About the Cambyses Electric and Autonomous Vehicle Initiative's (EAVI's) Portfolios and Models

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Preliminary Observations, Cautions, Caveats, and Disclosures

The Portfolio Allocation Models

Cambyses' (CFA's) Electric and Autonomous Vehicle Initiative (EAVI) Portfolios and Models simplify investors' selection and design of EAV industry portfolios based on common portfolio design models. They do not represent a recommendation to buy or sell any security or construct any portfolio without consulting your Financial Advisor.

The portfolio designs are not, in their present form, suitable for predictive modeling of either performance or risk of the portfolios and models they represent. Hence, in their present form, they are also not suitable to optimize portfolio performance or risk.

The models and the data used to compose them reflect Cambyses' preference for long-term buy-and-monitor investment strategies. The resulting portfolio weights may not be appropriate for short-term investors, option trading, or more dynamic investment strategies.

The Securities' Properties

The securities selected for Cambyses' EAVI Database, Portfolios, and Models are, almost without exception, high risk investments.

Immature Companies

Most of the Pure-play EAV Manufacturing companies (those whose product line consists solely or predominantly of EAV products, e.g., NIO, NKLA, KNDI) are immature – having been operated and publicly traded for only a short time.

EAV related business activity is a small portion (2-5%) of current output for established "traditional auto" manufacturers (those that have established production and sales abilities and their primary suppliers. Traditional auto manufacturers estimate that EAV production will constitute 25-35% of their output by 2030. At present, no traditional auto manufacturers report segmented data for their EAV related activities.

Many Pure-play EAV Manufacturers are pre-revenue or have generated only token sales as of March 2022. An equally significant number of the companies have little or no history of production-at-scale. Hence, their operating and financial history provides few performance signals about their ability to produce and market profitably at scale. Cambyses expects that a disproportionate number of the Pure Play EAV companies in the database will not attain commercial viability or will cease to conduct business activities in their present form in the next three years.

The Companies' minimal trade and financial history renders both technical and fundamental analysis of their securities' prognosis problematic. As a direct result, analysts' projections (including our own) are often less than completely reliable. By way of disclosure and for reference: CFA's analysis is generally less optimistic than other analysts' consensus, while remaining enthusiastic.[1]

[1] Using the 03/05/2022 database, Cambyses initiated a correlation study to examines the predictive value, if any, of various performance measures, including historical trends and analyst assessments. The initial results of that study (weak negative correlation between analyst projections and subsequent security price performance) do not

Because many of the Database Companies are immature, pre-revenue, and/or pre-production at scale they are critically dependent on their ability to raise capital. This, in turn implies that those companies are critically dependent on their ability to anticipate and satisfy primary-investors' needs and demands. That ability is, by no means, assured (and in many cases, remains untested). Some companies may already have reached the outskirts of investor tolerance.[2]

Share prices of EAV Manufacturing Companies, their Suppliers, and End Users are extraordinarily volatile, and often trade at extreme Price-to-Earnings (P/E) ratios – If, indeed, a meaningful P/E can even be computed. The securities are (individually and collectively) 1.3 to 2.5 times as volatile as the S&P 500. Individual securities may exhibit volatility that exceeds every security in the S&P 500 Index. P/E ratios greater than 1,200 have been noted. P/E ratios in the low hundreds (200-300) are common. By comparison, Average P/E for each of the S&P 500's segments range from ~13 (Financial Segment) to ~38 (Real Estate).

It would be easy to conclude from these observations that EAV securities are "overpriced" and due for a fall. An alternative interpretation (to which CFA subscribes) is that early investors price-in their mid-term profit-growth expectations, hence valuing the company shares at higher prices and earnings multiples than their current profitability commands. (This has implications for industry investment models – that we discuss in other materials.)

