VI. Risk Aware Decision Making

Chapter 13. Asset Allocation – Strategic Decisions

What is the use of running,
if you are not on the right road.
- German proverb

Key Points

- Design strategy for your personal needs
- Study matrix of asset attributes
- Keep it simple; strive for market returns
- Implement diversification; consider asset classes and scenarios
- Strategies determine primary cash flows; (Chapter 14 tactics fine tune to specific needs)

Process Overview

This chapter reviews investment asset attributes, identifies related asset classes, and provides examples of assets allocated in wealth flow strategies that meet personal objectives. Biases, feelings, and special considerations concerning risk tolerance and liquidity impact individual wealth flow strategies. They will be brought together with selected strategies in Section VII Wealth Cycle Management topics. Herein asset classes, as categories of investment cash flows with time horizons, risks, and expected returns, are analyzed. Asset allocation strategies are then discussed, so that the reader, with the aid of Martinez and Merton household examples, may run (or confidently stride) down the right personal (appropriate) strategic road.

Self discovery –What Asset Attributes Feel Best?

In Section VII household emotional and economic wealth needs will be matched to strategic and tactical decisions. The challenge in developing asset allocation strategies is to initially construct them to be flexible enough to adjust to changing household moods and economic circumstances. That requires an understanding and confidence that the strategy will meet the stated objective.

Section II presented and analyzed the nature of wealth flow risks and specifically personal behavior risks. Section III followed with discussions of household goals, as well as specific wealth flow distribution oriented (retirement spending) and growth oriented (family legacy) objectives. At this point investment (cash flow) attributes are analyzed prior to focusing on related assets.

Asset risk orientation = Issue No. 1

Many households can express their feelings about acceptable loss limits in terms of required asset cash flows. However, the related dimension of liquidity is often scarcely considered. Liquid and non-liquid assets have both benefits and liabilities. It is best to understand the risk and liquidity relationships prior to pursuing strategies that simply look at time horizons and expected investment asset total returns or cash flows.

The Table 1 matrix of liquidity associated with risk links attributes related to investment asset categories.

Low Liquidity Low Risk	Low Liquidity High Risk
High Liquidity Low Risk	High Liquidity High Risk

Table 1. Liquidity vs. Risk Matrix

Low liquidity, low risk assets include contracts with trusted issuers for specified interest and the return of principal or specified goods and services. The point to notice is that the attribute connection may change over the time horizon.

U.S. government zero coupon bonds pay all interest effectively at their maturity date. Investors buy them at deep discounts from the principal (face) value that will be received at the maturity date redemption. The bond is viewed as a long term low risk illiquid asset backed by the full faith and credit of the U.S. government at the maturity time horizon. But at a pre-maturity time horizon, it is viewed as a highly liquid, high quality but (market interest sensitive) risky asset.

Irrevocable contracts between high quality counter parties are usually low liquidity, low risk agreements. The contract may be a lease or specified period rental agreement. If both parties are willing and able to honor their obligations, then there is a high probability that the contract will remain low risk and be fulfilled.

Pension and purchased annuity contract payouts are often irrevocable fixed amounts (with some annual inflation adjustments) paid until death. If the issuer has resources to meet obligations, then the net present value of the cash flow stream is low liquidity (irrevocable) in a low risk asset. The monthly payments may yet be highly liquid from a short term perspective. Social security payments may be included in this group.

Low liquidity, high risk assets generally are equity shares that do not trade in a high daily volume market. Restricted company shares and options, private equity, hedge fund, and venture capital shares are low liquidity, high risk assets often held by non controlling passive investors.

High liquidity, low risk assets are stores of value or capital preservers. U.S. TIPS are the top quality asset due to their liquidity, as well as inflation adjustment constant purchasing power attribute. U.S. Treasury bills, money market funds, and foreign debt securities of stable monetary/fiscal policy issuers, such as the Swiss government, also fit in this category.

High liquidity, high risk assets are readily marketable equity shares that trade at high enough daily volumes to make offer/ask spreads and transaction commissions relatively small. Heavily traded U.S. and foreign stocks fit in this category. A valid observation is that blue chip stocks that demonstrate long term consistent earnings and dividend growth show less volatility than other stocks and may be categorized as moderate risk assets.

The expected assets that map into the liquidity vs. risk matrix follow in Table 2.

	Low Risk	High Risk
Low Liquidity	Zero Bonds, contracts, pensions, SSA	Restricted, private shares
High Liquidity	TIPS, T bills, High Quality sovereign debt	Heavily traded stocks

Table 2. Liquid vs. Risky Assets Matrix

Most investors prefer liquid strategies and select liquid assets. A portfolio is often constructed with low and high risk assets that match cash flow needs. The northwest low liquidity, low risk quadrant is a special case, where non business investors are satisfied with pension or social security steady low risk cash flows. However, they usually avoid purchasing annuities for low risk life time cash flows because the irrevocable contract may leave some asset value to the issuer, if they die prematurely. The business man on the other hand will often lock-in a relatively certain source contract if on-going prospects are stable, in order to close one issue and prepare to address another key issue. Active business owners have a different on-going continuing operations perspective about selective illiquidity than most passive investors.

Asset Time Horizons Reflect Needed Cash Flows = Issue No. 2

When an investor has considered comfortable levels of liquidity, risk, and related asset categories, he or she has often subconsciously expressed first order emotional risk tolerance preferences. A reasonable next step is to consider time horizons and expected returns. Since most people are focused on retirement spending objectives primarily and legacy wealth secondarily (if at all), cash flow requirements planning follows directly after the expected returns vs. time horizon analysis. Table 3 sets up the expected returns vs. time horizon matrix.

