years of data.

These strategies were first tested on a single stock in order to remove bugs and/or logical errors. Once the strategies behaved as expected, mostly meaning didn't crash the system, they were applied once to the 30 stocks in the portfolio over the 25 year testing period. Results were recorded and appear in the tables shown below. This made these tests, not only out of sample, but also on unknown data sets; except maybe for the first tested stock if it remained in the group.

The strategies might have strange names but that is of no importance. It's what they can do that matters. They both work on the principle of accumulating shares over the long term while trading over the process. One does exactly that while the other will unload all its accumulating inventory from time to time. What is most remarkable are their respective long term (25 years) CAGR.

Each of these trading strategies has been described in detail on my web site. Each tested over the last 25 years of market data. Each producing impressive results. The one that came on top was the BBB Mod 01 trading strategy. It accumulates shares by scaling into positions as if for the long term and then will release its inventory from time to time to start the whole process anew. It clusters trades over a period of time, will wait, and take its profit or loss on the first signs of price weakness. It's trading behavior is depicted in Fig. 1.

It's as if some positions are taken at each market swing and then sold in bulk (red down arrow). This trading strategy has for side effect to mostly accumulate cash over its trading horizon. I see it as a good thing for a foundation since it could provide bursts of added cash liquidity as a byproduct of the methodology used. It also has the side effect of liquidating its accumulated positions near the top of market swings.

**Fig. 1. BBB Mod 01**



The other trading strategy is named: DEVX V6. It's my favorite. This one accumulates shares. It is its primary objective: to build a long term portfolio of stocks. Its trading behavior is shown in Fig. 2. The strategy is designed around a no trade zone; will buy below it and sell above it. It's a more distributed effort; it continuously buys a little bit more than it sells. It is also more active, meaning it trades more than BBB Mod 01 over the same interval. In either case, due to their respective high trade volume, both benefit from computer automation. Computer simulations such as these are programs, trading scripts, pieces of software executed over a data set. These programs are by definition ready to go. But still, they would need to be

adapted to the Trust's software and computer systems. Would need monitoring, supervision and compliance to board mandate and directives. In the end, it is just code made to do what you want it to do.

**Fig. 2.  DEVX V6**



What these two trading strategies show is that their respective mode of operation can be productive over extended periods of time, not just over a few years but over decades. Not only on a few trades, but on thousands of trades. And that is where their power reside. They are not ordinary trading strategies, but what I think is a different breed of trading/investment strategies.

I often translate their overall market behavior to a single statement: accumulate shares over the long term and trade over the process. It's a kind of hybrid, investing for the long term and trading over the shorter term with the short term profits being reinvested to accumulate even more long term shares. Thereby producing a positive feedback loop that helps the portfolio as a whole to grow faster.

## A Portfolio of Stocks

The examples shown in Figs. 1 & 2 appear to have worked well on a single stock (BA). But what about an entire portfolio over the long term? That is the ultimate question. Can you design a trading strategy that can last and be productive over the long haul, over a number of

stocks making a sufficient number of trades to show mathematical significance?

Here are the DEVX V6 results (Fig. 3) for the 30 tested stocks over the last 25 years:

**Fig. 3. DEVX V6 (Portfolio)** (tested after BBB Mod 01)

| Sym | Profits | Trading Days | # Years | CAGR | # Trades | # Closed | # Won | % Won | Ending Cash On Hand |
|---|---|---|---|---|---|---|---|---|---|
| AXP | $102,137,858 | 6,472 | 24.9 | 32.10% | 28,265 | 25,726 | 28,265 | 100.00% | $83,557,384 |
| BA | $113,257,416 | 6,472 | 24.9 | 32.65% | 32,044 | 29,566 | 31,908 | 98.58% | $92,536,576 |
| CAT | $115,618,104 | 6,479 | 24.9 | 32.72% | 35,662 | 28,390 | 35,662 | 100.00% | $68,810,536 |
| CSCO | $70,012,656 | 6,108 | 23.5 | 32.17% | 30,571 | 16,562 | 27,744 | 90.75% | ($8,752,766) |
| CVX | $85,031,160 | 6,300 | 24.2 | 32.11% | 27,209 | 23,032 | 27,209 | 100.00% | $57,720,020 |
| DD | $56,901,504 | 3,899 | 15.0 | 52.68% | 19,246 | 12,770 | 19,246 | 100.00% | $9,953,260 |
| DIS | $114,510,365 | 6,477 | 24.9 | 32.68% | 33,133 | 31,631 | 33,117 | 99.95% | $104,744,640 |
| GE | $42,297,176 | 6,480 | 24.9 | 27.47% | 29,360 | 11,290 | 20,798 | 70.84% | ($47,994,732) |
| HD | $109,894,128 | 6,477 | 24.9 | 32.46% | 31,825 | 28,777 | 31,750 | 99.76% | $91,521,744 |
| HON | $97,792,488 | 6,477 | 24.9 | 31.84% | 29,379 | 26,783 | 29,379 | 100.00% | $78,825,504 |
| IBM | $100,746,064 | 6,479 | 24.9 | 31.99% | 34,985 | 28,831 | 30,958 | 88.49% | $70,045,688 |
| INTC | $95,992,824 | 6,479 | 24.9 | 31.73% | 34,272 | 18,501 | 31,711 | 92.53% | ($6,879,952) |
| JNJ | $97,077,824 | 6,479 | 24.9 | 31.79% | 26,992 | 23,039 | 26,992 | 100.00% | $65,641,228 |
| JPM | $98,495,072 | 6,477 | 24.9 | 31.88% | 34,933 | 23,251 | 34,906 | 99.52% | $21,686,774 |
| KO | $42,843,824 | 6,477 | 24.9 | 27.55% | 29,871 | 13,351 | 18,714 | 62.65% | ($34,027,836) |
| MCD | $95,070,104 | 6,472 | 24.9 | 31.72% | 30,719 | 26,269 | 30,719 | 100.00% | $69,111,728 |
| MMM | $101,122,704 | 6,468 | 24.9 | 32.07% | 29,138 | 26,214 | 29,138 | 100.00% | $77,819,240 |
| MO | $75,202,104 | 6,479 | 24.9 | 30.45% | 26,823 | 19,439 | 26,043 | 97.09% | $32,296,890 |
| MRK | $40,142,180 | 3,892 | 15.0 | 49.28% | 18,725 | 8,681 | 17,013 | 90.86% | ($20,703,210) |
| MSFT | $88,323,992 | 6,480 | 24.9 | 31.29% | 30,279 | 17,991 | 28,992 | 95.75% | $3,549,279 |
| PFE | $67,156,360 | 6,315 | 24.3 | 30.74% | 31,094 | 18,032 | 22,504 | 72.37% | $3,139,222 |
| PG | $63,855,428 | 6,477 | 24.9 | 29.61% | 28,149 | 14,513 | 25,145 | 89.33% | ($17,760,342) |
| SLB | $116,641,128 | 6,300 | 24.2 | 33.84% | 33,688 | 27,243 | 33,688 | 100.00% | $70,029,456 |
| T | $81,420,400 | 6,300 | 24.2 | 31.87% | 28,534 | 20,019 | 28,531 | 99.99% | $25,115,578 |
| TRV | $108,397,656 | 6,300 | 24.2 | 33.44% | 32,598 | 30,541 | 32,598 | 100.00% | $95,061,368 |
| UTX | $89,537,384 | 6,471 | 24.9 | 31.41% | 27,175 | 23,232 | 27,175 | 100.00% | $61,850,144 |
| VZ | $78,291,040 | 6,315 | 24.3 | 31.57% | 31,555 | 19,764 | 30,570 | 96.88% | $7,839,498 |
| WFC | $90,651,600 | 6,300 | 24.2 | 32.49% | 25,952 | 23,246 | 25,952 | 100.00% | $67,043,840 |
| WMT | $46,189,784 | 3,899 | 15.0 | 50.47% | 19,216 | 10,110 | 18,381 | 95.65% | ($11,692,923) |
| XOM | $70,093,592 | 6,479 | 24.9 | 30.08% | 23,754 | 16,370 | 23,754 | 100.00% | $20,392,390 |
| **Total** | $2,554,703,919 | | | | 875,146 | 643,164 | 828,562 | | $1,130,480,226 |
| **Averages** | $85,156,797 | 6,166 | 23.7 | 33.47% | 29,172 | 21,439 | 27,619 | 94.70% | $37,682,674 |

Program:DEVX V6 (V3 Boosted) — Initial Cap: $100,000 — Bet Size: $5,000

With a $5,000 bet size, DEVX V6 performs remarkably well. Adding, on average, about 2.5% alpha points to its CAGR. Over 40% of the trading account is still in cash! You still end up not trading enough, as expected.

Both examples (Fig. 3 & 4) deal with about the same stocks over the same time interval. Therefore, their differences in performance reside entirely on how their respective inventory were handled over time. Based on Fig. 1 & 2, one would be inclined to say that DEVX V6 is superior performance wise. However, it's at the portfolio level that the strategies should be compared.

These two trading strategies were tested over the last 25 years of market data. This is not just over a few years on a few chosen stocks, but for 25 years over a 30 stock portfolio. Not just with a few trades here and there, but on hundreds of thousands of trades. These portfolios should have given about the same performance level as the DJIA over the same period. If they did better than the DJIA, then it has to be that the trading strategies used are indeed the

main reason for the differences.

These two trading strategies were ran once at the portfolio level once they had been tested and debugged on a single stock. BBB Mod 01 (Fig. 4) was tested before DEVX V6.

### Fig. 4.  BBB Mod 01 (Portfolio)

| Program: BBB Mod 01 | | | | | Initial Cap: $100,000 | Bet Size: $5,000 | | Ending Cash On Hand |
|---|---|---|---|---|---|---|---|---|
| Sym | Profits | Trading Days | # Years | CAGR | # Trades | # Closed | # Won | % Won | |
| AA | $193,993,424 | 6,460 | 24.8 | 35.63% | 26,619 | 18,604 | 23,352 | 87.73% | $137,098,672 |
| AIG | $99,777,512 | 6,298 | 24.2 | 33.00% | 27,724 | 26,095 | 21,531 | 77.66% | $89,475,520 |
| AXP | $633,050,048 | 6,460 | 24.8 | 42.24% | 22,658 | 22,635 | 17,817 | 78.63% | $632,934,528 |
| BA | $73,201,008 | 6,460 | 24.8 | 30.42% | 25,354 | 25,046 | 18,280 | 72.10% | $71,619,888 |
| C | $762,743,552 | 6,467 | 24.9 | 43.26% | 30,796 | 29,193 | 20,162 | 65.47% | $754,935,488 |
| CAT | $78,325,192 | 6,467 | 24.9 | 30.73% | 29,277 | 29,277 | 25,732 | 87.89% | $78,324,691 |
| DD | ($5,307,378) | 3,887 | 14.9 | | 16,384 | 16,384 | 7,084 | 43.24% | ($5,307,378) |
| DIS | $77,005,448 | 6,465 | 24.9 | 30.66% | 23,415 | 23,408 | 18,937 | 80.88% | $76,970,224 |
| GE | $230,559,520 | 6,468 | 24.9 | 36.52% | 21,408 | 8,917 | 15,287 | 71.41% | $143,531,568 |
| GM | $103,540,360 | 4,815 | 18.5 | 45.49% | 24,452 | 18,128 | 22,227 | 90.90% | $63,426,424 |
| HD | $255,477,920 | 6,465 | 24.9 | 37.11% | 23,425 | 22,644 | 17,943 | 76.60% | $251,474,352 |
| HON | $120,463,304 | 6,465 | 24.9 | 33.03% | 22,364 | 22,364 | 19,548 | 87.41% | $120,463,304 |
| HPQ | $465,118,976 | 6,465 | 24.9 | 40.45% | 25,784 | 25,471 | 19,893 | 77.15% | $463,069,120 |
| IBM | $65,821,172 | 6,467 | 24.9 | 29.82% | 24,937 | 24,937 | 20,164 | 80.86% | $65,821,172 |
| INTC | $559,212,736 | 6,467 | 24.9 | 41.48% | 25,860 | 23,579 | 25,155 | 97.27% | $645,148,480 |
| JNJ | $118,166,480 | 6,467 | 24.9 | 32.91% | 23,854 | 23,164 | 21,135 | 88.60% | $114,490,648 |
| JPM | $62,390,384 | 6,465 | 24.9 | 29.56% | 29,053 | 28,057 | 21,945 | 75.53% | $57,250,808 |
| KO | $99,016,128 | 6,465 | 24.9 | 31.98% | 22,526 | 21,344 | 20,897 | 92.55% | $92,947,600 |
| MCD | $89,342,480 | 6,460 | 24.8 | 31.47% | 21,681 | 20,573 | 19,300 | 89.02% | $83,520,280 |
| MMM | $55,736,172 | 6,456 | 24.8 | 29.02% | 23,562 | 23,377 | 19,616 | 83.25% | $54,794,468 |
| MO | $170,155,360 | 6,467 | 24.9 | 34.87% | 23,668 | 13,816 | 21,486 | 90.78% | $20,841,994 |
| MRK | $23,517,464 | 3,880 | 14.9 | 44.24% | 16,713 | 16,713 | 12,652 | 75.16% | $23,517,464 |
| MSFT | $461,258,720 | 6,468 | 24.9 | 40.38% | 24,331 | 23,839 | 21,352 | 87.76% | $458,460,128 |
| PFE | $250,435,040 | 6,302 | 24.2 | 38.11% | 22,718 | 11,897 | 19,459 | 85.65% | $161,243,504 |
| PG | $26,459,262 | 6,465 | 24.9 | 25.17% | 16,600 | 16,127 | 14,146 | 85.22% | $24,126,434 |
| SBC | $55,053,368 | 3,938 | 15.1 | 51.72% | 13,368 | 11,883 | 10,045 | 74.14% | $47,327,352 |
| UTX | $130,877,416 | 6,459 | 24.8 | 33.51% | 20,613 | 20,613 | 14,919 | 72.38% | $130,877,416 |
| VZ | $75,322,056 | 6,303 | 24.2 | 31.44% | 26,583 | 25,381 | 24,135 | 90.79% | $69,200,984 |
| WMT | $10,641,975 | 3,887 | 14.9 | 36.74% | 16,710 | 15,646 | 13,689 | 81.92% | $5,341,917 |
| XOM | $74,849,360 | 6,467 | 24.9 | 30.50% | 18,623 | 18,623 | 17,273 | 92.75% | $74,649,360 |
| Total | $5,416,204,459 | | | | 691,060 | 627,735 | 565,161 | | $5,007,576,410 |
| Averages | $180,540,149 | 6,051 | 23.3 | 35.57% | 23,035 | 20,925 | 18,839 | 81.36% | $166,919,214 |

With bet size set at $5,000, BBB Mod 01 really flies. Note the ending cash position which is why the strategy performance is slowing down. Over 92% of the trading account is in cash! You end up not trading enough. I see improvement opportunites.