Lack of Diversification

The EAV Initiative Portfolios are not diversified. Narrow selection criteria focused on EAV Manufacturing, the EAV Manufacturing supply chain, EAV Infrastructure, and EAV End Users does not foster either segment and sector diversification or allocation between asset classes (stocks, bonds, options, etc.). Diversification-allocation reduces portfolio risk – while lack of diversification-allocation increases risk. The models' EAV Portfolios do not (consciously) incorporate uncorrelated securities or other risk mitigation strategies into any portfolio.

Consumer and End-User Acceptance

In addition to the EAV Manufacturing companies' financial and operational immaturity, the public market for their product is immature. Electric Vehicle market penetration in the U.S stands at around 3%. Penetration is somewhat higher in China (~5-6%) and Europe (possibly as high as 10%). Elsewhere, penetration is 1.5 – 1.8%.

Consumer and end user acceptance of EVs is increasing (logarithmically in some markets). In the US, the EAV market is still dominated by early adopters and those who enjoy the "cool factor" associated with cutting edge technologies. To continue expanding, the market must reach a broader cross section of the buying public – possibly through lower cost and lower life-cost options.

Increasing Competition from Traditional Auto Makers

Many of the securities in CFA's EAV Initiative are Electric Vehicle "pure-plays." Those pure-play efforts face increasing competition from traditional automotive manufacturers. As we go to press

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encourage reliance on analyst forecasts to formulate investment strategy for this market segment. For additional information on this study, visit our website.

[2] Several recent supplementary offers, notably NIO and RIDE, have been less than fully successful.

(March 2022), we are following fourteen traditional manufacturers who have initiated EAV development and marketing programs. We are certain there will be more by the next time we update (about three months from now).

EVs are, with one or two exceptions, an insubstantial part of traditional manufacturers' current output (approximately 2% by several estimates). That, however, will change. With one exception (Mazda) the traditional manufacturers we are tracking estimate that EV's will be 25-40% of their total sales by 2030. At least two traditional manufacturers (Audi and GM) indicate they will entirely phase out gas- and diesel-powered vehicles by 2035.

Traditional manufacturers (except Toyota Motors) are late to the EAV party. However, they possess formidable assets and pre-existing infrastructure that many pure-play EAV Manufacturers are still developing. Thus, traditional manufacturers' capacity – particularly their ability to offer a broad spectrum of consumer choice – may overwhelm the weakest pure-play manufacturers in the Initiative.

Infrastructure – A Pre-condition for EAV Market Growth

Infrastructure, or the lack thereof, imposes significant constraints on public acceptance of EAV vehicles. At present, EAVs have limited range between recharges. Home charging stations are common. However, consumer refueling stations are less available. Lack of a common outlet standard reduces interoperability (or forces consumers to purchase adapters). In addition to scarcity, recharge methods are often slow.

In the US, there are (as of February 2020) approximately 1.8 million electric vehicles in service. That number is expected to reach 26 million by 2030. To support these vehicles, public and workplace charging will need to grow from approximately 216,000 chargers in 2020 to 2.4 million by 2030, including 1.3 million workplace, 900,000 public Level 2, and 180,000 direct current fast chargers. The associated costs amount to ~$28 billion from 2021 to 2030.

The infrastructure deficiency for other alternative fuel modalities – e.g., green hydrogen and hydrogen fuel cell systems – is even more aggravated. Except for commercial facilities maintained by early adaptors (primarily last-mile applications, public transportation, and freight-train services), there is practically no U.S. hydrogen infrastructure, at this time.

The commercialization of EVs marks a "shift from a fuel-intensive to a material-intensive energy system." A private transportation system dominated by electric vehicles raises several dilemmas:

- Some battery components are scarce, expensive, and/or sourcing is dominated by very few, sometimes politically charged, alternatives.
- Raw Material mining imposes harsh toxicity, environmental, and social costs.
- Battery recycling technology is primitive, inefficient (due to design characteristics that may be best addressed up-front by manufacturers), and unable to compete with the price of fresh-mined materials.

Lithium, Cobalt, and Rare Earth politics play a pivotal role in these conversations.[3]

[3] As of November 2021, China (or Chinese entities) control approximately 80% of rare earth reserves, extraction, and processing.