Short Time Horizon Low Expected Return	Long Time Horizon Low Expected Return
Short Time Horizon High Expected Return	Long Time Horizon High Expected Return

Table 3. Expected return vs. time horizon matrix

The short time horizon, low expected return assets generally have expected returns aligned with market risks. They make up the capital preservation or portfolio risk reduction quadrant. Investors generally select Treasury bills, money market funds, less than 2 year maturity certificates of deposit, and short term (< 2 yr.) maturity bonds in this asset attribute space. Speculators and traders occasionally park money in the quadrant, when they are fearful or simply are not confident in their tactics to find profitable arbitrage market opportunities.

The long time horizon, low expect return assets are generally attractive to highly risk averse investors, who commit long term investment funds to capital preservation. This often occurs after poor experiences or fear of serious long term government policy errors. TIPS bonds, long term (>5 yr.) CDs, gold, and cash safe deposit boxes are chosen in this attribute quadrant. Fear is generally the key emotion that pushes investors into the quadrant. Some pensions and social security payments are special case cash flows that exist in this attribute set, even though fear is normally not the key factor. All named assets will likely preserve wealth, although gold is a volatile asset. If gold is purchased after a large price advance, it is possible that an investor

may hold unrealized losses for a number of years. Yet, governments generally inflate the quantity of their currency and cause the price of gold (in terms of their currency) to rise.

Short time horizon, high expected return asset classes do not exist. Yet, active management strategies that try to exploit mispricing and take short term profits from the market do exist. Hedge funds are paradoxes in many ways. Investments in hedge funds sometimes specify at least 60 day redemption request notice periods. The strategies, which operate in many markets, are trying to pull short term profits from the market until momentum patterns no longer work. A few smart investors, operating independently, are able to find arbitrage opportunities. However, markets are relatively efficient and don't allow these southwest quadrant strategy/ asset groups to be exploitable by general investors for extended periods of time.

Long time horizon, high expected return asset classes exist in cycles. The question is whether a favorable (10 to 15 years) high returns asset market cycle is in process. The asset classes are primarily equity type assets, instead of debt or market arbitrage active management strategic assets. During favorable secular market cycles, this quadrant is the capital or wealth accumulation quadrant for long term appreciation. The equity classes may include controlling interests in businesses (real estate, alternative assets, etc.) or passive interests in equity securities (domestic or foreign shares of stock or alternative assets). The favorable asset ownership cycles relate to government policies, which promote transactions and stable prices in a productive growing economy. Transitions from relatively higher to lower taxes, to slower regulation growth, to slower government spending growth, and to stable prices are generally favorable to equity ownership cash flows and valuation increases. The period between the 3rd Qtr. 1982 and 4th Qtr. 1999 was the most recent very favorable period for equity ownership. During less favorable equity ownership cycles, a wealth manager or investor must be more focused on asset quality, valuations, and broader diversification with lower expected return assets, such as U.S and corporate debt securities. Expected returns must be adjusted to those reasonably available in various asset markets. The assets that map into the expected returns vs. time horizon matrix follow in Table 4.

	Short Time Horizon	Long Time Horizon
Low Expected Return	T Bills, CDs, Money Funds	TIPS bonds, Long term CDs, Pensions, Gold
High Expected Return	Independent speculators only Not investors	Businesses, Equity Stocks Real Estate, etc.

Table 4. E(Return) vs. Time Horizon Asset Matrix

Many diversified investors select assets in both low expected return time horizons, although the short time horizon asset classes are preferred. Investors and entrepreneurs also select the high expected return long time horizon asset classes in order to earn needed returns. Unfortunately, some people try to operate in the southwest quadrant. They are usually unskilled speculators, who don't have a process that can beat the market, or are convinced by unscrupulous marketers that high short term profits are likely.

KISS principle is advisable in asset allocation

The "Keep It Simple, Stupid" (KISS) principle is as critical in asset allocation as in any other aspect of life. A logical, limited set of stable income producing equities and good quality debt interest or pension payout assets are generally suggested. Understandable assets are conceptually simple and their operations are transparent based on prospectuses, contract documents, and audited current financial statements. Generally, liquid assets are best for non businessmen or non professional investors. Illiquid assets that are not regularly traded, such as hedge funds, private equity, and investment partnerships will likely be cashed out at less than current offered prices or asset valuations with unanticipated delays. Controlling interests in real estate may be acceptable illiquid assets. Home owners generally understand the rules of residential rental property ownership. If properties are monitored, have limited mortgage liabilities, and are efficiently managed, they can be a source of good yields and steady cash flows.

The best quality, lowest risk debt assets are guaranteed certificates of deposit, U.S. Treasury bills, and TIPS bonds. Their cash flows can be matched to budgeted spending plans with near certainty. Other than CDs, the assets are liquid and cash flows can be changed without penalty for emergency spending needs. Social security payments are also a high quality monthly cash flow income source. The income flow is

essentially fixed. Yet a recipient can choose whether to start receiving smaller payments prior to normal retirement age (66 for those born between 1943 and 1954) beginning at age 62 or larger payments after normal retirement age if social security payments start through age 70. That is a limited liquidity adjustment option.