Between these two tests, I changed the stock portfolio composition slightly due to inconsistencies in two of prices series and lack of duration in others (too short time intervals). BBB Mod 01 (Fig. 4) was tested before DEVX V6 (Fig. 3). But this does not change generalities. For a detailed description of these two tests, and their mathematical background, refer to my research notes: BBB Mod 01 and DEVX V6.

Each trading strategies has its own signature, its own trading rules, but maybe what counts the most is their respective ability to generate long term profits. These trading strategies are also totally scalable as was demonstrated over their respective tests. Both strategies don't

make predictions, but still manage, on average, over 80% of profitable trades (see % won column in the above two tables).

You have two trading strategies able to generate long term profits at the portfolio level. Sure, the future will be different and therefore all future numbers will be different. But this won't change the principles involved, stock prices will continue to fluctuate over time, and at times quite wildly. But, over the long term, the stock market has increased in value and followed its positive secular trend; which is also what is expected here. Over the long term (25+ years) the stock market should be expected to continue to grow and these trading programs will continue to accumulate shares.

I do think that these trading strategies can help the Foundation do more.

## Background Considerations

Some may think that back testing trading strategies is totally useless since the future will be most certainly different from the past. I agree, the future will be different. And therefore all numbers will be different. But back testing is not useless, it can say if your trading strategy could at least have been profitable over past data.

In many areas the future will be similar to the past. One can easily assume that stock prices will continue to fluctuate, up and down, no matter what. Another is that over the long term, the secular market trend could also be up as it has been over the past 200 years. When looking 20+ years into the future, the future CAGR will still be undetermined, if not undeterminable. All one can do is use historical data as a guide as to what could be. But without this "could be", you have nothing to rely on, going forward, except opinions.

The secular market trend has not changed that much over the last 50 years. It has seen ups and downs, but over a 50 year rolling window, it still managed to be positive and maintain near a 10% CAGR or close to it. The probability of having a market index higher in some 25 years is asymptotically approaching 1. At least, it has over any 25 year rolling window since 1792.

It's like asking the question: will world population continue to grow? Well, it has for thousands of years. What should I expect going forward, say in 25 years from now?

A back test tells one if a trading strategy could at least have survived and prospered over past market data. It does not tell the future, it only shows how it would have behaved in the past had it been applied to the data series used. What will be different in any trading strategy is how the price series themselves are chopped, sliced and diced.

In essence, a trading strategy is the series of allocation decisions taken over the portfolio's investment lifespan. It is these decisions to increase or decrease the inventory on hand that

make the trading strategy. Everyone has their own views on how this should be undertaken. But the objectives are the same for all: find strategies that can make the output of the portfolio payoff matrix the largest possible with the minimum of risk over a future long term investment period under outcome uncertainties.

Some trading strategies don't need to be back tested, even if one could. The Buy & Hold trading strategy does not need to be computerized, it can be executed by hand. It would have for payoff matrix: $A(t) = A(0) + \Sigma(h_{0_i}\mathbf{I}.^*\Delta\mathbf{P})$ where $h_{0_i}$ is the initial quantity purchased in each of the $i$ stocks in the portfolio. What one should expect from such a trading strategy is about the same output as buying the DJIA or S&P index. And the higher the number of stocks $i$ in the portfolio, the more the total return would tend to the average market return. This is going full circle. It appears very hard to escape the long term market average as main attractor or center of gravity.

## Outperforming

If you want to outperform the Buy & Hold investment strategy, you will have to increase the output of your own payoff matrix: $\Sigma(\mathbf{H}(?).^*\Delta\mathbf{P})$; the total generated profit over the whole investment period using your particular brand of trading strategy $\mathbf{H}(?)$. This is also the same as saying that if your trading strategy can not beat the Buy & Hold over past market data, you are wasting your time and resources since you are not generating any positive alpha.

If your trading strategy can not beat the Buy & Hold over past data, on what basis could you claim that it could going forward?

A trading strategy under-performing the Buy & Hold is really under-par, sub-optimal. A solution to this would be to look for a better trading strategy, and if it can't be found, do the next best thing: go buy index funds, at least you will be able to get close to the long term market average.

I have much admiration for Mr. Buffett's trading methodology. It is most wise, and has shown impressive results (near 20% CAGR) over the last 50 years generating some 10 alpha points above the average secular market trend. A remarkable achievement putting him at the very top of the list of long term market performers.

One could say that his stock picking abilities were superior to others, but that would not explain all the excess return. A single stock price series is the same for all. You need to separate Mr. Buffett's methodology into some of its constituent parts to see the finesse behind his investment strategy.

Maybe a good way to look at Mr. Buffett's performance over the years might be to simplify the problem and look only at end points. On this premise, I would start with expression (2) above: $A(t) = A(0)^*(1 + r_m + \alpha)^t$ to account for the alpha generation. The average market return $r_m$

could be decomposed into the average rate of return in stock prices $s_p$ and the average reinvested dividend rate $d_p$:  $A(t) = A(0)*(1 + s_p + d_p + \alpha)^t$. Using approximate numbers for Mr. Buffett's scenario, this would give:

$$A_B(t) = A(0)*(1 + 0.065 + 0.035 + 0.10)^{50} = A(0)*(1 + 0.20)^{50}$$

The above formula accounts for stock appreciation, dividend reinvestment and alpha generation. It approximates Mr. Buffett's long term 20% CAGR. From there, the next question is: where does the alpha comes from? For sure, reinvested dividends aren't enough.

Mr. Buffett over his long career has demonstrated some stock picking abilities but this would not be enough either to account for his high alpha points. I would add about 2, maybe 3, long term $\alpha$ points for his stock picking abilities. Where I see the major part of alpha point generation is in his ability to re-invest the generated profits from his holdings. It's not just by buying an "elephant" here and there, it's also the acquisitions by his holding companies combined. It's like reinvesting the generated profits as you go along which in turn are bound to also generate some profits down the line, just like interest on the interest. Doing so, he has created a positive feedback loop which is the main source of his alpha.

$$A(t) = A(0)*(1 + 0.065 + 0.035 + 0.02 + 0.08)^{50} = A(0)*(1 + 0.20)^{50}$$

The methodology could be resumed in: 1) pick the best stocks you can (+0.02) since the objective is to keep them in your portfolio for a long time (+0.065); 2) reinvest all received dividends (+0.035); 3) reinvest part of the holding's generated profits (+0.08) that they come from the accumulating cash, profits or as a result of owned companies or their subsidiaries making acquisitions.

One could slightly reduce these numbers by adding a little leverage to the mix to achieve the same results:

$$(1+0.30)*A(0)*(1 + 0.19371975)^{50} \approx A(0)*(1 + 0.20)^{50}$$
$$(1+0.60)*A(0)*(1 + 0.18877278)^{50} \approx A(0)*(1 + 0.20)^{50}$$

Operating with a 30% or 60% leverage requires an average rate of return of 19.37% and 18.87% respectively to be equivalent to a 20% CAGR. Leveraging might not account for a major difference in overall performance, but can still be used to increase it.

Adding 30% or 60% leverage to the 20% CAGR level scenario would increase the overall average rate of return to 20.63% and 21.13% respectively. Again, not a major difference, but still a way to improve further on long term performance levels.

$$(1+0.30)*A(0)*(1 + 0.20)^{50} \approx A(0)*(1 + 0.20631)^{50}$$
$$(1+0.60)*A(0)*(1 + 0.20)^{50} \approx A(0)*(1 + 0.21133)^{50}$$

I would conclude that it is not the level of leveraging of Mr. Buffett's portfolio that might be the major cause for his alpha generation. I would put more emphasis on his long term profit reinvestment policies than on leveraging.

Why cite Mr. Buffett's long term achievements? My answer to this is simple. In order to show that a trading strategy could do better than others, one needs to show that it can, not only beat the benchmarks such as the DJIA, but it might also be required to achieve more CAGR-wise than Mr. Buffett's long term performance results. This way it would not be achieving just above average performance but looking for performance levels that even exceed the best. If Mr. Buffett can do it better than you, then why not let him do it? It's such an easy, elegant and simple solution; let Mr. Buffett be your portfolio manager, buy Berkshire shares.

The above was just to set the preamble on ways to help foundations do better.

## The Bill & Melinda Gates Foundation

All the talk is on what foundations do and their fund raising endeavors. They all have very good causes, and I am all for it. But as said before, my area of research can only help in the back office operations. It's a very confined area, it deals with ways to enhance long term performance on assets held over the life of a portfolio.

I'll be using the [Bill & Melinda Gates Foundation](#) as example, but the principles involved would apply to any foundation or trust that would want to do more as they continue to provide much needed help to people. See the [Foundation Center](#) for a list of the most prestigious foundations.

Other foundations, as well as trusts, heritage funds, pension, retirement and endowment funds, all could benefit from some of my trading techniques and strategies. As a side note: I would say that any big portfolio with a long term perspective would benefit from such trading practices.

Last year (2013), the Bill & Melinda Gates Foundation had some $40B in assets; distributed about $4.1B to a multitude of worthwhile causes and received about $2.6B in donations, including part of Mr. Buffett's pledged contribution. It is most commendable. After revisiting what the Foundation has done over the years, all I could say was: yes, awesome, outstanding, wonderful. All those involved have my admiration for the good work being done.

Some might say: why don't they just give it all away over a few years and be done with it? That would be quite a short sighted view. Within a few years the funds would be depleted and would have done just a partial job. While doing as they do now, they could last for years and years and help a lot more people. As a trivial example, the Foundation could over grant for instance which would have for effect to gradually deplete its assets over the next few years and then it would be forced to rely only on contributions. Even if such a move would provide

needed help, it would be much less than what they could do had they managed their assets for the long term.

I've prepared some scenarios as to possible outcomes of what the Foundation could do going forward. Not on the basis of what grants they could make over the years, but on how their Trust could manage ongoing available assets. So these scenarios will look only at the financial side using rough estimates. Some assumptions are being made. The first of which is that the Foundation will keep extracting 5%+ annually from the Trust's available assets. Contributions will be maintained at a constant $3B per year. Also, all received contributions will be given out each year. Needing to look at the long term impact of its asset management policies, a 40 year investment/trading interval is considered.

It was presented earlier that the most probable outcome for a long term stock investment program would be to achieve about the same as the long term market averages. Therefore, let's start with this scenario.

## The Trust's Average Portfolio Performance

One could consider the scenario where the Trust achieves about the same long term return as an index fund. Over a 40+ year period, the expected secular market average might be around 10% per year, dividends included, as it has been over the last century. So let's assume that the Trust will achieve these results going forward. This would produce the table below (Fig. 5).

The table in Fig. 5 could be summarized by the following formula:

$$A(t) = A(0) * (1 + r_p - 5\%)^t + C(in) - C(out) \qquad (4)$$

where $r_p$ is the average portfolio performance level, C is the contributions received during the year which are also given out; and where the -5% is the amount transferred to the Foundation each year. It's easy to see that if $r_p > 5\%$, then the Trust will accumulate assets over time. This is a simplified view but still sufficiently broad to see the main picture.

Having the Trust achieve a 10% CAGR (Fig. 5), gives the ability to increase the Foundation's grants over its 40 years above its 5% maintenance level (see Fig. 6). In Fig. 5, with a 10% CAGR, the Trust could provide grants totaling $361B compared to the $200B in the 5% scenario.

By achieving average long term CAGR, the Trust was able to supply more money to the Foundation: $161B more than if it had only tried to sustain itself. This starts to put some emphasis and importance on the work done by the Trust. The Trust itself can be a major contributor to the Foundation.

The Trust already benefits directly from Mr. Buffett's investment wisdom. About one quarter of its assets are in Berkshire Hathaway shares, and as such, represent a major driver to the fund's prosperity. Mr. Buffett, over his 50 years in the investment business, has averaged about a 20% long term CAGR. This rate will probably slow down a bit in the years to come, but it will still continue to be above average. I consider the Trust to be on solid grounds. Over the years, it could provide more funds to the Foundation than the contributions received over its life time. And this demonstrates the wisdom of separating the Foundation from its money management arm. The Trust is there to manage the funds and provide what the Foundation needs to make its grants.