China and Europe have instituted subsidized Cell recycling programs. The U.S. has not yet proposed regulations or subsidy policies. Existing US legislation treats batteries as hazardous waste that must be safely disposed of.

Timing of infrastructure investment-expansion may be as important as selecting the correct company: Invest in a pioneer, there may be too few potential customers for commercial operations; Invest too late, the company's potential may already have been priced into their securities.

Risk and Suitability

Cambyses does not provide a generalized Buy, Hold, Sell recommendation for any security we analyze. Rather, we examine each security's compatibility with a specific investor's risk profile, aims and goals for their portfolio, intended strategy, time horizon and several other criteria. For full information on any security that we cover, request our suitability analysis for that company.

Almost without exception, the securities in the EAV Initiative portfolio are suitable only for investors with high risk tolerance. Most of the securities are 1.5 to 2.5 times as volatile as the S&P 500 (Measured by Beta). The securities are, in addition, moderately correlated to each other and to the S&P Index. Thus, the portfolios are only minimally less volatile than their constituent securities. Their general movement mirrors that of the S&P 500 index.

Initiative companies face significant financial risks. A superficial balance sheet review might conclude that the companies are quite solvent (current Ratios of 2.0-5.0 are common) and largely debt free (though that is changing). That impression is, however, misleading. Many of the same companies are pre-revenue or have not produced at scale. Thus, replenishment or maintenance of their reserves is almost entirely dependent on retaining an enthusiastic and deep-pocket investor base that isn't concerned with dilution. Those investors, historically, have been few and far between and their willingness to stay-the-course has been limited.

The Initiative Companies' volatility and financial risk influences their suitability for inclusion in virtually any portfolio. Initiative securities are generally suitable for inclusion in portfolios with either:

Very short planning horizons or hold expectations ("day trade" portfolios), or
Long-term growth portfolios based on buy-and-monitor practices.

With almost equal generality, Initiative securities are not suitable for

Target and Target-Deadline portfolios (e.g., pre-retirement portfolios, or education savings)
Preservation or value strategies, or
Mid-term holding approaches

Suitable prospects for option trading and other strategies must be identified on a case-by-case basis.

Performance Data and Analysis

Data for the EAV Initiative is derived from public sources we believe to be reliable, including our custodians' quote services. We supplement our analysis of this data by reference to other analysts' work product and to compilation services such Thomson Reuters Stock Reports. No security we reference is covered by all the analysts we reference. For any given security, we cross reference as few as one, and as many as forty analysts and services. Our qualitative and event analysis is based on available news feeds

and companies' press services. Please read our Research Disclosure regarding reliance on third party data and analyses.

We update the data, analysis, and presentations once each calendar quarter. Subsequent events that occur before a succeeding update are not reflected in the published product. We strongly advise users to note the publication date for our publication and adjust their expectations with respect to subsequent events that affect the securities' value and suitability for your investment purposes.

Many of the analyses employ "forward-looking information or statements." These forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause actual results, performance, or achievements to be materially different from the expected future results, performance, or achievements. Please see our Forward-Looking Statements Disclosure for more information on this subject.

The Initiative's short history, the EAV industry's immaturity, and the rate of change-development of the underlying technologies mandate that our conclusions remain tentative. Specifically:

We do not believe there is sufficient data or history to advocate on behalf of specific portfolio strategies. The analysis we present is not intended for use in a predictive model nor applicable to portfolio optimization. If we make such predictions, they apply solely to individual securities, not to portfolios. As additional data becomes available and the EAV industry matures, we may change this policy.

Securities Selection

We develop EAVI portfolio models from a selection of public companies that we identify as operating predominantly (or planning to operate predominantly) in:

- Electric and Autonomous Vehicle Research and Manufacturing,
- The EAV Manufacturers' supply chain,
- The EAV sales and distribution network,
- EAV Grid and Charging Infrastructure, and
- End users that indicate a commitment to adopt Electric or Autonomous Vehicles for their transportation needs.