A pension is a high quality low risk strategic asset, assuming adequate funding by a stable employer. It is generally considered a low return cash flow; although employer payout options allow a retiree to calculate and select lump sum or life time payout options. Based on the calculations of life time pension payouts versus risk adjusted returns in a converted tax deferred IRA, an individual may find the life time pension is a moderate return low risk cash flow asset. As previously discussed, annuities are essentially lump sum assets that are converted to lifetime cash flow payouts for retirement spending. Similar to pension option decisions, the annuity contract purchase decision is irrevocable. Therefore, it is illiquid. The decision is similar to the pension payout options decision. However, people are more likely to select a lifetime pension payout option than to purchase a similar value lifetime annuity. Strategically, in many situations, it is suggested at age 65 to keep at least 50% of assets in low risk lifetime cash flows vehicles. As the household approaches an expected age at death (80, 85, 90, or 95?), the percentage of low risk assets matched for lifetime retirement spending objectives should increase. Money market funds, various U.S. Treasury securities, CD's, pensions, social security payments, and annuities are simple suggested asset categories.

The risky part of the strategic KISS asset portfolio is expected to provide needed moderate or high returns over appropriate time horizons. (If objectives can be achieved with all low risk asset categories, then there may be no need to hold risky assets.) The non-businessman, non-professional investor's simplest choices are broadly diversified passive index mutual funds, which may include universes of U.S. blue chip (S&P 500) stocks, small capitalization (Russell 2000) stocks, developed market (Europe Australasia Far East (EAFE)) stocks, and emerging developing market (EEM) stocks. The primary benefits of passive index funds over active manager funds are low expenses and low taxable distributions, which result in higher returns for most long term fund holders. Active managers are available that may out-perform asset category passive index funds. However, good research, understanding of their strategies and tactics, and conviction will be needed to both select a superior active manager and continue to hold his or her (assuming no manager changes) fund for a meaningful (10 to 20 year) period. Studies have noted that the probabilities are less than 20% that active managers can beat similar asset category indices in taxable accounts over a meaningful period. An investor is performing above average by simply achieving long term market returns during asset holding periods. Fund selection strategies and tactics will be discussed in Chapter 14.

Linking Human Capital to Asset Allocation

In the introduction Chapter 1, the following Figure 1 lifetime flow of human and financial capital changes was introduced.

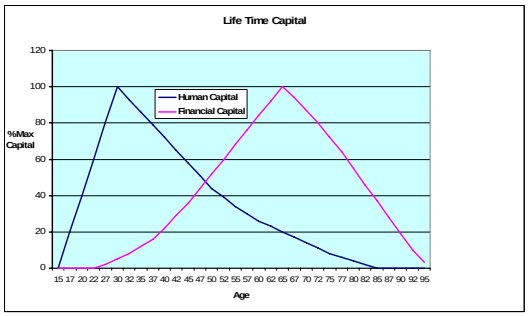

Figure 1. Lifetime potential human and financial capital changes

Now consider human capital flow, prior to developing an asset allocation strategy. For most individuals by age 30, capabilities in term of analytical skills and communication networks are defined and human capital is at its approximate peak. Recall that human capital is the present value of future net income. Larger expected savings streams provide flexibility in making financial capital asset allocation decisions.

A highly risk averse household with substantial human capital can live a modest life style, make low risk pension or annuity contributions, allocate saved assets at a 10% savings rate to Treasury securities and investment grade bonds, and watch retirement cash flow sources steadily grow. Educated (PhD.) professors, government specialist and administrative managers, and non-government support organizations may fit the category of risk averse, high human capital households, who live modestly during retirement with predominant allocations in low risk assets.

High human capital households also have the flexibility to diversify expected stable low risk human capital savings with moderate or more aggressive risk financial capital asset allocations. Their objectives may include legacy wealth, in addition to retirement spending cash flows. The issue is diversification between expected human capital based savings and financial capital asset allocation. For instance, an investment banker with high, unstable human capital savings cash in flows should consider non financial sector investments. Low risk bond like investments or value oriented non financial stable dividend paying equities may be considered in higher than normal portfolio asset allocation weights.

Professional athletes and young entertainers possess risky unstable human capital. A career ending injury or fewer admirers buying the star's shows or promoted items may reduce projected human capital dramatically. The key issue is usually to use a financial advisor that convinces the fortunate star to budget the big paychecks, save, and invest in moderate risk assets. Low risk investing may be too cautious, since a young non-pro athlete or non-celebrity can likely be employed in marketing activities other than being the highly paid entertainer. The asset allocation strategy will also likely change, if the athlete or entertainer continues to bring home high income for 4 or 5 years. A diversified higher risk asset portfolio and business venture relationship assets may be included in an expanded asset allocation strategy.

A final aspect of human capital is that it is not a fixed amount. It can effectively be stretched by working longer than one originally planned. That is a realistic approach to address short falls in retirement spending cash flow sources. The asset allocation strategy will usually include primarily low or moderate risk cash flow assets, when individuals are in their 60s. Thus, there is an incentive toward health maintenance through life long good diet and regular exercise habits. Uncertainties exist, but human capital can be stretched and a satisfying semi retirement and retirement is possible with good common sense.

More strategic assets for the self reliant researcher

The businessman or real estate property owner has a key strategic benefit. That is asset control. The asset can be focused on so called "bread and butter" long term cash flow generation. It may also be developed into an asset that earns income growth opportunities through related capital project completions. Finally, related staffing can be reduced to withstand large revenue downturns or weak competitors can be acquired to improve expected recovery period strengths and capacity.

The experienced investor relies on knowledge to analyze and select complex strategic assets, and then to decide on appropriate buy and sell transactions. Value focused assets, such as infrastructure toll ways, with long term contracts are relatively stable dividend cash flow producers. Gas, oil, and water (and electrical transmission lines) pipe lines often generate steadier cash flows than their counterpart gas, electrical, and phone utility companies.