**Fig. 5. 10% Return** + $3B in Contributions

| B. & M. Gates Foundation Trust | | | | | | |
|---|---|---|---|---|---|---|
| **Current Fund: $40B** | | **Fund at** | | | | **Fund** | **Grants as** |
| **Year** | **Fund** | **10% CAGR** | **Contributions** | **Grants** | **inc./(dec.)** | **% of Fund** |
| 1 | $40,000,000,000 | $4,000,000,000 | $3,000,000,000 | $5,000,000,000 | $2,000,000,000 | 12.50% |
| 2 | $42,000,000,000 | $4,200,000,000 | $3,000,000,000 | $5,100,000,000 | $2,100,000,000 | 12.14% |
| 3 | $44,100,000,000 | $4,410,000,000 | $3,000,000,000 | $5,205,000,000 | $2,205,000,000 | 11.80% |
| 4 | $46,305,000,000 | $4,630,500,000 | $3,000,000,000 | $5,315,250,000 | $2,315,250,000 | 11.48% |
| 5 | $48,620,250,000 | $4,862,025,000 | $3,000,000,000 | $5,431,012,500 | $2,431,012,500 | 11.17% |
| 6 | $51,051,262,500 | $5,105,126,250 | $3,000,000,000 | $5,552,563,125 | $2,552,563,125 | 10.88% |
| 7 | $53,603,825,625 | $5,360,382,563 | $3,000,000,000 | $5,680,191,281 | $2,680,191,281 | 10.60% |
| 8 | $56,284,016,906 | $5,628,401,691 | $3,000,000,000 | $5,814,200,845 | $2,814,200,845 | 10.33% |
| 9 | $59,098,217,752 | $5,909,821,775 | $3,000,000,000 | $5,954,910,888 | $2,954,910,888 | 10.08% |
| 10 | $62,053,128,639 | $6,205,312,864 | $3,000,000,000 | $6,102,656,432 | $3,102,656,432 | 9.83% |
| 11 | $65,155,785,071 | $6,515,578,507 | $3,000,000,000 | $6,257,789,254 | $3,257,789,254 | 9.60% |
| 12 | $68,413,574,325 | $6,841,357,432 | $3,000,000,000 | $6,420,678,716 | $3,420,678,716 | 9.39% |
| 13 | $71,834,253,041 | $7,183,425,304 | $3,000,000,000 | $6,591,712,652 | $3,591,712,652 | 9.18% |
| 14 | $75,425,965,693 | $7,542,596,569 | $3,000,000,000 | $6,771,298,285 | $3,771,298,285 | 8.98% |
| 15 | $79,197,263,978 | $7,919,726,398 | $3,000,000,000 | $6,959,863,199 | $3,959,863,199 | 8.79% |
| 16 | $83,157,127,176 | $8,315,712,718 | $3,000,000,000 | $7,157,856,359 | $4,157,856,359 | 8.61% |
| 17 | $87,314,983,535 | $8,731,498,354 | $3,000,000,000 | $7,365,749,177 | $4,365,749,177 | 8.44% |
| 18 | $91,680,732,712 | $9,168,073,271 | $3,000,000,000 | $7,584,036,636 | $4,584,036,636 | 8.27% |
| 19 | $96,264,769,348 | $9,626,476,935 | $3,000,000,000 | $7,813,238,467 | $4,813,238,467 | 8.12% |
| 20 | $101,078,007,815 | $10,107,800,782 | $3,000,000,000 | $8,053,900,391 | $5,053,900,391 | 7.97% |
| 21 | $106,131,908,206 | $10,613,190,821 | $3,000,000,000 | $8,306,595,410 | $5,306,595,410 | 7.83% |
| 22 | $111,438,503,616 | $11,143,850,362 | $3,000,000,000 | $8,571,925,181 | $5,571,925,181 | 7.69% |
| 23 | $117,010,428,797 | $11,701,042,880 | $3,000,000,000 | $8,850,521,440 | $5,850,521,440 | 7.56% |
| 24 | $122,860,950,237 | $12,286,095,024 | $3,000,000,000 | $9,143,047,512 | $6,143,047,512 | 7.44% |
| 25 | $129,003,997,749 | $12,900,399,775 | $3,000,000,000 | $9,450,199,887 | $6,450,199,887 | 7.33% |
| 26 | $135,454,197,636 | $13,545,419,764 | $3,000,000,000 | $9,772,709,882 | $6,772,709,882 | 7.21% |
| 27 | $142,226,907,518 | $14,222,690,752 | $3,000,000,000 | $10,111,345,376 | $7,111,345,376 | 7.11% |
| 28 | $149,338,252,894 | $14,933,825,289 | $3,000,000,000 | $10,466,912,645 | $7,466,912,645 | 7.01% |
| 29 | $156,805,165,538 | $15,680,516,554 | $3,000,000,000 | $10,840,258,277 | $7,840,258,277 | 6.91% |
| 30 | $164,645,423,815 | $16,464,542,382 | $3,000,000,000 | $11,232,271,191 | $8,232,271,191 | 6.82% |
| 31 | $172,877,695,006 | $17,287,769,501 | $3,000,000,000 | $11,643,884,750 | $8,643,884,750 | 6.74% |
| 32 | $181,521,579,756 | $18,152,157,976 | $3,000,000,000 | $12,076,078,988 | $9,076,078,988 | 6.65% |
| 33 | $190,597,658,744 | $19,059,765,874 | $3,000,000,000 | $12,529,882,937 | $9,529,882,937 | 6.57% |
| 34 | $200,127,541,681 | $20,012,754,168 | $3,000,000,000 | $13,006,377,084 | $10,006,377,084 | 6.50% |
| 35 | $210,133,918,765 | $21,013,391,877 | $3,000,000,000 | $13,506,695,938 | $10,506,695,938 | 6.43% |
| 36 | $220,640,614,704 | $22,064,061,470 | $3,000,000,000 | $14,032,030,735 | $11,032,030,735 | 6.36% |
| 37 | $231,672,645,439 | $23,167,264,544 | $3,000,000,000 | $14,583,632,272 | $11,583,632,272 | 6.29% |
| 38 | $243,256,277,711 | $24,325,627,771 | $3,000,000,000 | $15,162,813,886 | $12,162,813,886 | 6.23% |
| 39 | $255,419,091,596 | $25,541,909,160 | $3,000,000,000 | $15,770,954,580 | $12,770,954,580 | 6.17% |
| 40 | $268,190,046,176 | $26,819,004,618 | $3,000,000,000 | $16,409,502,309 | $13,409,502,309 | 6.12% |
| | | | | | | |
| **Total** | | $483,199,096,970 | $120,000,000,000 | $361,599,548,485 | $241,599,548,485 | |

Had the Trust only went the route of maintaining itself, it would only require for it to generate 5% CAGR on its assets since each year it has to supply 5% of it to the Foundation. Fig. 6 illustrates this scenario.

**Fig. 6.  5% Return** + $3B in Contributions

| Year | Fund | Fund at 5% CAGR | Contributions | Grants: $5B/Y | Fund inc./(dec.) | Grants as % of Fund |
|------|------|------|------|------|------|------|
| | B. & M. Gates Foundation Trust | | | | | |
| 1 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 2 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 3 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 4 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 5 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 6 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 7 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 8 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 9 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 10 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 11 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 12 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 13 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 14 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 15 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 16 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 17 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 18 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 19 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 20 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 21 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 22 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 23 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 24 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 25 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 26 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 27 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 28 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 29 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 30 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 31 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 32 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 33 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 34 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 35 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 36 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 37 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 38 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 39 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 40 | $40,000,000,000 | $2,000,000,000 | $3,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| Total | | $80,000,000,000 | $120,000,000,000 | $200,000,000,000 | $0 | |

Table header block:
Current Fund: $40B — Fund at 5% CAGR — Fund inc./(dec.) — Grants as % of Fund

It is sufficient to generate 5% return on assets and use the $3B in contributions to be able to grant $5B per year. And the Foundation could do this for 40+ years and still have its $40B in assets to continue its work.

The above scenario is built on average return over the years as well as an estimate on average contributions. In real life, these numbers would not be this smooth since return on assets and contributions are not constant numbers. But still, using such numbers enables to

view a foundation's survival problem in a different light.

Another scenario producing the same thing would be to achieve a 7.5% return on assets with $2B in contributions to generate the same $5B in grants per year as shown in the following table:

**Fig. 7. 7.5% Return** + $2B in Contributions

| B. & M. Gates Foundation Trust | | | | | | |
|---|---|---|---|---|---|---|
| **Current Fund: $40B** | | **Fund at** | | | **Fund** | **Grants as** |
| **Year** | **Fund** | **7.5% CAGR** | **Contributions** | **Grants: $5B/Y** | **inc./(dec.)** | **% of Fund** |
| 1 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 2 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 3 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 4 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 5 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 6 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 7 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 8 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 9 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 10 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 11 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 12 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 13 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 14 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 15 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 16 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 17 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 18 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 19 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 20 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 21 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 22 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 23 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 24 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 25 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 26 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 27 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 28 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 29 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 30 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 31 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 32 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 33 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 34 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 35 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 36 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 37 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 38 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 39 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| 40 | $40,000,000,000 | $3,000,000,000 | $2,000,000,000 | $5,000,000,000 | $0 | 12.50% |
| | | | | | | |
| **Total** | | $120,000,000,000 | $80,000,000,000 | $200,000,000,000 | $0 | |

So, there are feasible scenarios that can help the Foundation to continue provide help simply by sustaining itself. At least, I see it as a more desirable solution than over granting which would deplete the Trust's assets over the years and thereby do much less than it could.

I find the formula taken by the Foundation to be more stable than just relying on donations

and contributions. Through its Trust, the money management arm of the Foundation, the Foundation itself can distribute more grants than by donations alone. True, the contributions are a major part of the $5B in grants scenario, but the principles would be the same without the contributions. The Foundation would have to rely on the ability of its Trust to generate returns on assets in excess of the granting requirements. The primary objective remains the same: how can the Trust provide more to the Foundation in order for it to provide more in grants?

The separation of tasks was a good idea. The Trust is designed to manage the funds and provide a minimum of 5% of assets to the Foundation which can grant those monies, each year, as best it sees fit to worthwhile causes.

The Trust's responsibility is to make sure, as much as possible, that the Foundation will have what it needs to do its job.

What ever investment methods the Trust wants to implement to increase its return; I think they should continue to follow in Mr. Buffett's footsteps and have the same long term vision. I would add that the Foundation already has the best investment advisers they can get. This does not diminish the Trust's responsibility. It still remains its task to aspire to even higher returns and do what it thinks is feasible within regulations and board mandate. By pushing for higher returns, the Trust, and thereby the Foundation, could do much more:

**Fig. 8.  15% Return** + $3B in Contributions

| B. & M. Gates Foundation Trust | | | | | | |
|---|---|---|---|---|---|---|
| Current Fund: $40B | | Fund at | | | Fund | Grants as |
| Year | Fund | 15% CAGR | Contributions | Grants/Y | inc./(dec.) | % of Fund |
| 1 | $40,000,000,000 | $6,000,000,000 | $3,000,000,000 | $5,000,000,000 | $4,000,000,000 | 12.50% |
| 2 | $44,000,000,000 | $6,600,000,000 | $3,000,000,000 | $5,200,000,000 | $4,400,000,000 | 11.82% |
| 3 | $48,400,000,000 | $7,260,000,000 | $3,000,000,000 | $5,420,000,000 | $4,840,000,000 | 11.20% |
| 4 | $53,240,000,000 | $7,986,000,000 | $3,000,000,000 | $5,662,000,000 | $5,324,000,000 | 10.63% |
| 5 | $58,564,000,000 | $8,784,600,000 | $3,000,000,000 | $5,928,200,000 | $5,856,400,000 | 10.12% |
| 6 | $64,420,400,000 | $9,663,060,000 | $3,000,000,000 | $6,221,020,000 | $6,442,040,000 | 9.66% |
| 7 | $70,862,440,000 | $10,629,366,000 | $3,000,000,000 | $6,543,122,000 | $7,086,244,000 | 9.23% |
| 8 | $77,948,684,000 | $11,692,302,600 | $3,000,000,000 | $6,897,434,200 | $7,794,868,400 | 8.85% |
| 9 | $85,743,552,400 | $12,861,532,860 | $3,000,000,000 | $7,287,177,620 | $8,574,355,240 | 8.50% |
| 10 | $94,317,907,640 | $14,147,686,146 | $3,000,000,000 | $7,715,895,382 | $9,431,790,764 | 8.18% |
| 11 | $103,749,698,404 | $15,562,454,761 | $3,000,000,000 | $8,187,484,920 | $10,374,969,840 | 7.89% |
| 12 | $114,124,668,244 | $17,118,700,237 | $3,000,000,000 | $8,706,233,412 | $11,412,466,824 | 7.63% |
| 13 | $125,537,135,069 | $18,830,570,260 | $3,000,000,000 | $9,276,856,753 | $12,553,713,507 | 7.39% |
| 14 | $138,090,848,576 | $20,713,627,286 | $3,000,000,000 | $9,904,542,429 | $13,809,084,858 | 7.17% |
| 15 | $151,899,933,433 | $22,784,990,015 | $3,000,000,000 | $10,594,996,672 | $15,189,993,343 | 6.97% |
| 16 | $167,089,926,777 | $25,063,489,016 | $3,000,000,000 | $11,354,496,339 | $16,708,992,678 | 6.80% |
| 17 | $183,798,919,454 | $27,569,837,918 | $3,000,000,000 | $12,189,945,973 | $18,379,891,945 | 6.63% |
| 18 | $202,178,811,400 | $30,326,821,710 | $3,000,000,000 | $13,108,940,570 | $20,217,881,140 | 6.48% |
| 19 | $222,396,692,540 | $33,359,503,881 | $3,000,000,000 | $14,119,834,627 | $22,239,669,254 | 6.35% |
| 20 | $244,636,361,794 | $36,695,454,269 | $3,000,000,000 | $15,231,818,090 | $24,463,636,179 | 6.23% |
| 21 | $269,099,997,973 | $40,364,999,696 | $3,000,000,000 | $16,454,999,899 | $26,909,999,797 | 6.11% |
| 22 | $296,009,997,770 | $44,401,499,666 | $3,000,000,000 | $17,800,499,889 | $29,600,999,777 | 6.01% |
| 23 | $325,610,997,547 | $48,841,649,632 | $3,000,000,000 | $19,280,549,877 | $32,561,099,755 | 5.92% |
| 24 | $358,172,097,302 | $53,725,814,595 | $3,000,000,000 | $20,908,604,865 | $35,817,209,730 | 5.84% |
| 25 | $393,989,307,032 | $59,098,396,055 | $3,000,000,000 | $22,699,465,352 | $39,398,930,703 | 5.76% |
| 26 | $433,388,237,736 | $65,008,235,660 | $3,000,000,000 | $24,669,411,887 | $43,338,823,774 | 5.69% |
| 27 | $476,727,061,509 | $71,509,059,226 | $3,000,000,000 | $26,836,353,075 | $47,672,706,151 | 5.63% |
| 28 | $524,399,767,660 | $78,659,965,149 | $3,000,000,000 | $29,219,988,383 | $52,439,976,766 | 5.57% |
| 29 | $576,839,744,426 | $86,525,961,664 | $3,000,000,000 | $31,841,987,221 | $57,683,974,443 | 5.52% |
| 30 | $634,523,718,869 | $95,178,557,830 | $3,000,000,000 | $34,726,185,943 | $63,452,371,887 | 5.47% |
| 31 | $697,976,090,755 | $104,696,413,613 | $3,000,000,000 | $37,898,804,538 | $69,797,609,076 | 5.43% |
| 32 | $767,773,699,831 | $115,166,054,975 | $3,000,000,000 | $41,388,684,992 | $76,777,369,983 | 5.39% |
| 33 | $844,551,069,814 | $126,682,660,472 | $3,000,000,000 | $45,227,553,491 | $84,455,106,981 | 5.36% |
| 34 | $929,006,176,796 | $139,350,926,519 | $3,000,000,000 | $49,450,308,840 | $92,900,617,680 | 5.32% |
| 35 | $1,021,906,794,475 | $153,286,019,171 | $3,000,000,000 | $54,095,339,724 | $102,190,679,448 | 5.29% |
| 36 | $1,124,097,473,923 | $168,614,621,088 | $3,000,000,000 | $59,204,873,696 | $112,409,747,392 | 5.27% |
| 37 | $1,236,507,221,315 | $185,476,083,197 | $3,000,000,000 | $64,825,361,066 | $123,650,722,131 | 5.24% |
| 38 | $1,360,157,943,446 | $204,023,691,517 | $3,000,000,000 | $71,007,897,172 | $136,015,794,345 | 5.22% |
| 39 | $1,496,173,737,791 | $224,426,060,669 | $3,000,000,000 | $77,808,686,890 | $149,617,373,779 | 5.20% |
| 40 | $1,645,791,111,570 | $246,868,666,736 | $3,000,000,000 | $85,289,555,579 | $164,579,111,157 | 5.18% |
| | | | | | | |
| Total | | $2,655,555,334,091 | $120,000,000,000 | $1,005,185,111,364 | $1,770,370,222,727 | |