The narrow selection criteria do not promote diversification or allocation between asset classes (stocks, bonds, options, etc.). We do not (consciously) mitigate risk and volatility by integrating uncorrelated securities or other risk mitigation strategies in any portfolio. The company selection is based solely on company outputs and does not consider performance metrics or ESG conditions. We reserve that analysis for or Risk and Suitability studies of the security. The selection goal is to produce a list of companies that represent the EAV market topography.

The EAVI securities database consists solely of publicly traded equity securities. Securities are presumed to be purchased and sold at market on the date of analysis. The portfolio strategies employ no options, or option related securities. Minimal and selective Margin may be necessary to fully execute the hypothetical buying programs.

Portfolios are rebalanced once each calendar quarter. Newly identified securities receive allocations based on the portfolio definition (see Allocation Models, below). We back-calculate the impact of newly included issues on previously defined portfolios.

Apart from Historical Market Trend and Projected Performance Portfolios (see below) each portfolio allocation includes all securities in the selected Dataset.

We exclude securities that have experienced historical losses over the preceding year from Historical Market Trend portfolios. We exclude securities that analysts anticipate will experience value loss over the next year from Projected Performance portfolios. We update Historical Performance and Analyst Projections once each quarter.

Cambyses derives its list of securities for inclusion in the allocation model portfolios from two sources: 1) Internal Research, and 2) the Solactive Autonomous and Electric Vehicle Index.

Internal Research identifies companies that devote substantial resources to manufacturing or research-and-development of electric-autonomous vehicles, their components, or infrastructure, and companies that have committed to end uses for EAVs. We further classify and identify companies according to their predominant outputs:

Autonomous%Aircraft	Manufacture or research and development of Autonomous Aircraft, including military and commercial applications and/or drone technology.
Autonomous%Subsystems	Manufacture or research and development of Autonomous Subsystems including sensor arrays, driver assistance or driverless systems, and vehicle to infrastructure interface.
Autonomous%Vehicle	Manufacture or research and development of Autonomous Vehicles other than Aircraft, including military, industrial, and commercial applications and/or drone technology, over the road or last mile-internal applications.
Components%Battery	Manufacture or research and development of Batteries, Battery Arrays, and their associated Power Management Systems.
Components%Charging&Grid	Manufacture or research and development of Battery Chargers and/or their Network-Grid connections for private and infrastructure applications.
Components%FuelCells	Manufacture or research and development of Fuel Cell power systems and/or integration of the technology for use in personal, commercial, industrial, or military vehicle applications.
Components%Parts&Mechanicals	Manufacture or research and development of standard parts and assemblies used in a broad array of automobile applications (both traditional and Electric-Autonomous vehicles) (braking systems, chassis elements, motors and parts)
Components%RawMaterials	Extraction and processing of critical raw materials used in electric and autonomous vehicles. Includes production of chassis elements, e.g., fiber and poly components.