The experienced investor uses a thorough process for selecting and monitoring actively managed stock, bond, and commodity funds and partnerships. Strategic active assets include the manager risks as well as underlying asset risks. Past performance may indicate recent total fund volatility. Yet fundamental insight into asset classes is needed to know what stimulates or depresses the underlying assets. Note the overlay active manager's stated tactics in the prospectus objectives, policy, and strategy statements indicate the added manager's style risk.

Most managers and investors refer fund performance to benchmarks. That generally results in fund managers remaining at least 90% invested at all times. If an asset class declines in value 20% during a year, then the manager whose fund declines 17% will generally proudly announce that he outperformed the asset benchmark by 3%. That may be an acceptable alternative to a passive benchmark fund, if the active fund does not lag the benchmark in other years. Active management normally adds to asset class fund volatility. Strategic asset funds should be carefully selected with an understanding of risk components and expected correlation to other asset price performances.

Alternative strategic assets

Investors hedge U.S. currency devaluation with gold. Inflation at an annual 3½% rate since 1940 has been a fact that cuts the currency purchasing power in half every 20 years. People especially remember the high inflation of the 1970s. A few considerations are that investing in gold directly through an ETF (GLD) offers less volatility than in gold mining stocks. Also note that less than a 10% gold asset weight in a portfolio is usually an adequate hedge.

Commodity ETFs and managed commodity partnerships have surfaced as parts of strategic asset classes in the past decade. They behave differently and should be analyzed differently. Commodities respond directly to supply and demand for the specified commodity. When the supply or demand change appreciably from an equilibrium condition price can change strikingly. Price advances of 100% and declines of 50% in one year over a decade are common for many commodities. Purchasing a broad index of commodities in an ETF is usually a hedge against home currency depreciation. Most investors do not consider selling commodity ETFs short (prior to buying back) if supply shortages correct in anticipation of prices declining to a sustainable level.

Purchasing managed commodity fund or partnership shares is a different asset strategy relying on manager skills to profitably buy or sell futures contracts. The tactics compete with counter party traders. Selecting a steady profitable managed commodity fund is difficult. The funds are playing a zero sum game prior to including fees and transaction costs. Only investors with good understanding of the tactics used and when they are profitable should consider getting involved in either the general commodity ETF or the managed commodity fund strategic asset classes.

Hedge fund returns relative to low volatility measures have been the envy of wealth managers since hedge funds accumulated hefty assets under management in the mid 1990s. More information on their strategies and periodic performance has come to the attention of the general public, even though hedge funds remain lightly regulated and secretive. It is still hard to get a clear picture of survivorship bias and weighted average individual investor returns.

Gathering fundamental hedge fund research also remains difficult. Past performance reflected cheap financing, significant leverage, and stable asset under management (AUM) levels. The rules of most strategic games changed in 2008. Similar returns for many strategies with less secure financing, less leverage, and lower AUM levels to support/adjust strategies may be harder to achieve. Most importantly, the best performing hedge fund managers have been in business for more than a decade and have satisfied large endowment and other established clients. They are generally unavailable for small (less than $1.0M increment) investors. Expenses are high, information is not transparent, and there is a limited probability that a small party would be able to invest in a selected hedge fund that is expected to earn high future returns.

Asset Allocation Strategies – Cash Flow and Terminal Date Wealth Considerations

Asset allocation strategies should be based on objectives and related planned cash flows. Retirement spending objectives generally expect monthly investment and related account withdrawals, social security payments, pension payments, and annuity payments. Legacy and gifting objectives often focus on a terminal date single period cash outflow at death. The nature of cash flow distributions and the time horizon should be considered in selecting a strategy.

Retirement spending risks should fall with age

Retirement spending cash flows per a budget should be fairly certain. Yet, unexpected health care expenses as well as inflation and tax (1970s) surprises may result in future (hopefully minor) budget adjustments. The spending cash outflows should be considered certain and matched to withdrawal and payment cash inflows per a time horizon that is defined. For example, when initially retired at age 66 in good health at least 5 years of matching cash flows are suggested to be from certain social security, pension, and annuity payments and (low risk) investment account withdrawals.

Assuming a potential life span through age 95 for one spouse of a household, the last planned (25 years) cash outflows may include moderate risk assets. Debt assets may include investment grade corporate bonds or other interest paying securities. Suggested equity assets are dividend paying stocks, funds, real estate, or other stable value asset classes. The approach reduces overall cash flow risk with age.

Be aware that the age 65 to 70 range is a good time to consider purchasing a lifetime annuity from a top quality insurer, if one or both spouses expect to outlive the mortality tables. The Social Security Administration 2005 mortality table, for example, expects a 65 year old male to live to age 81.7 and a 65 year old female to live to age 84.5. If you estimate living 5 or more years past expectations, then purchasing a fixed life-time annuity from an insurer transfers equivalent longevity and moderate investment asset return risks to the issuer.

Future cash outflow source risks should continue to be reduced through the age 70s range. By age 80, it is recommended that all expected future spending cash inflows be matched with low risk cash outflow sources. Social security payments, pension payments, annuity payments, bank accounts, money market funds, maturing CDs, and maturing Treasury securities are example securities for those over age 80. At that stage of a thoughtfully planned life, there should be no financial security worries.