Achieving the 15% CAGR level, the Trust could supply the Foundation with some $1T in grants over this 40 year scenario. It's the ability to grow the assets under management that gives the Foundation tremendous leverage. It could do 5 times better than just trying to sustain itself at the $5B in grants per year as seen in the 5% CAGR scenario (Fig. 6), or almost 3 times better than the 10% CAGR level (Fig. 5). The Trust could do this and continue to follow most of the same investment principles as before.

It's internally that the Trust grows. It's the Trust's management of assets that is now the major contributor to the Foundation. And it is by letting the assets grow that the Trust can best serve the interest of the Foundation and thereby help the Foundation reach more of its goals and help more people. There are long term benefits in letting the Trust accumulate assets over time. And based on the numbers above, it should also be part of its mandate. It's technically

in the best interest of the Foundation to let the Trust accumulate a sizable asset portfolio.

## The 1% Increase

Every added alpha point translates to an added percentage point in long term CAGR where it counts. Even a single 1% increase in CAGR matters. It is worth the effort for the Trust to seek the additional 1%. This is demonstrated in Fig. 9 where the CAGR goes from 15% to 16%.

A 1% increase in CAGR would represent, on the bottom line, an increase of $278B more in grants to the Foundation. That single 1% alone would represent about 77% of what the 10% CAGR scenario could have provided over its life time. A remarkable feat which again puts emphasis on the Trust's asset management abilities to not only seek but reach that incremental 1% CAGR gain.

**Fig. 9. 16% Return** + $3B in Contributions

| B. & M. Gates Foundation Trust | | | | | | |
|---|---|---|---|---|---|---|
| Current Fund: $40B | | Fund at | | | Fund | Grants as |
| Year | Fund | 16% CAGR | Contributions | Grants | inc./(dec.) | % of Fund |
| 1 | $40,000,000,000 | $6,400,000,000 | $3,000,000,000 | $5,000,000,000 | $4,400,000,000 | 12.50% |
| 2 | $44,400,000,000 | $7,104,000,000 | $3,000,000,000 | $5,220,000,000 | $4,884,000,000 | 11.76% |
| 3 | $49,284,000,000 | $7,885,440,000 | $3,000,000,000 | $5,464,200,000 | $5,421,240,000 | 11.09% |
| 4 | $54,705,240,000 | $8,752,838,400 | $3,000,000,000 | $5,735,262,000 | $6,017,576,400 | 10.48% |
| 5 | $60,722,816,400 | $9,715,650,624 | $3,000,000,000 | $6,036,140,820 | $6,679,509,804 | 9.94% |
| 6 | $67,402,326,204 | $10,784,372,193 | $3,000,000,000 | $6,370,116,310 | $7,414,255,882 | 9.45% |
| 7 | $74,816,582,086 | $11,970,653,134 | $3,000,000,000 | $6,740,829,104 | $8,229,824,030 | 9.01% |
| 8 | $83,046,406,116 | $13,287,424,979 | $3,000,000,000 | $7,152,320,306 | $9,135,104,673 | 8.61% |
| 9 | $92,181,510,789 | $14,749,041,726 | $3,000,000,000 | $7,609,075,539 | $10,139,966,187 | 8.25% |
| 10 | $102,321,476,975 | $16,371,436,316 | $3,000,000,000 | $8,116,073,849 | $11,255,362,467 | 7.93% |
| 11 | $113,576,839,443 | $18,172,294,311 | $3,000,000,000 | $8,678,841,972 | $12,493,452,339 | 7.64% |
| 12 | $126,070,291,781 | $20,171,246,685 | $3,000,000,000 | $9,303,514,589 | $13,867,732,096 | 7.38% |
| 13 | $139,938,023,877 | $22,390,083,820 | $3,000,000,000 | $9,996,901,194 | $15,393,182,627 | 7.14% |
| 14 | $155,331,206,504 | $24,852,993,041 | $3,000,000,000 | $10,766,560,325 | $17,086,432,715 | 6.93% |
| 15 | $172,417,639,219 | $27,586,822,275 | $3,000,000,000 | $11,620,881,961 | $18,965,940,314 | 6.74% |
| 16 | $191,383,579,534 | $30,621,372,725 | $3,000,000,000 | $12,569,178,977 | $21,052,193,749 | 6.57% |
| 17 | $212,435,773,282 | $33,989,723,725 | $3,000,000,000 | $13,621,788,664 | $23,367,935,061 | 6.41% |
| 18 | $235,803,708,343 | $37,728,593,335 | $3,000,000,000 | $14,790,185,417 | $25,938,407,918 | 6.27% |
| 19 | $261,742,116,261 | $41,878,738,602 | $3,000,000,000 | $16,087,105,813 | $28,791,632,789 | 6.15% |
| 20 | $290,533,749,050 | $46,485,399,848 | $3,000,000,000 | $17,526,687,452 | $31,958,712,395 | 6.03% |
| 21 | $322,492,461,445 | $51,598,793,831 | $3,000,000,000 | $19,124,623,072 | $35,474,170,759 | 5.93% |
| 22 | $357,966,632,204 | $57,274,661,153 | $3,000,000,000 | $20,898,331,610 | $39,376,329,542 | 5.84% |
| 23 | $397,342,961,747 | $63,574,873,879 | $3,000,000,000 | $22,867,148,087 | $43,707,725,792 | 5.76% |
| 24 | $441,050,687,539 | $70,568,110,006 | $3,000,000,000 | $25,052,534,377 | $48,515,575,629 | 5.68% |
| 25 | $489,566,263,168 | $78,330,602,107 | $3,000,000,000 | $27,478,313,158 | $53,852,288,948 | 5.61% |
| 26 | $543,418,552,116 | $86,946,968,339 | $3,000,000,000 | $30,170,927,606 | $59,776,040,733 | 5.55% |
| 27 | $603,194,592,849 | $96,511,134,856 | $3,000,000,000 | $33,159,729,642 | $66,351,405,213 | 5.50% |
| 28 | $669,545,998,063 | $107,127,359,690 | $3,000,000,000 | $36,477,299,903 | $73,650,059,787 | 5.45% |
| 29 | $743,196,057,850 | $118,911,369,256 | $3,000,000,000 | $40,159,802,892 | $81,751,566,363 | 5.40% |
| 30 | $824,947,624,213 | $131,991,619,874 | $3,000,000,000 | $44,247,381,211 | $90,744,238,663 | 5.36% |
| 31 | $915,691,862,876 | $146,510,698,060 | $3,000,000,000 | $48,784,593,144 | $100,726,104,916 | 5.33% |
| 32 | $1,016,417,967,793 | $162,626,874,847 | $3,000,000,000 | $53,820,898,390 | $111,805,976,457 | 5.30% |
| 33 | $1,128,223,944,250 | $180,515,831,080 | $3,000,000,000 | $59,411,197,213 | $124,104,633,868 | 5.27% |
| 34 | $1,252,328,578,118 | $200,372,572,499 | $3,000,000,000 | $65,616,428,906 | $137,756,143,593 | 5.24% |
| 35 | $1,390,084,721,711 | $222,413,555,474 | $3,000,000,000 | $72,504,236,086 | $152,909,319,388 | 5.22% |
| 36 | $1,542,994,041,099 | $246,879,046,576 | $3,000,000,000 | $80,149,702,055 | $169,729,344,521 | 5.19% |
| 37 | $1,712,723,385,620 | $274,035,741,699 | $3,000,000,000 | $88,636,169,281 | $188,399,572,418 | 5.18% |
| 38 | $1,901,122,958,038 | $304,179,673,286 | $3,000,000,000 | $98,056,147,902 | $209,123,525,384 | 5.16% |
| 39 | $2,110,246,483,422 | $337,639,437,347 | $3,000,000,000 | $108,512,324,171 | $232,127,113,176 | 5.14% |
| 40 | $2,342,373,596,598 | $374,779,775,456 | $3,000,000,000 | $120,118,679,830 | $257,661,095,626 | 5.13% |
| | | | | | | |
| Total | | $3,723,686,825,053 | $120,000,000,000 | $1,283,652,132,829 | $2,560,034,692,224 | |

Why not push for an added 1%? A 1% increment might look small, but over time can represent huge sums. For instance the 17% CAGR scenario is presented in Fig. 10.