Components%RawMaterials%BaseMetals	Extraction and processing of critical raw materials used in electric and autonomous vehicles. Rare Earths and Base metals
Components%RawMaterials%Lithium	Extraction and processing of critical raw materials used in electric and autonomous vehicles. Lithium
Components%Semiconductors	Manufacture or research and development of Semiconductors, semiconductor arrays, and electronic components used in a broad array of automobile applications (both traditional and Electric-Autonomous vehicles)
EndUsers	End users, predominantly fleet applications, of EV and Autonomous vehicles and technologies. (Does not include e.g., in house users of the technologies for warehousing or stocking applications. E.g., WMT)
EndUsers%Maas	Large scale end users of EV and Autonomous vehicles and technologies in Mobility as a Service applications. E.g., ride hailing and/or commercial delivery
EVMfg-3Wheelers	EV or Autonomous vehicle manufacturers of 3-wheeled short haul transportation vehicle.
EVMfg-Commercial	EV or Autonomous vehicle manufacturers of class 1-6 commercial transportation vehicles (Including passenger busses).
EVMfg-Commercial%Traditional	Traditional auto manufacturers with EV or Autonomous vehicle manufacturers of class 1-6 commercial transportation vehicles (including passenger busses). EAV not the sole propulsion option.
EVMfg-Cycles&Scooters	EV or Autonomous vehicle manufacturers of motorcycle and scooter transportation vehicles for over the roads applications.
EVMfg-Cycles&Scooters%Traditional	Traditional vehicle manufacturers with EV or Autonomous vehicle manufacturer of motorcycle and scooter transportation vehicles for over the roads applications. EAV not the sole propulsion option.
EVMfg-OffRoad	EV or Autonomous vehicle manufacturers of off-road and recreational transportation vehicles for over the roads applications.
EVMfg-Passenger	EV or Autonomous vehicle manufacturers of passenger transportation vehicles (sedans, SUVs, and light trucks) for over the roads applications.

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EVMfg-Passenger&Commercial%Traditional	Traditional vehicle manufacturers with EV or Autonomous vehicle manufacturer of passenger transportation vehicles (sedans, SUVs, and light trucks) for over the roads applications. EAV not the sole propulsion option.

To date, we have screened approximately 160 companies and included fifty-five of them in the model.

For comparative purposes, we also model portfolios that include fifty eight of the seventy-five companies in the Solactive Autonomous and Electric Vehicle Index. We have been consistently unable to obtain reliable data for the remaining seventeen index companies. According to its promotor: "The Solactive Autonomous & Electric Vehicles Index tracks the price movements in shares of companies which are (or are expected to be in the near future) active in the electric vehicles and autonomous driving segments. This particularly includes electric vehicle manufacturers, electric vehicle component producers, companies that mine or produce raw materials that are relevant to the electric vehicle and autonomous vehicle technology segment, companies that build autonomous vehicles, and suppliers of autonomous vehicle technologies."

As of 03/05/2022 Cambyses tracks a total of 100 company's securities. (Thirteen securities are included in both the Cambyses Internal Database and Solactive's Index.) We segment this data for closer analysis in four segments and model each of the fifteen allocation approaches for each data set.

- Cambyses Internal Research Dataset (55 Securities)
- Solactive Index Dataset (58 Securities)
- Combined Cambyses and Solactive Datasets (100 Securities), and
- Electirc and Autonomous Vehicle Manufacturers Dataset (32 Securities)

At present, we do not consider passive income (dividends) and operating expenses (management fees and margin interest, if any) in the model definition or performance summaries.

Allocation Models (Portfolios)

Price Weighted Portfolios (2)

The Price Weighted Portfolio apportions the current value of the portfolio based on the per share price of the securities at close on the date of the analysis of securities included in the portfolio:

$W(i) = P(i) / \sum_1^n P(j)$, i & $j = 1, n$ *and*
Beta Adjusted Weights: $W(i) = \{Pi) / \beta(i)\} / \sum_1^n \{P(j) / \beta(j)\}$, i & $j = 1, n$

Where:
$W(i)$ = Portfolio Weight of Security(i), $i = 1, n$
$P(j)$ = Price per Share of Security(j)
$\beta(j)$ = relative volatility of Security(j) (Vs. S&P 500 index)
n = The number of securities in the model portfolio

In this allocation model, higher priced securities receive greater investments of the portfolio assets. This approach mirrors the weighting concept used by the Dow 30 Index. High priced stocks (e.g.,

Tesla [TSLA], and Coherent [COHR]) exert an outsized influence on this portfolio's performance. In one iteration of the model TSLA (34%) AND COHR (12%) accounted for approximately 46% of the value and performance of the Price Weighted Portfolio.