Legacy or gifts at death have fixed time horizons

The cash outflow stream of legacy or other gifts at death are usually a terminal one time cash flow transfer and possibly periodic cash outflows afterward. The key consideration is how and when the cash flow will be spent. The total time horizon prior to asset distribution in the form of post gift cash out flows is the issue. A legacy gift at expected death of the donor in 30 years may name an infant grandchild as beneficiary. A related requirement may be that the gift be used as capital for a business to be headed by the grandchild. Since corporate equity has a theoretical non ending life, the gift may be invested in 100% diversified risk equities until transfer at death of the donor. Another idea may be to fund a legacy revocable gift college scholarship to be effective at the donor's death. The donor may hedge a change of gift recipient college by making it revocable. Nevertheless, his or her intention may be firm. In that case, the assets for the eventual fund may be setup to match scholarship cash outflows. The fund could be set up to be perpetual with annual scholarship distributions to selected students from asset interest or dividend payouts. Diversified equities may be selected as assets prior to death of the donor and gift transfer. The idea of perpetual time horizon cash outflows is preserved by matching the scholarship cash outflows to the portfolio bond and equity payout distributions.

The gift donor has other cash flow benefits, if an irrevocable gift is made to a non-profit organization, such as a college. In that scenario, the gift may be setup as an annuity with the institution providing life time payouts to the donor based on her or his age. Based on any related gift asset appreciation, capital gains taxes may be legally avoided through the asset transfer to the non-profit organization. Check with your advisor or accountant to see if that gift idea provides you benefits.

Strategic Portfolio Construction

Portfolio returns are based on asset category selection, specific asset selection, and the timing of portfolio asset buy and sell transactions. The strategic focus is on asset allocation selection and generally keeping the portfolio asset weights at approximately desired levels based on past asset volatility and correlations. The outcome should be a portfolio with approximately the long term expected portfolio returns and volatility. Timing of transactions is a tactic that active investment managers use without generally beating long term market returns. Specific asset selection may be considered part of a strategy, if the manager holds assets essentially for life, such as the acquisitions of Warren Buffett's Berkshire Hathaway company. Most fund managers and even diversified companies do not plan to hold assets for long periods. Some small capitalization fund managers outperform relevant benchmark indices over the long term. However, they are a minority and their processes have periods of less than benchmark performance. Thus, short term asset selection and timing are considered tactics that increase return volatility.

There is a good reason why the focus in wealth asset portfolio construction is on strategic asset class allocation. That is where the majority of long term portfolio returns are explained and portfolio construction is the simplest discipline to implement. The classic studies on fund returns are two papers[1,2] by Gary Brinson, Randolph Hood, and Gilbert Beebower that analyzed the determinants of portfolio performance based on the results of 91 pension funds between 1974 and 1983. They found that of the three components of portfolio returns, 93% or 91% of returns could be explained by portfolio asset allocation. The topic has been discussed and analyzed by many since their papers. It is relatively clear that markets are usually efficient and that specific asset selection and timing account for the minority (less than 20%) of asset returns. Since only the very best managers beat the market with short term selection and timing tactics, the focus here is on long term portfolio construction. The idea is to earn as close to market returns as possible, while being humble and admitting that personal behavioral biases and imprecise decision making will likely result in somewhat less than market returns.

Portfolio Construction with Cash Flow Matching

The portfolio strategy to be outlined focuses on matching cash inflows to cash outflows and achieving wealth objectives. It considers the maturity date or specific payment of asset cash inflows. Assets such as social security, pension, and other annuity life-time periodic payments are considered effectively risk free cash flows for each year of retirement spending. The strategy further concentrates on stock or partnership share cash flows that meet minimum payout criteria. Specifically, stock equity assets must pay a dividend at least 60% of the S&P 500 stock index and the dividend must have been raised (grown) for the past 5 successive years. Equity assets also may be income producing real estate, REITs, oil or gas partnerships, or other cash flow producing assets without dividend growth criteria.

A time line is setup for the objective time horizon. A retirement spending time line may be a 30 year remaining life horizon of equal purchasing power monthly spending cash flows beginning at age 65 retirements. Table 5 presents an example of subsequent risk free and risky cash inflows at increasing ages.

Age	65	72	80+
Matched yrs Risk-Free Cash flows	5	10	15-
Yrs. Risky Cash flows	25	13	0

Table 5. Matched years of risk free cash flows

The cash flow source portfolio adjusts to provide added subsequent years of risk free cash flows as the retiree ages. At age 65, 5 years of subsequent cash flows may be held in bond like risk free assets and 25 yrs in risky assets. The years of risk free cash flow sources increase, so that the retiree takes less total cash flow risk with age. At age 80, the retiree may plan to hold all subsequent years (15 or remaining expected life) of cash flows in bond like risk free assets.

An example retirement spending portfolio is constructed for a household couple at age 65. They have a spending budget and for concept simplicity, inflation and taxes are not considered. Social security and pension payments are planned to pay for 50% of retirement spending cash inflows for life. The remaining 50% of cash flows come from retirement account payouts or asset sales for an estimated 30 year time horizon.

The expected total return on risky assets is estimated to determine the benefit of taking volatility risks. Bond like investment grade assets are expected to earn 1% annual net real returns and equity investment grade dividend paying assets are expected to earn 3% total annual real returns. Return risk volatility is reduced below normal asset class levels because bonds can be held and redeemed at maturity, while equity asset dividends provide about half the annual expected cash inflows and total returns. The cash flow perspective risk is used to provide a better intuitive understanding than statistical σ of past performance.