**Fig. 10. 17% Return** + $3B in Contributions

| B. & M. Gates Foundation Trust | | | | | | |
|---|---|---|---|---|---|---|
| Current Fund: $40B | | Fund at | | | Fund | Grants as |
| Year | Fund | 17% CAGR | Contributions | Grants | inc./(dec.) | % of Fund |
| 1 | $40,000,000,000 | $6,800,000,000 | $3,000,000,000 | $5,000,000,000 | $4,800,000,000 | 12.50% |
| 2 | $44,800,000,000 | $7,616,000,000 | $3,000,000,000 | $5,240,000,000 | $5,376,000,000 | 11.70% |
| 3 | $50,176,000,000 | $8,529,920,000 | $3,000,000,000 | $5,508,800,000 | $6,021,120,000 | 10.98% |
| 4 | $56,197,120,000 | $9,553,510,400 | $3,000,000,000 | $5,809,856,000 | $6,743,654,400 | 10.34% |
| 5 | $62,940,774,400 | $10,699,931,648 | $3,000,000,000 | $6,147,038,720 | $7,552,892,928 | 9.77% |
| 6 | $70,493,667,328 | $11,983,923,446 | $3,000,000,000 | $6,524,683,366 | $8,459,240,079 | 9.26% |
| 7 | $78,952,907,407 | $13,421,994,259 | $3,000,000,000 | $6,947,645,370 | $9,474,348,889 | 8.80% |
| 8 | $88,427,256,296 | $15,032,633,570 | $3,000,000,000 | $7,421,362,815 | $10,611,270,756 | 8.39% |
| 9 | $99,038,527,052 | $16,836,549,599 | $3,000,000,000 | $7,951,926,353 | $11,884,623,246 | 8.03% |
| 10 | $110,923,150,298 | $18,856,935,551 | $3,000,000,000 | $8,546,157,515 | $13,310,778,036 | 7.70% |
| 11 | $124,233,928,334 | $21,119,767,817 | $3,000,000,000 | $9,211,696,417 | $14,908,071,400 | 7.41% |
| 12 | $139,141,999,734 | $23,654,139,955 | $3,000,000,000 | $9,957,099,987 | $16,697,039,968 | 7.16% |
| 13 | $155,839,039,702 | $26,492,636,749 | $3,000,000,000 | $10,791,951,985 | $18,700,684,764 | 6.93% |
| 14 | $174,539,724,466 | $29,671,753,159 | $3,000,000,000 | $11,726,986,223 | $20,944,766,936 | 6.72% |
| 15 | $195,484,491,402 | $33,232,363,538 | $3,000,000,000 | $12,774,224,570 | $23,458,138,968 | 6.53% |
| 16 | $218,942,630,370 | $37,220,247,163 | $3,000,000,000 | $13,947,131,519 | $26,273,115,644 | 6.37% |
| 17 | $245,215,746,015 | $41,686,676,823 | $3,000,000,000 | $15,260,787,301 | $29,425,889,522 | 6.22% |
| 18 | $274,641,635,536 | $46,689,078,041 | $3,000,000,000 | $16,732,081,777 | $32,956,996,264 | 6.09% |
| 19 | $307,598,631,801 | $52,291,767,406 | $3,000,000,000 | $18,379,931,590 | $36,911,835,816 | 5.98% |
| 20 | $344,510,467,617 | $58,566,779,495 | $3,000,000,000 | $20,225,523,381 | $41,341,256,114 | 5.87% |
| 21 | $385,851,723,731 | $65,594,793,034 | $3,000,000,000 | $22,292,586,187 | $46,302,206,848 | 5.78% |
| 22 | $432,153,930,579 | $73,466,168,198 | $3,000,000,000 | $24,607,696,529 | $51,858,471,669 | 5.69% |
| 23 | $484,012,402,248 | $82,282,108,382 | $3,000,000,000 | $27,200,620,112 | $58,081,488,270 | 5.62% |
| 24 | $542,093,890,518 | $92,155,961,388 | $3,000,000,000 | $30,104,694,526 | $65,051,266,862 | 5.55% |
| 25 | $607,145,157,380 | $103,214,676,755 | $3,000,000,000 | $33,357,257,869 | $72,857,418,886 | 5.49% |
| 26 | $680,002,576,266 | $115,600,437,965 | $3,000,000,000 | $37,000,128,813 | $81,600,309,152 | 5.44% |
| 27 | $761,602,885,418 | $129,472,490,521 | $3,000,000,000 | $41,080,144,271 | $91,392,346,250 | 5.39% |
| 28 | $852,995,231,668 | $145,009,189,384 | $3,000,000,000 | $45,649,761,583 | $102,359,427,800 | 5.35% |
| 29 | $955,354,659,468 | $162,410,292,110 | $3,000,000,000 | $50,767,732,973 | $114,642,559,136 | 5.31% |
| 30 | $1,069,997,218,604 | $181,899,527,163 | $3,000,000,000 | $56,499,860,930 | $128,399,666,232 | 5.28% |
| 31 | $1,198,396,884,836 | $203,727,470,422 | $3,000,000,000 | $62,919,844,242 | $143,807,626,180 | 5.25% |
| 32 | $1,342,204,511,017 | $228,174,766,873 | $3,000,000,000 | $70,110,225,551 | $161,064,541,322 | 5.22% |
| 33 | $1,503,269,052,339 | $255,555,738,898 | $3,000,000,000 | $78,163,452,617 | $180,392,286,281 | 5.20% |
| 34 | $1,683,661,338,619 | $286,222,427,565 | $3,000,000,000 | $87,183,066,931 | $202,039,360,634 | 5.18% |
| 35 | $1,885,700,699,254 | $320,569,118,873 | $3,000,000,000 | $97,285,034,963 | $226,284,083,910 | 5.16% |
| 36 | $2,111,984,783,164 | $359,037,413,138 | $3,000,000,000 | $108,599,239,158 | $253,438,173,980 | 5.14% |
| 37 | $2,365,422,957,144 | $402,121,902,714 | $3,000,000,000 | $121,271,147,857 | $283,850,754,857 | 5.13% |
| 38 | $2,649,273,712,001 | $450,376,531,040 | $3,000,000,000 | $135,463,685,600 | $317,912,845,440 | 5.11% |
| 39 | $2,967,186,557,441 | $504,421,714,765 | $3,000,000,000 | $151,359,327,872 | $356,062,386,893 | 5.10% |
| 40 | $3,323,248,944,334 | $564,952,320,537 | $3,000,000,000 | $169,162,447,217 | $398,789,873,320 | 5.09% |
| Total | | $5,216,221,658,344 | $120,000,000,000 | $1,654,182,840,689 | $3,682,038,817,655 | |

From the above table (Fig. 10), this would provide $1.6T in grants to the Foundation. The Trust's fund management efforts would be a major force behind the Foundation, enabling it to help even more people over the next 40 years, and from there would be in a position to help

even more people going forward based on accumulated assets.

It appears that self generation can be a major contributor to a Foundation's primary objectives which are to help as many people as possible. And pushing to increase the Trust's portfolio performance level should also be considered a way to achieve these long term goals.

A Trust, a Fund or Foundation would not have to change much in the way they operate to achieve higher performance levels. For sure, they would need to be more active, but it wouldn't change much in their trading and investment philosophies. I know my trading methods are Buffett like in style, in the sense that they have a long term vision of things and tend to buy and hold for the long term.

My trading methods are designed to accumulate shares for the long term (20+ years) and trade over the process. What I think I can bring to the table are what I see as minor changes in the investment philosophy. A different trading methodology that will compound and increase the CAGR level.

## The 20% CAGR Scenario

At the beginning, I mentioned that Mr. Buffett has achieved about a 20% CAGR for Berkshire over his 50 years investment history. If the same performance level was applied to the Trust, it would result in Fig. 11.

The table below shows the incredible contribution the Foundation could provide to society by having its Trust generate more in return over the long term. The Foundation over this 40 year scenario could provide some $3.6T in grants which would help more people and would become one of the most, if not the most, significant force in philanthropic endeavors.

The Foundation could still increase outside contributions and donations, but I think it would be by improving the Trust's performance level that would be the most valuable over the long haul. It's not making the Trust a hedge fund or something like that, but it is having an investment philosophy that would not only allow the Trust to grow, but encourage it to do so, since down the line it would enable the Foundation to do so much more.

**Fig. 11.  20% Return** + $3B in Contributions

| B. & M. Gates Foundation Trust | | | | | | |
|---|---|---|---|---|---|---|
| **Current Fund:  $40B** | | **Fund at** | | | **Fund** | **Grants as** |
| **Year** | **Fund** | **20% CAGR** | **Contributions** | **Grants** | **inc./(dec.)** | **% of Fund** |
| 1 | $40,000,000,000 | $8,000,000,000 | $3,000,000,000 | $5,000,000,000 | $6,000,000,000 | 12.50% |
| 2 | $46,000,000,000 | $9,200,000,000 | $3,000,000,000 | $5,300,000,000 | $6,900,000,000 | 11.52% |
| 3 | $52,900,000,000 | $10,580,000,000 | $3,000,000,000 | $5,645,000,000 | $7,935,000,000 | 10.67% |
| 4 | $60,835,000,000 | $12,167,000,000 | $3,000,000,000 | $6,041,750,000 | $9,125,250,000 | 9.93% |
| 5 | $69,960,250,000 | $13,992,050,000 | $3,000,000,000 | $6,498,012,500 | $10,494,037,500 | 9.29% |
| 6 | $80,454,287,500 | $16,090,857,500 | $3,000,000,000 | $7,022,714,375 | $12,068,143,125 | 8.73% |
| 7 | $92,522,430,625 | $18,504,486,125 | $3,000,000,000 | $7,626,121,531 | $13,878,364,594 | 8.24% |
| 8 | $106,400,795,219 | $21,280,159,044 | $3,000,000,000 | $8,320,039,761 | $15,960,119,283 | 7.82% |
| 9 | $122,360,914,502 | $24,472,182,900 | $3,000,000,000 | $9,118,045,725 | $18,354,137,175 | 7.45% |
| 10 | $140,715,051,677 | $28,143,010,335 | $3,000,000,000 | $10,035,752,584 | $21,107,257,752 | 7.13% |
| 11 | $161,822,309,428 | $32,364,461,886 | $3,000,000,000 | $11,091,115,471 | $24,273,346,414 | 6.85% |
| 12 | $186,095,655,843 | $37,219,131,169 | $3,000,000,000 | $12,304,782,792 | $27,914,348,376 | 6.61% |
| 13 | $214,010,004,219 | $42,802,000,844 | $3,000,000,000 | $13,700,500,211 | $32,101,500,633 | 6.40% |
| 14 | $246,111,504,852 | $49,222,300,970 | $3,000,000,000 | $15,305,575,243 | $36,916,725,728 | 6.22% |
| 15 | $283,028,230,580 | $56,605,646,116 | $3,000,000,000 | $17,151,411,529 | $42,454,234,587 | 6.06% |
| 16 | $325,482,465,166 | $65,096,493,033 | $3,000,000,000 | $19,274,123,258 | $48,822,369,775 | 5.92% |
| 17 | $374,304,834,941 | $74,860,966,988 | $3,000,000,000 | $21,715,241,747 | $56,145,725,241 | 5.80% |
| 18 | $430,450,560,183 | $86,090,112,037 | $3,000,000,000 | $24,522,528,009 | $64,567,584,027 | 5.70% |
| 19 | $495,018,144,210 | $99,003,628,842 | $3,000,000,000 | $27,750,907,211 | $74,252,721,632 | 5.61% |
| 20 | $569,270,865,842 | $113,854,173,168 | $3,000,000,000 | $31,463,543,292 | $85,390,629,876 | 5.53% |
| 21 | $654,661,495,718 | $130,932,299,144 | $3,000,000,000 | $35,733,074,786 | $98,199,224,358 | 5.46% |
| 22 | $752,860,720,076 | $150,572,144,015 | $3,000,000,000 | $40,643,036,004 | $112,929,108,011 | 5.40% |
| 23 | $865,789,828,087 | $173,157,965,617 | $3,000,000,000 | $46,289,491,404 | $129,868,474,213 | 5.35% |
| 24 | $995,658,302,300 | $199,131,660,460 | $3,000,000,000 | $52,782,915,115 | $149,348,745,345 | 5.30% |
| 25 | $1,145,007,047,645 | $229,001,409,529 | $3,000,000,000 | $60,250,352,382 | $171,751,057,147 | 5.26% |
| 26 | $1,316,758,104,792 | $263,351,620,958 | $3,000,000,000 | $68,837,905,240 | $197,513,715,719 | 5.23% |
| 27 | $1,514,271,820,510 | $302,854,364,102 | $3,000,000,000 | $78,713,591,026 | $227,140,773,077 | 5.20% |
| 28 | $1,741,412,593,587 | $348,282,518,717 | $3,000,000,000 | $90,070,629,679 | $261,211,889,038 | 5.17% |
| 29 | $2,002,624,482,625 | $400,524,896,525 | $3,000,000,000 | $103,131,224,131 | $300,393,672,394 | 5.15% |
| 30 | $2,303,018,155,019 | $460,603,631,004 | $3,000,000,000 | $118,150,907,751 | $345,452,723,253 | 5.13% |
| 31 | $2,648,470,878,271 | $529,694,175,654 | $3,000,000,000 | $135,423,543,914 | $397,270,631,741 | 5.11% |
| 32 | $3,045,741,510,012 | $609,148,302,002 | $3,000,000,000 | $155,287,075,501 | $456,861,226,502 | 5.10% |
| 33 | $3,502,602,736,514 | $700,520,547,303 | $3,000,000,000 | $178,130,136,826 | $525,390,410,477 | 5.09% |
| 34 | $4,027,993,146,991 | $805,598,629,398 | $3,000,000,000 | $204,399,657,350 | $604,198,972,049 | 5.07% |
| 35 | $4,632,192,119,040 | $926,438,423,808 | $3,000,000,000 | $234,609,605,952 | $694,828,817,856 | 5.06% |
| 36 | $5,327,020,936,896 | $1,065,404,187,379 | $3,000,000,000 | $269,351,046,845 | $799,053,140,534 | 5.06% |
| 37 | $6,126,074,077,430 | $1,225,214,815,486 | $3,000,000,000 | $309,303,703,872 | $918,911,111,615 | 5.05% |
| 38 | $7,044,985,189,045 | $1,408,997,037,809 | $3,000,000,000 | $355,249,259,452 | $1,056,747,778,357 | 5.04% |
| 39 | $8,101,732,967,401 | $1,620,346,593,480 | $3,000,000,000 | $408,086,648,370 | $1,215,259,945,110 | 5.04% |
| 40 | $9,316,992,912,511 | $1,863,398,582,502 | $3,000,000,000 | $468,849,645,626 | $1,397,548,936,877 | 5.03% |
| | | | | | | |
| **Total** | | $14,232,722,465,851 | $120,000,000,000 | $3,678,180,616,463 | $10,674,541,849,388 | |

This might all sound like wishful thinking, but I see it as the outcome of trading methodologies, investment decisions, administrative procedures and trading methods suited to extract as much as possible of what is there. It's all about investment methodologies. I've analyzed Mr. Buffett's actions in the market, scrutinized the moves and looked at his investment decisions with his long term vision. I'm fascinated by his achievements, his ability to synthesize monumental amounts of data into worthwhile trading decisions.

## Let the Trust Grow

This paper is making the case that it is by letting the Trust grow as much as it can, while still

seeking even more contributions, that the Foundation could do more over the long term.

It would be a compromise of sort, an answer to the Foundation's primary objectives. It would also point to the major role that the Foundation's Trust component has to play. The Trust could probably be the Foundation's most important contributor over the years; each added 1% in CAGR could make a huge difference to the bottom line and provide the Foundation with more money which can then serve to help more people.