Equal $ Weighted Portfolio

The Equal $ Weighted Portfolio apportions the current value of the portfolio based solely on the number of securities included in the model at close on the date of the analysis:

$$W(i) = 1 / n,\ i = 1, n$$

Where:
W(i) = Portfolio Weight of Security(i)
n = The number of securities in the model portfolio

In this allocation model each security is allocated an equal dollar value on the date the portfolio is rebalanced. The value of the security immediately before rebalancing reflects market performance of the security during the holding period.

Market Capital Weighted Portfolios (2)

The Market Capital Weighted Portfolio apportions the current value of the portfolio based on the Market Capitalization of securities included in the model at close on the date of the analysis:

$$W(i) = M(i) / \sum_1^n M(j),\ i \ \& \ j = 1, n \text{ and}$$
$$\text{Beta Adjusted Weights: } W(i) = \{M(i) / \beta(i)\} / \sum_1^n \{M(j) / \beta(j)\},\ i \ \& \ j = 1, n$$

Where:
W(i) = Portfolio Weight of Security(i)
M(j) = Market Capital of Security(j)
β(j) = relative volatility of Security(j) (Vs. S&P 500 index)
n = The number of securities in the model portfolio

In this allocation model, highly capitalized company's securities receive greater investments of the portfolio assets. High market capital stocks (e.g., Tesla [TSLA]) exert an outsized influence on the portfolio's performance and volatility. In one iteration of the model, TSLA accounted for approximately 57% of the value and performance of the Market Capital Weighted Portfolio.

Historical Trend Weighted Portfolios (2)

The Historical Trend Weighted Portfolios apportion the current value of the portfolio based on the 1-Year change in the price of securities included in the model at close on the date of the analysis:

$$W(i) = [TV(i) \times \delta(i)] / \sum_1^n [TV(j) x\ \delta(j)],\ i \ \& \ j = 1, n \text{ and}$$
$$\text{Beta Adjusted Weights: } W(i) = \{TV(i) \times [\delta(i) / \beta(i)]\} / [\sum_1^n \{TV(j) \times \delta(j) / \beta(j)]; \ i \ \& \ j = 1, n;$$

Where:
W(i) = Portfolio Weight of Security(i)
δ(j) = 1-Year % Historical Change in the price of Security(j)

$\beta(j)$ = relative volatility of Security(j) (Vs. S&P 500 index)
n = The number of securities in the model portfolio

And:

$TV(k) = 0$ If $\delta(k) <= 0$
Otherwise, $TV(k) = 1$ If $\delta(k) > 0$

In this allocation model, Companies whose stock appreciated more than those of other stocks during the immediately preceding year (on a Historical or Beta Adjusted basis) receive greater allocations of the portfolio assets. Stocks that have lost value in the prior one-year period receive no investment in the rebalanced portfolio.

High market appreciation stocks and stocks that exhibit unusually low volatility exert an outsized influence on the portfolio's performance. For Example, in one iteration of the model, Quantum Scape (QS) accounted for approximately 9% of investment in the Historic Gain Weighted Portfolio, and 25% of the value and performance in the Beta Adjusted Historic Gain Weighted Portfolio. The disparity was attributable to QS's extraordinarily low volatility at that time: Beta(QS) vs. S&P 500 = 0.2

On the other hand, the algorithm eliminates any security that lost value in the 1-year period immediately prior to the analysis date. In the inaugural edition of the EAV Initiative, this rule eliminated several EAV Manufacturers from this portfolio. [Workhorse (WKHS), Nikola (NKLA), Kandi (KNDI), and Lordtown (RIDE)]

It is axiomatic among financial advisors that "**Past performance is no guarantee of future results.**" In fact, the phrase is often treated as a warning label: Don't assume an investment will continue to do well or badly in the future simply because it has done well or badly in the past. Notwithstanding that caution: The weights accorded to securities in this allocation model are predicated entirely on the securities' recent price performance and volatility. Exercise caution if you base your own allocation on these weights. Please review our comments regarding the use of this information as a predictive device.