For simplicity, consider that investment assets worth 15 years (i.e. 50% cash needs X 30 yrs.) of example retirement spending cash outflows could be held in risk free Treasury bills and longer term TIPS. All spending cash outflows are thus held in risk free securities. The withdrawal spend rate would be 1/30 or a 3.33% withdrawal rate per year (inflation adjusted). All cash in and out flows would be matched.

Yet most people do not accumulate enough wealth to hold all expected retirement spending needs in risk free assets. Tolerable levels of risky assets are normally held to try to increase risky year cash flows. The risk tolerance level is personal. It is based on an ability to accept variability (periodic annual losses) and make rebalancing decisions for risky accounts. That results in an expectation to achieve cash flow spending objectives at some confidence level.

A moderate risk tolerance may be the 60% equity / 40% debt weighting of traditional balanced pension fund portfolios. (With the increased use of alternative assets like hedge and private equity funds, the definition of equity is blurred. In this context, alternative assets do not have fixed cash flow and maturity payouts. They are considered equity risk assets.) Using the expected risky real annual returns and moderate risk balanced portfolios suggested the needed investment assets at retirement can be estimated for our example 65 yr. old couple. A balanced portfolio with required dividend paying equity (3%) and bond (1%) real returns expects to earn net 2.2% real annual returns. Table 6 is a supplement to Table 5 that roughly approximate the years of cash flow earned through a partial portfolio invested in moderate risk assets. It also separates the cash flow growth into two retirement periods.

Age Range	65 -71	72-80
Portfolio Annual Real Return (%)	1.833	1.24
Period of Returns (Years)	7	8
Cum Period Cash Flow Return (%)	13.56	10.39
Calculated Mid Period Cash Flow Growth (Years)	30.66 - 27	25.01 - (19+3.66)
Net Period Cash Flow Growth (Years) over risk free reference	3.66	2.35

Table 6. Retirement Cash Flow Growth

The first order estimates indicate the net effect of moderate risk cash flow growth during a retirement period coupled with near term year spending from risk less sources. Notice that the expected real annual return is reduced by the portion of near term year assets held in risk free no return assets in Table 6. During the age range 65 to 71 period initially 5 years of cash flows are held in risk free assets and 25 years of cash flows are held in moderate risk pension fund asset allocations. The next row shows the cumulative net total returns earned during the 7 or 8 year periods. During each period risk free cash flows are spent and risky assets are transferred to risk free assets. In the first order estimate cash flow growth is based on returns for a mid period amount of cash flows. In the 1st period, an average 27 cash flow periods are earning net returns and during the 2nd period 19 cash flow periods + 3.66 1st period cash flow growth are earning net returns. The net growth earned by constructing the suggested portfolios is approximately 6 years of retirement spending cash flows. From the perspective of the example age 65 couple, 12 years ((30 – 6) yrs. X 50%) of planned retirement spending are needed at the start of retirement, if the suggested portfolio focused on cash flows is constructed. An approximation of the annual withdrawal rate is about 4.17% based on the12 full years of initial available cash flows that both grow and are annually spent for 50% of full year needs. The benefit of the suggested approach is about a 15% increase in total annual spending (including 50% SSA and pension payments) in comparison to holding retirement assets in risk free securities.

Questions concerning the cash flow analysis

Is the suggested cash flow matching portfolio construction strategy risk for retirement spending objectives less than a moderate risk level?
YES. Increasing the weighting or percentage of risk free assets in the portfolio with age reduces the total period asset risk. It increases the emotional piece of mind of aging retirees that their subsequent 5 or more years of spending cash flows are secure. The suggestion that equity assets pay growing dividends can be simplified by selecting company stocks from Standard & Poors annual list of Dividend Aristocrats[3]. The list includes about 10% of the S&P 500 company stocks. The companies have increased dividends for 25 consecutive years. Be aware that the capitalization weighted 2008 Aristocrats index without dividends did lose 21.5% valuation in comparison to the full S&P 500 Index lose of 37.0% in 2008 (worst calendar year loss since record 43.3% loss in 1931).

Does the cash flow approach offer flexibility?
YES. If the example 65 year old couple began retirement at the beginning of 2008, the 7.5 years of needed cash flows invested in S&P 500 Aristocrat like equities would decline in total returns about 19% or 1.425 years of value. Assume all bond like and risk free assets had no real return or total valuation change. The couple can make spending or cash flow adjustments. A spending analysis may consider the next 4 years of cash flows to be held in risk free assets, so that no spending adjustments will be made over that period. The hope would be that total asset valuations return to plan over the following 4 years and correct for any short falls at that time. The couple may otherwise worry that spending should be adjusted immediately. Their 2009 budget may be reduced in terms of cash flow losses as 1.42/(12 – 1.42) = 13.4%. Since 50% of spending comes from SSA and annuity sources, the net spending decrease would be 6.7%. The couple may also return to work (if they have human capital skills that are in demand) and simply spend work earnings, instead of spending retirement account potential cash flows. After a few years with some equity returns above normal, the retirement cash flow account relative to age should rise back to the planned level.

Are there other considerations?
YES. Here are a few thoughts.
An end of year rebalancing of assets over a long time horizon smoothes total portfolio returns by purchasing more volatile assets when they decline significantly (on sale) and selling those same assets, when they advance sizably. In the case of 2009 portfolio rebalancing, added equity (reduced bond like) asset weights to the later year cash flows portfolio makes it more

responsive to a recovery in equity valuations. Conversely, if a later year cash flow portfolio achieves late 1990s type returns in future years and the portfolio becomes over weighted in equities, it would be rebalanced to the desired lower equity (risky) exposure.