The above tables showed the progression in CAGR scenarios, from 5% to 20% where annual contributions have been kept fixed at $3B per year. It enabled to study the impact of the average return rate on assets held by the Trust. To resume the scenarios presented, here is a comparative table of grants available to the Foundation with a fixed $3B per year contribution:

**Fig. 12.  Grants Available** (summary by CAGR)

| Year | Grants available to the Foundation under CAGR scenarios | | | | $3B / Year from contributions | |
|---|---|---|---|---|---|---|
| | 5% CAGR | 10% CAGR | 15% CAGR | 16% CAGR | 17% CAGR | 20% CAGR |
| 1 | 5,000,000,000 | 5,000,000,000 | 5,000,000,000 | 5,000,000,000 | 5,000,000,000 | 5,000,000,000 |
| 2 | 5,000,000,000 | 5,100,000,000 | 5,200,000,000 | 5,220,000,000 | 5,240,000,000 | 5,300,000,000 |
| 3 | 5,000,000,000 | 5,205,000,000 | 5,420,000,000 | 5,464,200,000 | 5,508,800,000 | 5,645,000,000 |
| 4 | 5,000,000,000 | 5,315,250,000 | 5,662,000,000 | 5,735,262,000 | 5,809,856,000 | 6,041,750,000 |
| 5 | 5,000,000,000 | 5,431,012,500 | 5,928,200,000 | 6,036,140,820 | 6,147,038,720 | 6,498,012,500 |
| 6 | 5,000,000,000 | 5,552,563,125 | 6,221,020,000 | 6,370,116,310 | 6,524,683,366 | 7,022,714,375 |
| 7 | 5,000,000,000 | 5,680,191,281 | 6,543,122,000 | 6,740,829,104 | 6,947,645,370 | 7,626,121,531 |
| 8 | 5,000,000,000 | 5,814,200,845 | 6,897,434,200 | 7,152,320,306 | 7,421,362,815 | 8,320,039,761 |
| 9 | 5,000,000,000 | 5,954,910,888 | 7,287,177,620 | 7,609,075,539 | 7,951,926,353 | 9,118,045,725 |
| 10 | 5,000,000,000 | 6,102,656,432 | 7,715,895,382 | 8,116,073,849 | 8,546,157,515 | 10,035,752,584 |
| 11 | 5,000,000,000 | 6,257,789,254 | 8,187,484,920 | 8,678,841,972 | 9,211,696,417 | 11,091,115,471 |
| 12 | 5,000,000,000 | 6,420,678,716 | 8,706,233,412 | 9,303,514,589 | 9,957,099,987 | 12,304,782,792 |
| 13 | 5,000,000,000 | 6,591,712,652 | 9,276,856,753 | 9,996,901,194 | 10,791,951,985 | 13,700,500,211 |
| 14 | 5,000,000,000 | 6,771,298,285 | 9,904,542,429 | 10,766,560,325 | 11,726,986,223 | 15,305,575,243 |
| 15 | 5,000,000,000 | 6,959,863,199 | 10,594,996,672 | 11,620,881,961 | 12,774,224,570 | 17,151,411,529 |
| 16 | 5,000,000,000 | 7,157,856,359 | 11,354,496,339 | 12,569,178,977 | 13,947,131,519 | 19,274,123,258 |
| 17 | 5,000,000,000 | 7,365,749,177 | 12,189,945,973 | 13,621,788,664 | 15,260,787,301 | 21,715,241,747 |
| 18 | 5,000,000,000 | 7,584,036,636 | 13,108,940,570 | 14,790,185,417 | 16,732,081,777 | 24,522,528,009 |
| 19 | 5,000,000,000 | 7,813,238,467 | 14,119,834,627 | 16,087,105,813 | 18,379,931,590 | 27,750,907,211 |
| 20 | 5,000,000,000 | 8,053,900,391 | 15,231,818,090 | 17,526,687,452 | 20,225,523,381 | 31,463,543,292 |
| 21 | 5,000,000,000 | 8,306,595,410 | 16,454,999,899 | 19,124,623,072 | 22,292,586,187 | 35,733,074,786 |
| 22 | 5,000,000,000 | 8,571,925,181 | 17,800,499,889 | 20,898,331,610 | 24,607,696,529 | 40,643,036,004 |
| 23 | 5,000,000,000 | 8,850,521,440 | 19,280,549,877 | 22,867,148,087 | 27,200,620,112 | 46,289,491,404 |
| 24 | 5,000,000,000 | 9,143,047,512 | 20,908,604,865 | 25,052,534,377 | 30,104,694,526 | 52,782,915,115 |
| 25 | 5,000,000,000 | 9,450,199,887 | 22,699,465,352 | 27,478,313,158 | 33,357,257,869 | 60,250,352,382 |
| 26 | 5,000,000,000 | 9,772,709,882 | 24,669,411,887 | 30,170,927,606 | 37,000,128,813 | 68,837,905,240 |
| 27 | 5,000,000,000 | 10,111,345,376 | 26,836,353,075 | 33,159,729,642 | 41,080,144,271 | 78,713,591,026 |
| 28 | 5,000,000,000 | 10,466,912,645 | 29,219,988,383 | 36,477,299,903 | 45,649,761,583 | 90,070,629,679 |
| 29 | 5,000,000,000 | 10,840,258,277 | 31,841,987,221 | 40,159,802,892 | 50,767,732,973 | 103,131,224,131 |
| 30 | 5,000,000,000 | 11,232,271,191 | 34,726,185,943 | 44,247,381,211 | 56,499,860,930 | 118,150,907,751 |
| 31 | 5,000,000,000 | 11,643,884,750 | 37,898,804,538 | 48,784,593,144 | 62,919,844,242 | 135,423,543,914 |
| 32 | 5,000,000,000 | 12,076,078,988 | 41,388,684,992 | 53,820,898,390 | 70,110,225,551 | 155,287,075,501 |
| 33 | 5,000,000,000 | 12,529,882,937 | 45,227,553,491 | 59,411,197,213 | 78,163,452,617 | 178,130,136,826 |
| 34 | 5,000,000,000 | 13,006,377,084 | 49,450,308,840 | 65,616,428,906 | 87,183,066,931 | 204,399,657,350 |
| 35 | 5,000,000,000 | 13,506,695,938 | 54,095,339,724 | 72,504,236,086 | 97,285,034,963 | 234,609,605,952 |
| 36 | 5,000,000,000 | 14,032,030,735 | 59,204,873,696 | 80,149,702,055 | 108,599,239,158 | 269,351,046,845 |
| 37 | 5,000,000,000 | 14,583,632,272 | 64,825,361,066 | 88,636,169,281 | 121,271,147,857 | 309,303,703,872 |
| 38 | 5,000,000,000 | 15,162,813,886 | 71,007,897,172 | 98,056,147,902 | 135,463,685,600 | 355,249,259,452 |
| 39 | 5,000,000,000 | 15,770,954,580 | 77,808,686,890 | 108,512,324,171 | 151,359,327,872 | 408,086,648,370 |
| 40 | 5,000,000,000 | 16,409,502,309 | 85,289,555,579 | 120,118,679,830 | 169,162,447,217 | 468,849,645,626 |
| | | | | | | |
| **Total** | 200,000,000,000 | 361,599,548,485 | 1,005,185,111,364 | 1,283,652,132,829 | 1,654,182,840,689 | 3,678,180,616,463 |

Another view of the above data is shown in Fig. 13. It displays the yearly grants made available to the Foundation based on the CAGR level reached.

**Fig. 13. Yearly Grants Available to the Foundation** (by CAGR)
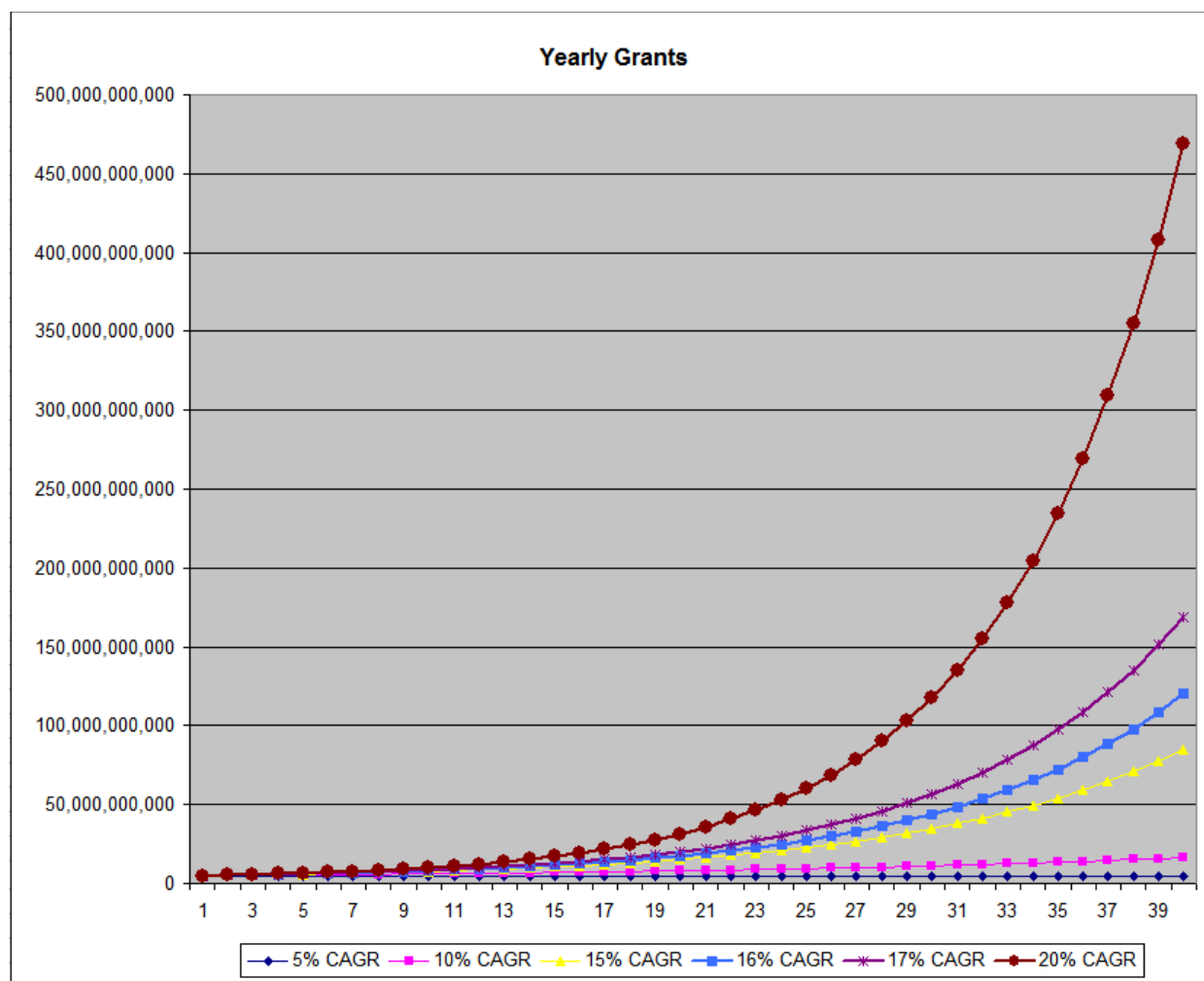


On one hand the Foundation wants to distributed as much as it possibly can; there is no lack of good causes to support; and there is a real need for an organization or other to step in and fill the voids. On the other hand, the Foundation should tend to keep as much as possible to do even more in the future.

All this seems like a contradiction. But there is a compromise to be reached. How big should the Trust grow? Just based on the 20% CAGR scenario, the answer would be very very big! But the point remains, the objective is to provide the Foundation with the ability to grant, to help as many people as it possibly can. And if it is by growing a huge Trust that these

objectives can be met, then so be it.

For sure, the Trust has to manage its portfolio with the minimum of risk. It is not in the speculation business. It is, first and foremost, in capital preservation, and then second in capital appreciation. But still, based on the above charts, capital appreciation should also take center stage.

It's not a case of we'll take it if it comes our way, but a case where efforts need to be deployed to reach these goals.

Another question is: how far in capital appreciation can the Trust go? Currently, this should be answered by its present long term expectation based on its investment/trading philosophy. The more diversified its stock portfolio, the longer its average holding period, the more the overall performance level should tend to the average performance level of the market itself. This implies that over the long haul, the Trust is expected to be close to market averages. And over the long term, this has been about 10% CAGR. And therefore the 10% CAGR scenario (Fig. 5) might be the most expected and most probable long term outcome.

However, with Mr. Buffett's participation in the Foundation, and serving as example that more can be done, I would expect a higher performance level than just average. And therefore, hopefully, the Trust should prosper better than average.

My trading methods are designed to follow in the footsteps of Mr. Buffett, but with an added twist. My methods accumulate shares over time and will trade over the process. Instead of just holding for the long term, shares can be sold when showing a profit and have the proceeds be used to acquire more shares going forward. It's like partially profiting from market swings while at the same time accumulating shares. It has a snowball effect due to the reinvestment policy of its generated profits. This will produce higher long term returns than just by holding alone.

I think it is this ability to extract more profits from holding assets that can increase overall long term performance levels. And as was shown in the above tables, every 1% increase in overall asset return can make a major difference over the years. Also, as can be seen, in the beginning, the differences in all those scenarios is minimal. It all starts slowly, but with the years, the numbers diverge more and more the higher the CAGR level. Look at the total on the bottom line in Fig. 12 or the chart in Fig. 13 to appreciate the difference that a few alpha points can make.

My strategies are not disruptive trading methods, one should consider them more as an add on to existing long term strategies. For sure, this will generate much more trade activity as the inventory in each stock will fluctuate with time depending on the price levels reached. But overall, the trading methods will tend to increase the inventory on hand and indirectly increase the value of the assets under management. I have some strategies that will accumulate shares over the long term while at the same time accumulate cash reserves. Such strategies

could provide the Foundation with its grant money without disrupting asset accumulation or allocation. Also, these trading strategies can be improved further; they have not reached their limits yet.

Of note as well is that these trading strategies are programs, trading scripts, trading rules that can be extracted and put into play discretionarily it needed. Sure, these computerized trading strategies will need to be monitored, supervised and answer to management's directives and guidelines. Some of these programs are designed to do just that; they deal with reinvestment policies and administrative procedures.

Maybe the most remarkable is how much the Foundation could provide in annual grants over the years just based on the Trust's ability to increase its average CAGR level. The Trust, over the years, could become an important, if not the most valuable, contributor to the Foundation. The Trust is the donor within.

## My Concluding Remarks

The case was made to let the Trust unit of the Foundation grow as much as it can. It was by doing so that the Foundation could help the most; and gradually increase its help to worthy causes year after year. For the Trust to provide more, it needs to strive for a higher long term CAGR. It is where I can contribute, in my own way, by using the best of my various trading strategies. They are all variations on the same fundamental trading principles which consist of accumulating shares for the long term while trading over the process. My research has shown that it can be done in many different ways.