The "Beta Adjusted" version of this portfolio adjusts the Security's Historical Gain or Loss to account for different degrees of volatility and/or risk between the portfolio's securities. At present, we use the Security's Beta vs. the S&P 500 as a proxy for risk and volatility. We make no adjustment for correlation between the companies in the database or their correlation with the S&P 500. (See our comments regarding the use of Beta, "Portfolio Volatility," below.)

Projected Performance Weighted Portfolios (4)

The Projected Performance Weighted Portfolios apportion the current value of the portfolio based on the average of Analyst's Projected 1-Year change in the price of securities included in the model at close on the date of the analysis:

$W(i) = [TV(i) \times R(i)] / \sum_1^n [TV(j) \times R(j)]$, i & $j = 1, n$ *and*
Beta Adjusted Weights: $W(i) = \{TV(i) \times [R(i) / \beta(i)]\} / [\sum_1^n \{TV(j) \times R(j) / \beta(j)]$; i & $j = 1, n$;

$W(i) = [TV(i) \times R(i) \times SQRT(A)] / \sum_1^n [TV(j) \times R(j) \times SQRT(A)]$, i & $j = 1, n$ *and*
$W(i) = \{TV(i) \times R(i) \times SQRT(A) / \beta(i)\} / [\sum_1^n \{TV(j) \times R(j) \times SQRT(A) / \beta(j)]$; i & $j = 1, n$;

Where:

$W(i)$ = Portfolio Weight of Security(i)
$R(j)$ = Forecast 1-Year % change in the price of Security(j) by analysts who cover the Security.
$\beta(j)$ = relative volatility of Security(j) (Vs. S&P 500 index)
A = Number of analysts who analyze or rate the security
n = The number of securities in the model portfolio

And:

$TV(k) = 0$, If $R(k) \leq 0$
Otherwise, $TV(k) = 1$, If $R(k) > 0$

$R(k)$ (The forecast 1-Year rate of change of Security(k)'s value), is the arithmetic mean of the analysts' forecasts that CFA has access to on an ongoing basis. Not all analysts cover all the securities in the database. Any given security (and its associated mean) may be evaluated by as few as 1 or as many as ~40 analysts. We do not review the analysts' findings or methodology (see "Third Party Research Disclosure," below).

If very few analysts review a security, the average projection may be unreliable. As we note above ("Immature Securities"), many of the companies in the database are immature, pre-revenue, or pre-production at scale. This, in some cases, obviates both technical and fundamental analysis of the company stock's value and appreciation potentially – with (mostly negative) repercussions for the reliability of analysts' forecasts. In two of the allocation strategies (portfolios), we compensate for differing coverage levels by adjusting weights based on the Square Root (SQRT) of the number of analysts who cover the security. This adjustment assigns higher allocations to securities that are covered by a greater number of analysts.

In this allocation model, Companies whose stock is forecast to appreciate more than those of other stocks during the immediately following year receive greater allocations of the portfolio assets. High market appreciation stocks and stocks that exhibit unusually low volatility exert an outsized influence on the portfolio's performance. For Example, in one iteration of the model, Quantum Scape (QS) accounted for approximately 9% of investment in the Projected Gain Weighted Portfolio, and 16% of the value and performance of investment in the Beta Adjusted Projected Gain Weighted Portfolio. The disparity was attributable to QS's extraordinarily low volatility: Beta(QS) vs. S&P 500 = 0.2. Similar considerations affected allocations to Faraday Future Intelligent Electric (FFIE).

The algorithm eliminates any security that analyst consensus indicates will lose value in the 1-year period immediately following the analysis date. In the inaugural edition of the EAV Initiative, this rule eliminated Arcimoto (FUV) from the portfolio.

The "Beta Adjusted" version of this portfolio adjusts the Projected Gain or Loss % to account for different degrees of volatility and/or risk between the securities in the portfolio. At present, we use the security's Beta vs. the S&P 500 as a proxy for risk and volatility. We make no adjustments for correlation or counter correlation between the companies in the database.