A final thought is that human nature includes the behavior bias risks discussed at length in prior chapters. Loss aversion may be the primary bias of many people, who would simply hold their current positions after 2008 losses. Fear may grip some people, who may decide to change to an all risk-less assets portfolio. Few people would decide to speculate and over do rebalancing by so called "doubling down" with a large overweighting of equities in a post crash portfolio. Analyzing scenarios and planned responses at the outset requires work and self discipline. Normal human beings are not usually self-disciplined.

Portfolio Construction for Legacy Gifts at Death

Portfolio construction for a gift at death objective primarily considers the terminal cash outflow at the time of death. Cash inflows are generally equity dividends or bond-like interest (with possible incremental returns of principal). Asset sales and purchases also cause cash in and out flows. The objective strategy is usually to manage assets to accumulate returns at a specified risk tolerance. An all equity aggressive risk tolerance is conceivable for an expected long time horizon of a generation (30 years). An active manager may use tactics, so that portfolio assets are preserved during uncertain periods in risk free or bond-like assets.

Portfolio assets may also be illiquid, such as a controlling interest in an on-going business. If a trust holds an on-going business, it may transfer asset control to heirs at the death of the donor. The issue is naturally to preserve legacy asset value and minimize the impact of inheritance (death) and related asset control transfer taxes. In any case, illiquid business controlling share transfers are the primary way to convey wealth between generations in a free society.

Passive diversified gift portfolios have a few other issues to deal with. Agreements are sometimes made and expected gifts are budgeted for by beneficiaries. Therefore, some volatility or down side annual limits may be targeted based on a time horizon that is less than the gift donor's life expectancy or defined transfer date. Effectively, the risk tolerance may be reduced for reasons other than a shortened time horizon. Normally, the terminal single cash flow gift tolerance would remain at the moderate risk balanced asset allocation level of pension fund assets as the expected time horizon draws near.

Portfolio Rebalancing: Pros and Cons

Portfolio rebalancing is a rule based process to hold strategic asset allocations near desired weights or levels. In doing so, over long periods of time volatility and sometimes returns are reduced. The idea is to buy assets that are relatively "on sale" and to sell assets that trade at relatively "unapprised style follower" prices. Yet the duration and beginning dates of advancing and declining price trends change. A trend may start at any month of the year and last for extraordinary periods. In keeping with the KISS principle, making a single annual strategic rebalancing decision is wiser than more frequent decisions, which are considered timing tactics. Selecting the date of year for rebalancing may consider a seasonally quiet or end of favorable period. There is some merit for making portfolio rebalancing decisions at the end of the second calendar quarter (June 30.) The threshold for asset rebalancing may be set based on the number and weights of individual assets. For instance a portfolio with 10 equally weighted (10%) assets may set a +/- 3% (13% or 7%) rebalancing threshold for any asset. The secondary rule may be to make at least a 0.5% change in any other rebalanced asset. Similarly a portfolio with 4 equally weighted (25%) assets may set a +/- 5% (30% or 20%) rebalancing threshold with a secondary rule that at least a 2% change must be made in other specified rebalanced assets. A negative scenario may be for an appreciating asset in the 4 member portfolio to continue appreciating. Therefore, only 25% of the portfolio, in stead of 30%, would participate. That is the return risk (possible lower return) of rebalancing portfolios to reduce the potential for concentrated large losses (smooth out portfolio returns).

Keep significant digits in mind: XY% or X0%

When constructing long term retirement spending objective strategies, remain aware of the variables involved. Trying to estimate values with more than one significant digit (52% instead of 50%) is unrealistic. For example, the difference between 3% and 4% annual inflation rates change a nominal terminal value after 20 years by more than 20%. The investment rate of

return and time horizon changes also have significant impacts on results. That is why the topics are explained conceptually. It is also why analyses are in terms of annual cash flow, instead of more normal retirement terminal value terms. The point is to communicate risk factors intuitively with a general order of precision in a dynamic life time.

Portfolio Strategy Examples

The Martinez family represents the middle class household that plans to retire in 8 years. Their objective is retirement spending cash flows and their strategy is to construct a suitable cash flow portfolio. Annually, Robert earns $60,000 and contributes 10% with a 3% employer match to his 401K plan, while Anita earns $30,000 and contributes to her pension that is projected to pay 50% of her salary at retirement. Robert's 401K plan account is currently valued at $250,000. Using a moderate risk 60% equity / 40% bond like portfolio with a balanced before tax real return of 3% (2.28/0.76), Robert may expect his 401K plan account to grow to $386,000 at retirement. The Social Security Administration forecasts that both retirement payments at age 65 will total about $18,000 annually. Robert and Anita would like to set a retirement inflation adjusted annual spending budget of $72,000. Recall that their home will be fully paid for.

What is a realistic forecast?

Robert and Anita expect to receive $33,000 annual SSA and pension cash flows. That is 46% of their desired retirement spending cash flows. They plan a retirement time horizon of 30 years. Robert has accumulated $386,000 or 5.36 years of desired cash flows at age 65. Using real return rates, it is unreasonable to grow 5.36 years of cash flows to match 0.54 X 30 = 16.2 years of spending during a 30 year period with age related declining levels of investment risk taking.

Robert and Anita have some alternatives. If they expect declining risk 401K retirement asset returns to add 20% cash flow periods, then they may plan to spend 6.43 years of cash flows over 30 years. That is 0.214 cash flow years added annually to 0.46 SSA and pension cash flows. The sum is 67.4% of their desired $72,000 spending or about $48,500 annually. Higher risk 401K portfolio allocations are not suggested, because the higher variability of returns may result in less than expected cash inflows.