All I can do is say what I can do, the rest is not up to me. At least now I can say: it has been offered.

The Foundation or its Trust already have their mode of operation set for the years to come. Any of the scenarios presented here must have already been studied at one time or other. What I say is that these higher goals can be reached. Given the opportunity, I know that my pledge could be fulfilled and even exceeded.

Trading shares over a long term accumulative process is not a new concept. It is easily understood. If a stock increases in price over a year by 10%, then all you can get, if you held for the duration, is this 10%. But if over the same year, the stock's price fluctuated by more than 10% three, four times or more, then you could reach higher returns trading the same stock over the same time interval. Looking at Fig. 2 or Fig. 14 for a closer view, it is easy to see that most of the positions sold were executed at a profit. Also, the shares sold are repurchased later at a discount. These trading methods have for net effect to increase the stock inventory levels over time with the proceeds of all sales reinvested to produce even more long term profits.

In Fig. 14, what is being sold (red arrows) is being repurchased later at a discount (blue arrows). There is no predictive process at work; it's simply the output of trading and administrative procedures. By re-cycling trades in this way, over time, the number of trades will increase as well as the generated profits. If you make over 800,000 such profitable trades on some 30 stocks (most part of the DOW 30) over a 25 year period, it is bound to more than add up, especially if over 94% of trades were profitable as in the DEVX V6 system (refer to the % won column in Fig. 3).

**Fig. 14.  DEVX Strategy**



## C'est big

This is big, really big. I know I won't be there to complete my pledge. But I am convinced that the application of my trading methodology would get the Foundation there and even exceed the pledge made. I know these trading methods can make it happen. For me, the pledge is only an incremental 1% added to the 15% CAGR scenario presented above (compare Figs. 8 & 9). Without pretension and in all modesty, I would add that I can improve on my methods and do even better.

It is not because my trading methods might be unorthodox, they are, that they are wrong. The easiest way to show their potential was to apply these trading principles on past data, going back 25 years, and execute a portfolio simulation. If the trading procedures had no value, it would have shown immediately in overall performance results. These tests, over past data, showed that they could handle the past more than quite well. I know the future will be different, but it won't change the underlying principles at work.

A few machines in a room, a few people to monitor everything, and a computer program to do most of the work is about all that is required to undertake a project of this magnitude. But even such a group needs to be supervised and conform to board mandate and directives. I hope this paper will help raise awareness of the Trust's major role in helping the Foundation do more.

From my point of view, my methods transforms the portfolio alpha generation equation presented above:

from:   $A(t) = A(0)*(1 + r_m + α)^t$     into:   $A(t) = A(0)*(1 + r_m + α + T)^t$          (5)

where T>0, represents the contribution, percentage wise, from the added profitable trading activity. And to improve on these methods, it is sufficient to find ways to have T grow larger, meaning doing more profitable trades over the portfolio's life. Naturally, if you do no trading and can not generate any alpha; you are back to square one: $A(t) = A(0)*(1 + r_m)^t$.

This paper make 2 important points. One, it puts emphasis on the Trust's responsibility to empower the Foundation to do as much as it can to help people. That its search for improving its long term CAGR should be applauded since in the end, it is the people, all the people that could be helped, that will benefit. Two, that it can be done.

The Trust is really a donor from within.


## One More Thing

The Trust needs to look at trading/investment strategies, not only that can last, but that can also be profitable, scalable and remain executable. In DEVX V6, it was shown that the strategy could be scaled down in position size: from $5k, to $1k and finally down to $100.

Well, it can also be scaled up.

One way to show this would be to perform a scaled up test. Using my methods, the output is easily predictable, say you want 10 times more, you simply put 10 times more cash on the table and increase the trade size proportionally. In payoff matrix notation, this would be expressed as:  $A_{enh}(t) = 10*A(0) + \Sigma(10*\mathbf{H}.*\Delta\mathbf{P})$ which says that all positions are 10 times larger just as the initial capital A(0) would need to be.

Fig. 3 has a $5k position size; increasing it to $50k should generate 10 times more in profits and require 10 times more as initial capital. To put this trade size in perspective, a $50k position is 1,000 shares of a $50 stock. From the $3M used to generate Fig. 3, one would need to raise the stakes to $30M. Considering that the Trust ended last year with $40B in assets, this enhanced DEVX V6 strategy would required less than 1% (0.075%) of existing assets to be executable.

Doing such a test, for me, would be like redoing what has already been done more than once. Each time showing that the strategies were scalable. I already know that DEVX V6 ended up with a lot of unused cash reserves (Fig. 3). I could request a better utilization of this resource by asking for more trading. This is like requesting a higher T (a higher contribution from the trading activity) as was given in expression (5):  $A(t) = A(0)*(1 + r_m + α + T)^t$. This would also have for consequence to incrementally raise the CAGR level a bit, not much, but it would still matter, especially over a 25 year investment period.

I would view such a request as a board directive: can you do more with the unused long term accumulating cash reserves? Sure, DEVX V6 was designed to have its controlling vector available from the outside. This still needs to be programmed, but I don't see any problems with that. I opted to do the test with the $50k trade size. And, I also opted to increase trading activity. This way it would not be just showing again that the methods are scalable, but that they can also be improved.

Now, what would be the outcome of such a test? For one thing, it should produce more than 10 times more profits than in Fig. 3. It should have more trades over the investment period. Not only trading more, but also accumulating more long term shares, thereby building a bigger portfolio. It should use more of the accumulating cash reserves, but the added trading should also add to the overall cash reserves. Technically, it will amplify the output of the payoff matrix. It should increase profits, not only on one stock, but on all of them.

It might seem like an unreachable goal, but I already know the outcome even before performing this test. It is all in the following equation: $A_{enh}(t) = 10*A(0) + \Sigma(10*\mathbf{H}(1+g+T)^t.*\Delta\mathbf{P})$ which was also explained in the cited DEVX tests. From the expression is implied that the position size will increase with time and that the scaling functions will require taking multiple positions on the same day, cash reserves permitting. More than one position could be sold on any given day.

The above section was written before this new test was even performed. The intention was to show that one can "direct" the long term outcome of a trading strategy, not just for a few years, but for decades in advance. This test will be done once and its output recorded, whatever it may be. It will show (Fig. 15) if my program modifications did what I intended them to do. So, here are the recorded test results:

## Fig. 15.  DEVX V6 (Enhanced)

| Program: DEVX V6 (Enhanced) | | | | Initial Cap: $1,000,000 | Bet Size: $50,000 | | Ending Cash On Hand |
|---|---|---|---|---|---|---|---|
| Sym | Net Profits | Trading Days | # Years | CAGR | # Trades | # Closed | # Won | % Won |
| AXP | $1,430,841,984 | 6,563 | 25.24 | 33.36% | 35,533 | 30,976 | 35,210 | 99.09% | $1,117,017,856 |
| BA | $1,606,788,352 | 6,563 | 25.24 | 33.97% | 40,498 | 36,278 | 39,580 | 97.73% | $1,302,487,552 |
| CAT | $1,507,821,952 | 6,570 | 25.27 | 33.60% | 44,626 | 32,257 | 43,500 | 97.48% | $709,124,736 |
| CSCO | $950,818,304 | 6,199 | 23.84 | 33.33% | 38,623 | 18,264 | 34,851 | 90.23% | ($336,601,982) |
| CVX | $1,092,638,208 | 6,391 | 24.58 | 32.93% | 33,938 | 25,607 | 32,749 | 96.47% | $567,248,256 |
| DD | $720,709,056 | 3,990 | 15.35 | 53.55% | 21,566 | 13,385 | 21,566 | 100.00% | $74,969,616 |
| DIS | $1,592,603,904 | 6,568 | 25.26 | 33.90% | 38,723 | 36,766 | 38,723 | 100.00% | $1,453,672,064 |
| GE | $568,427,136 | 6,571 | 25.27 | 28.54% | 37,536 | 13,946 | 24,430 | 65.08% | ($698,617,728) |
| HD | $1,587,540,224 | 6,568 | 25.26 | 33.88% | 38,190 | 34,751 | 38,190 | 100.00% | $1,337,973,248 |
| HON | $1,433,307,648 | 6,568 | 25.26 | 33.34% | 37,729 | 34,447 | 37,729 | 100.00% | $1,207,226,624 |
| IBM | $1,310,462,592 | 6,570 | 25.27 | 32.86% | 42,714 | 33,341 | 34,815 | 81.51% | $840,095,744 |
| INTC | $1,427,313,792 | 6,570 | 25.27 | 33.31% | 41,245 | 27,394 | 39,047 | 94.67% | $446,132,448 |
| JNJ | $1,388,201,216 | 6,570 | 25.27 | 33.16% | 35,485 | 29,937 | 35,485 | 100.00% | $953,417,216 |
| JPM | $1,480,633,472 | 6,568 | 25.26 | 33.51% | 44,675 | 27,987 | 44,672 | 99.99% | $205,512,528 |
| KO | $638,524,736 | 6,568 | 25.26 | 29.14% | 36,948 | 16,112 | 24,419 | 66.09% | ($462,672,480) |
| MCD | $1,192,035,456 | 6,563 | 25.22 | 32.40% | 37,860 | 28,189 | 33,621 | 88.80% | $614,296,832 |
| MMM | $1,377,031,552 | 6,559 | 25.23 | 33.18% | 35,080 | 31,104 | 35,080 | 100.00% | $1,056,379,648 |
| MO | $1,104,240,640 | 6,570 | 25.27 | 31.96% | 32,237 | 22,791 | 31,647 | 98.17% | $425,902,752 |
| MRK | $539,485,376 | 3,983 | 15.32 | 50.80% | 22,395 | 10,351 | 20,258 | 90.46% | ($250,284,288) |
| MSFT | $1,465,064,832 | 6,571 | 25.27 | 33.44% | 39,977 | 27,630 | 39,554 | 98.94% | $486,523,264 |
| PFE | $900,902,208 | 6,406 | 24.64 | 31.81% | 39,530 | 20,371 | 28,782 | 72.81% | ($176,695,152) |
| PG | $1,043,189,440 | 6,589 | 25.26 | 31.67% | 36,237 | 16,712 | 35,287 | 97.38% | ($383,716,512) |
| SLB | $1,554,013,440 | 6,391 | 24.58 | 34.85% | 41,398 | 32,326 | 40,299 | 97.35% | $935,834,880 |
| T | $1,094,814,720 | 6,391 | 24.58 | 32.94% | 35,761 | 22,080 | 35,422 | 99.11% | $132,282,264 |
| TRV | $1,479,359,232 | 6,391 | 24.58 | 34.58% | 38,731 | 35,101 | 38,731 | 100.00% | $1,230,613,120 |
| UTX | $1,124,125,440 | 6,562 | 25.24 | 32.10% | 33,277 | 24,757 | 31,671 | 95.17% | $542,974,848 |
| VZ | $1,107,785,400 | 6,406 | 24.64 | 32.92% | 39,298 | 22,674 | 38,612 | 98.25% | ($16,675,452) |
| WFC | $1,269,099,264 | 6,391 | 24.58 | 33.74% | 32,531 | 28,735 | 32,531 | 100.00% | $971,917,952 |
| WMT | $555,287,232 | 3,990 | 15.35 | 50.97% | 20,771 | 9,518 | 20,158 | 97.05% | ($240,619,248) |
| XOM | $936,080,448 | 6,570 | 25.27 | 31.10% | 30,706 | 18,353 | 29,849 | 97.21% | $81,640,992 |
| Total | $35,479,147,256 | | | | 1,083,818 | 762,140 | 1,016,468 | | $14,127,361,598 |
| Averages | $1,182,638,242 | 6,258 | 24.06 | 34.69% | 36,127 | 25,405 | 33,882 | 93.97% | $470,912,053 |

With a $50,000 position size, DEVX V6 enhanced performed more than remarkably well, producing over $35B in profits. About 39.82% of the trading account is still in cash! You still end up not trading enough, as expected.

From Fig. 15, I would say it went beyond expectation. Fig. 3 above showed the $5k position sizing scenario over the same stocks. Fig. 15 has 91 more trading days. What was expected was to achieve more than $25B in profits due to the $50k trade size and the increased trading activity. Fig. 15 shows $35B in net profits. It increased the number of trades from 875,146 to 1,083,818 and in the process accumulated cash reserves in excess of $14B compared to $1.1B in Fig. 3. The $10B above the $25B expectation is due entirely to the enhancements brought to the program and the request to use more of the cash reserves. This is done by more trading, generating more profits, and accumulating more shares for the long term. Result: $10B more in profits.

The second column of Fig. 15 gives the net profit achieved in each of the stocks. This is the liquidating value should everything be sold on the last day of the test. It includes the ending cash on hand, that it be positive or negative, and all paid commissions. The negative values in the ending cash column reflects that there are still shares underwater (in the red). The

emphasis should be put on the net profit column since it is the total net liquidating value and therefore the total generated portfolio profits.

The object of this test was to show that my methods were also scalable upwards. I think that the above made that point (Fig. 15), just as it did show the value of the enhancements.

Another aspect of this methodology is the accumulation of shares for the long term. With the added trading, it resulted in higher stock inventories. In this department, the $50k test showed remarkable behavior. Over the 25 year testing period, it accumulated over 416M shares in these 30 stocks having a combined value of $21.35B. Fig. 16 illustrates this point, showing the accumulated ending stock inventories and their respective ending values.

The DEVX V6 enhanced version is a long term portfolio builder. It starts small, and will gradually increase its stock inventory while trading over the process. It will follow the equation presented above: $A_{enh}(t) = 10*A(0) + \Sigma(10*\mathbf{H}(1+g+T)^t.*\Delta\mathbf{P})$. The request to use more of the accumulating cash reserves by trading more, and accumulating more shares, resulted in still more unused cash reserves ($14B). Therefore, a further request to better use long term cash reserves could be accommodated again. The increasing inventory held is on an exponential function due to the reinvestment policies (g) and the added trading activity (T).