Trade Volume Weighted Portfolios (4)

Cambyses' Trade Volume Weighted Portfolios apportion the current value of the portfolio based on the average daily number of shares traded or the average daily dollar-value of shares traded for the securities included in the model at close on the date of the analysis:

$W(i) = TVol(i) / \sum_1^n TVol(j)$; i & j = 1, n,
Beta Adjusted Weights: $W(i) = \{ TVol(i) / \beta(i)\} / \sum_1^n \{TVol(j) / \beta(j)\}$, i & j = 1, n

$W(i) = TDol(i) / \sum_1^n TDol(j)$; i & j = 1, n,
Beta Adjusted Weights: $W(i) = \{ TDol(i) / \beta(i)\} / \sum_1^n \{TDol(j) / \beta(j)\}$, i & j = 1, n

Where:
W(i) = Portfolio Weight of Security(i)
TVol(j) = 50-Day running average of shares traded (prior to the analysis date)
TDol(j) = TVol(j) x P(j) (a proxy for the dollar value of average trade volume)
n = The number of securities in the model portfolio

In this allocation model, "Popular Companies" exert an outsized influence on the portfolio's performance. The portfolio is a "Camp Follower" approach to allocation – "I just do whatever everybody else is doing." The hazards of that approach should be, but apparently are not, obvious. As witness, the Tech and Real Estate Bubbles and the recent value gyrations of "Meme Stocks."

Blind Drunk Monkey Portfolio

Cynics sometimes assert that a Blind Drunk Monkey could choose a stock portfolio as well as most analysts. We thought we'd test that hypothesis.

The Blind-Drunk Monkey Portfolio apportions the current portfolio based on

1) randomly selecting companies from the database, and
2) randomly allocating the portfolio's value to the selected companies.

This approach requires that we generate two linear random variables for each company in the database:

TV01(k) = 0 If Rand(k) < Threshold; (Which we arbitrarily set as .666667 for now)
TV01(k) = 1 If Rand(k) ≥ Threshold

TV02(k) = Rand(k); 0 < TV02 ≤ 1

We then apportion the current value of the portfolio based on the random variables as follows:

$W(i) = [TV01(i) \text{ x } TV02(i)] / \sum_1^{\check{n}} [TV01(j) x\, TV02(j)]$, i & j = 1, n

Where:
W(i) = Portfolio Weight of Security(i)
TVO1(j) = Defined Above
TV02(j) = Defined Above
$\check{n}$ = The number of securities selected for inclusion in the model portfolio

We do not publish portfolio weights for this portfolio (for fear they may be misinterpreted) but do provide a running summary of the Blind Drunk Monkey's success or failure.

Portfolio Volatility – All Portfolios

We estimate portfolio volatility for each portfolio by reference to the S&P 500 Beta statistic for the individual securities included in the portfolio as quoted by Thomson Reuters on the date of our analysis. The estimator represents a first approximation of portfolio volatility computed as:

$$\beta(Portfolio) \approx \sum_1^n [W(j)\ x\ \beta(j)],\ j = 1, n$$

Where:
W(j) = Portfolio Weight of Security(j); (Differently defined for each Portfolio)
β(j) = S&P 500 Beta statistic of Security(j) as quoted by Thomson Reuters
n = The number of securities in the model portfolio

This approximation does not consider correlation between portfolio securities. Correlations may either amplify or dampen portfolio volatility. The securities in the dataset exhibit minimal or moderate correlation to each other. That finding, if verified by long term findings, would reduce the estimate of portfolio volatility by up to 16%. i.e., The current Beta estimator overstates probable volatility of the portfolios.

Forward Looking Statements Disclosure

This document contains forward-looking statements. Forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause actual results, performance or achievements to be materially different from expected future results, performance, or achievements.

Words such as "anticipate," "believe," "could," "estimate," "expect," "forecast," "goal," "intend," "may," "plan," "project," "seek," "target," "will," "would" and their opposites and similar expressions are intended to identify forward-looking statements.

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