Alternatives are working longer, saving more prior to retirement, or a combination. Recall that Robert and Anita do not have strong interests in finances and may find it difficult to grasp the difference between their desired $72,000 annual retirement spending budget and estimated sustainable $48,500 real spending rate over a 30 year time horizon from their resources.

Robert and Anita may consider working 5 years longer, if their employers permit it. The benefits are an estimated 21% increase in SSA and pension annual cash flows to about $40,000 annually or about 55.5% of their desired $72,000 annual retirement spending budget. Robert's 401K is estimated to increase to approximately $489,000 inflation adjusted value or 6.8 yrs. of retirement spending cash flows. Finally, the time horizon would decrease by 5 years to 25 years. The results are favorable. Robert's 6.8 years of cash flows could grow slightly and be spent evenly over 25 years at a rate of about 0.30 years annually. The household total spending rate could then be increased to about 85.5% of their desired $72,000 annual budget or about $61,500.

All things considered, if Robert and Anita agreed to the additional years of work, then they would likely accept a plan that should result in 85% of their desired retirement spending cash flows. The alternative of saving more either in the 8 years prior to retirement or in 5 years of added work is feasible, although the Martinez family may consider it too difficult. For example, if Robert increased his savings rate with company match from 13% to 23% over 5 years, his added real 401K accumulation is estimated to be about $55,000 inflation adjusted. That is less than a full year of retirement cash flows to be spent over a 30 years retirement time horizon. The increase in risk free SSA and pension payments due to 5 added years of work is significantly greater than that due to doubling Robert's 401K savings deductions for 8 years prior to age 65 retirement.

The Mertons are a young family with a small business that may potentially achieve a wealth growth dual objective of constant purchasing power retirement spending and legacy per capita (children) wealth conservation. Their control and growth of a small business (specialty machine parts) is the vehicle for Terrance and Carolyn (at age 35) to develop economic wealth while raising the family, Peter and Sarah. If Peter or Sarah competently led the business after Terrance retires, the chances for steady legacy

growth of a profitable business should increase. Their risks and opportunities are greater than those of the Martinez family. Balancing and diversifying risks through strategic decisions will be the key to their success.

Terrance and Carolyn have a primary advantage of controlling their business through daily operations, capital projects, partnering agreements, acquisitions, and other transactions. It is reasonable to expect that they can average annual real after tax retained business returns of 6%. There are many business structure details that a proficient legal and accounting team will guide them through. Their local Tucson, AZ initial customers will likely relate to the huge Raytheon aerospace missile products operation.

The Mertons should consider balancing their business wealth with gradual growth of passive tax deferred 401K type accounts. Primarily, diversified value type dividend equities and low risk TIPS may be suggested to provide a source of emergency cash. The portfolio composition will change with time as different levels of total risk are considered. Those accounts provide a safety alternative in case the business is overwhelmed by a major business downturn and must be sold at a distressed valuation.

The Merton strategy analysis initially focuses on a terminal value at Terrance's estimated retirement; that is a 30 year time horizon. Human capital is converted to sources of financial capital during the period. Steady, not extraordinary, business and diversified passive investment growth is a difficult goal to achieve. In inflation adjusted terms, a 5% annual sales growth rate (faster than the average annual long term national economic growth of 3%) would increase sales over 30 years from $1,000,000 to about $4,300,000. A 5 employee company may grow to 12 to 20 employees and earnings may be retained and grow at an 8% rate. Profits or net annual income may thus increase by about 10 times over the period. In Chapter 5, wealth was estimated in nominal terms to sensitize the reader to the impact of long term (3½%) inflation. In the current strategic view, real returns and values are analyzed. For the small businessman, accountants and attorneys are needed to recommend the best business structure (sole proprietor, partnership, private corporation or public corporation) to cope with regulatory, taxation, civil and criminal risk issues. The business structure may also affect business and personal (diversified) investment asset locations.

The business profitability or the on-going net profit margin (NPM) is the key factor for the business valuation and derived savings for diversified investments. Selling individual used assets of a terminated business will likely result in less than 1/3 of the ongoing profitable business' valuation. The Chapter 5 nominal business valuation ($12,000,000), diversified investments ($7,000,000), and home ($1,000,000) in 30 years can simply be divided by 2.8 to estimate inflation adjusted real values. The previously suggested retirement account spending rate of 2% can also be translated into annual cash flows similar to the Martinez family calculations. Yet it is less relevant for the Mertons because the 2% retirement spending rate (of total assets) is well within the means of their resources and the transfer of the business wealth to the children, Peter and Sarah, offers added flexibility. The Mertons have the prospect to think of wealth in terms of security and quality of their children's life experiences. Education, travel, development of aptitudes and interests are all opportunities to increase the human capital or wealth of family legacy generations. Economic resources or financial capital are the means that the Mertons may develop to support their primary objective – legacy wealth.

Summary

- Figure out asset attributes to see how they fit into your portfolio strategy
- Hold generally simple, transparent assets
- Think in retirement strategy cash flow terms
- Recognize legacy gift unique time horizons
- Long time horizons add wealth factor variability

References

[1]Brinson, Gary, Hood, Randolph, and Beebower, Gilbert, *Determinants of Portfolio Performance*, Financial Analysts Journal, July/August 1986

[2]Brinson, Gary, Hood, Randolph, and Beebower, Gilbert, *Determinants of Portfolio Performance II, an Update* Financial Analysts Journal, May/June 1991

[3]Standard & Poors Dividend Aristocrats, www2.standardandpoors.com