The CAGR increased slightly; from an average of 33.47% to 34.69% or 1.22%. Not a major increase, as expected, but it had a huge impact. The test does show that long term alpha points can be hard to come by, and that even a slight increase can make quite a difference over the long haul. At this CAGR level, doubling time is roughly less than 2.5 years. Keeping the same pace as in Fig. 16, and trying to extrapolate for the next 15 years needed to reach a 40 year portfolio lifespan would indicate that the portfolio's potential profit might double 6 more times, reaching 2.2T.  All this using less than 1% of the Trust's current assets.

I don't think that the CAGR could be maintained at that level up to year 40. The reason is simple, the increasing cash reserves, and the size of the portfolio becomes a drag on the system. But still, it will be able to generate more than enough profits to warrant its use.

**Fig. 16.  DEVX V6 (Enhanced with stock inventory)**

| Sym | Net Profits | Trading Days | # Years | CAGR | # Trades | # Closed | # Won | % Won | Ending Cash On Hand | Ending Stock Inventory | Ending Stock Value |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Program: DEVX V6 (Enhanced) | | | | | Initial Cap: $1,000,000 | | Bet Size: $50,000 | | | | |
| AXP | $1,430,841,984 | 6,563 | 25.24 | 33.36% | 35,533 | 30,976 | 35,210 | 99.09% | $1,117,017,856 | 3,490,023 | 313,927,569 |
| BA | $1,606,788,352 | 6,563 | 25.24 | 33.97% | 40,498 | 36,278 | 39,580 | 97.73% | $1,302,487,552 | 2,437,091 | 304,417,037 |
| CAT | $1,507,821,952 | 6,570 | 25.27 | 33.60% | 44,626 | 32,257 | 43,500 | 97.48% | $709,124,736 | 7,877,070 | 798,813,669 |
| CSCO | $950,818,304 | 6,199 | 23.84 | 33.33% | 38,623 | 18,264 | 34,851 | 90.23% | ($336,601,982) | 52,615,736 | 1,287,507,060 |
| CVX | $1,092,638,208 | 6,391 | 24.58 | 32.93% | 33,938 | 25,607 | 32,749 | 96.47% | $567,248,256 | 4,380,978 | 525,498,311 |
| DD | $720,709,056 | 3,990 | 15.35 | 53.55% | 21,566 | 13,385 | 21,566 | 100.00% | $74,969,616 | 9,339,466 | 645,824,074 |
| DIS | $1,592,603,904 | 6,568 | 25.26 | 33.90% | 38,723 | 36,766 | 38,723 | 100.00% | $1,453,672,064 | 1,521,514 | 139,035,949 |
| GE | $568,427,136 | 6,571 | 25.27 | 28.54% | 37,536 | 13,946 | 24,430 | 65.08% | ($698,617,728) | 49,094,712 | 1,267,134,517 |
| HD | $1,587,540,224 | 6,568 | 25.26 | 33.88% | 38,190 | 34,751 | 38,190 | 100.00% | $1,337,973,248 | 2,560,081 | 249,659,099 |
| HON | $1,433,307,648 | 6,568 | 25.26 | 33.34% | 37,729 | 34,447 | 37,729 | 100.00% | $1,207,226,624 | 2,353,062 | 226,176,319 |
| IBM | $1,310,462,592 | 6,570 | 25.27 | 32.86% | 42,714 | 33,341 | 34,815 | 81.51% | $840,095,744 | 2,861,843 | 470,486,989 |
| INTC | $1,427,313,792 | 6,570 | 25.27 | 33.31% | 41,245 | 27,394 | 39,047 | 94.67% | $446,132,448 | 28,853,300 | 981,300,733 |
| JNJ | $1,388,201,216 | 6,570 | 25.27 | 33.16% | 35,485 | 29,937 | 35,485 | 100.00% | $953,417,216 | 4,034,801 | 434,870,852 |
| JPM | $1,480,633,472 | 6,568 | 25.26 | 33.51% | 44,675 | 27,987 | 44,672 | 99.99% | $205,512,528 | 21,084,776 | 1,275,207,252 |
| KO | $638,524,736 | 6,568 | 25.26 | 29.14% | 36,948 | 16,112 | 24,419 | 66.09% | ($462,672,480) | 26,296,226 | 1,101,285,945 |
| MCD | $1,192,035,456 | 6,563 | 25.22 | 32.40% | 37,860 | 28,189 | 33,621 | 88.80% | $614,296,832 | 6,164,891 | 577,835,233 |
| MMM | $1,377,031,552 | 6,559 | 25.23 | 33.18% | 35,080 | 31,104 | 35,080 | 100.00% | $1,056,379,648 | 2,085,937 | 320,754,532 |
| MO | $1,104,240,640 | 6,570 | 25.27 | 31.96% | 32,237 | 22,791 | 31,647 | 98.17% | $425,902,752 | 14,034,275 | 678,416,854 |
| MRK | $539,485,376 | 3,983 | 15.32 | 50.80% | 22,395 | 10,351 | 20,258 | 90.46% | ($250,284,288) | 13,632,520 | 789,868,209 |
| MSFT | $1,465,064,832 | 6,571 | 25.27 | 33.44% | 39,977 | 27,630 | 39,554 | 98.94% | $486,523,264 | 20,844,012 | 978,626,363 |
| PFE | $900,902,208 | 6,406 | 24.64 | 31.81% | 39,530 | 20,371 | 28,782 | 72.81% | ($176,695,152) | 35,983,200 | 1,077,696,840 |
| PG | $1,043,189,440 | 6,589 | 25.26 | 31.67% | 36,237 | 16,712 | 35,287 | 97.38% | ($383,716,512) | 16,351,483 | 1,426,993,921 |
| SLB | $1,554,013,440 | 6,391 | 24.58 | 34.85% | 41,398 | 32,326 | 40,299 | 97.35% | $935,834,880 | 6,266,408 | 618,243,813 |
| T | $1,094,814,720 | 6,391 | 24.58 | 32.94% | 35,761 | 22,080 | 35,422 | 99.11% | $132,282,264 | 27,630,644 | 962,651,637 |
| TRV | $1,479,359,232 | 6,391 | 24.58 | 34.58% | 38,731 | 35,101 | 38,731 | 100.00% | $1,230,613,120 | 2,468,731 | 248,848,085 |
| UTX | $1,124,125,440 | 6,562 | 25.24 | 32.10% | 33,277 | 24,757 | 31,671 | 95.17% | $542,974,848 | 5,432,312 | 581,257,384 |
| VZ | $1,107,785,400 | 6,406 | 24.64 | 32.92% | 39,298 | 22,674 | 38,612 | 98.25% | ($16,675,452) | 22,379,490 | 1,124,569,373 |
| WFC | $1,269,099,264 | 6,391 | 24.58 | 33.74% | 32,531 | 28,735 | 32,531 | 100.00% | $971,917,952 | 5,599,928 | 297,300,178 |
| WMT | $555,287,232 | 3,990 | 15.35 | 50.97% | 20,771 | 9,518 | 20,158 | 97.05% | ($240,619,248) | 10,436,601 | 795,999,558 |
| XOM | $936,080,448 | 6,570 | 25.27 | 31.10% | 30,706 | 18,353 | 29,849 | 97.21% | $81,640,992 | 8,836,171 | 854,546,097 |
| Total | $35,479,147,256 | | | | 1,083,818 | 762,140 | 1,016,468 | | $14,127,361,598 | 416,947,282 | 21,354,753,453 |
| Averages | $1,182,638,242 | 6,258 | 24.06 | 34.69% | 36,127 | 25,405 | 33,882 | 93.97% | $470,912,053 | 13,898,243 | 711,825,115 |

Fig. 17 shows the BA chart, it has the same general trading behavior as shown in Fig. 2. The program printed on the chart some of the summary results which will also be found in Fig. 16. I've kept similar charts for each of the 30 stocks in the test, as I usually do for all my tests. You want to keep some records of what the program does, as it can help in designing better trading procedures. Even if it is only a snapshot over the last 11 months of a 25 year time span, it still remains informative as to where trades are placed and executed.

**Fig. 17.  BA    DEVX V6 (Enhanced)**



Fig. 18 shows BA's profit curve over the last 25 years (top panel). The Buy & Hold is the blue line at the bottom. The profit curve shows that BA's equity, as it was building, moved further and further away from the Buy & Hold line. There were drawdowns, as in any stock held in any portfolio, but still the spread between them kept increasing showing that it was not a local phenomena but a continuous underlying time function (follow the red regression line).

Fig. 18 shows the general behavior for the stocks in the portfolio. The program is building a long term inventory in each of the stocks, it won't stop prices from fluctuating. But at times, will take advantage of this. It is not trying to predict what is coming; the entries (blue arrows) are the result of random functions. But it will try to profit from the fluctuations as they happen.

It most certainly is an interesting trading strategy.

### Fig. 18.  BA    DEVX V6 (Enhanced)  Equity Line
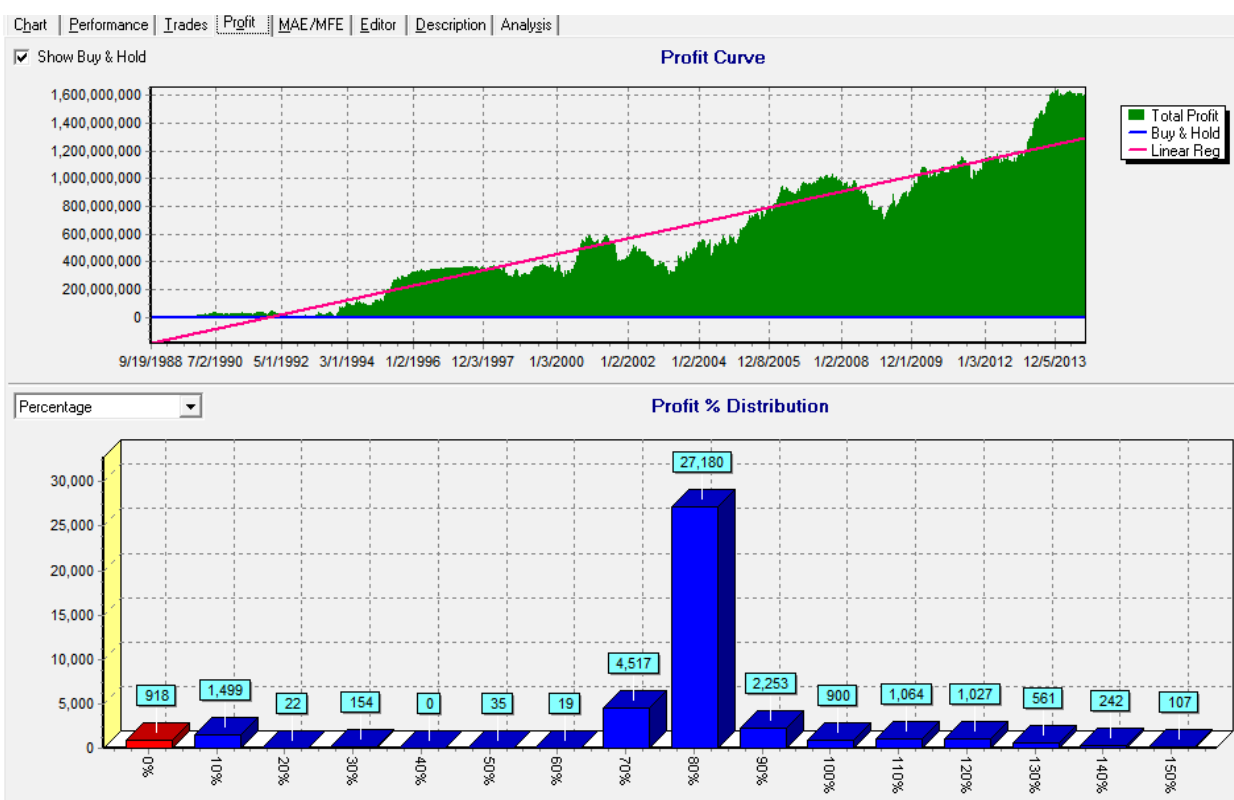


## My Second Conclusion

The DEVX V6 trading strategy was designed to last; at least, it showed that it could survive and prosper over the last 25 years. This is a special breed of trading strategies that have built-in staying power; not because they are trying to predict what is coming, but by doing what technically is just common sense.

I would define the DEVX V6 trading strategy as a glorified Buy & Hold with a weak hold. I would add that it is Buffett like in style, its vision is for the long term. Its premise is to buy and accumulate shares over the long term, even if it is limited by its available capital. Its solution is to trade profitably over the stock accumulation process thereby generating additional cash that can be used to trade even more. It is this snowball effect that governs this trading strategy and there is no reason for it to break down; especially in a well diversified portfolio.

DEVX V6 is also the kind of strategy that can be used by many with no ill-effects, meaning that what could be considered its hedge won't disappear. The strategy builds a portfolio one trade at a time, and its intention is to hold for the long term. It's when there is a profit that it will

take it, and let go of the shares. You could be thousands doing the same thing and it would not even show up. All those using it would prosper building their own long term profitable portfolios.

Sorry if there was so much math in this paper, but for me it is hard to escape it. These trading strategies are built on mathematical equations of which the most important in this paper is:

$$A_{enh}(t) = 10*A(0) + \Sigma(10*H(1+g+T)^t.*\Delta P) \tag{6}$$

Thank you for having taken the time to hear me out.

As for the Foundation, all I can do is transfer my know how, and if I can help, I would consider it an honor and a privilege; kind of my legacy. My pledge stands.

With my gratitude,

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## APPENDIX

I've prepared an Excel scenario builder where one can set the various parameters involved in calculating the above foundation tables. It was designed to be easy to use and to help build basic scenarios based on a limited number of parameters. It is self explanatory and can be downloaded from **HERE**. Hope it may be helpful.