How the ELM Market Navigator ETF Invests[1]

Elm Wealth

This paper is meant to provide a comprehensive overview of Elm Wealth's investment process for the ELM Market Navigator ETF, listed on the New York Stock Exchange. Further information can be found at elmfunds.com.

Our investment process is entirely rules-based and is intended to be understood by our investors, with no 'black box.' The philosophical foundations of our approach are laid out in our book *The Missing Billionaires: A Guide to Better Financial Decisions*, and we'll reference passages from the book as we go along for those interested in additional information and detail.

The goal of *The Missing Billionaires* is to give investors a framework for making their own principled financial decisions pertaining to both investing and spending. The goal of Elm is to provide investment solutions for our clients which allow you to efficiently harvest the long-term returns available from broad public markets.

One of the foundational concepts we discuss in *The Missing Billionaires* is called the Merton Share, for determining the optimal amount of wealth to invest in a risky asset or portfolio. [Ch. 2,3] The Merton Share is a 'rule of thumb' which, subject to a variety of assumptions,[2] reflects that if you can invest in a risky asset with excess return μ and volatility σ, then the optimal wealth fraction to invest is proportional to $\frac{\mu}{\sigma^2}$

The Merton Share[3] is a more flexible relative of the well-known Kelly Criterion[4]. It's derived from the theory of financial decision-making under uncertainty, and is more natural for sizing investments like stocks and bonds. [p. 37]As a rule of thumb, it isn't appropriate to use directly in every situation, but nonetheless it provides an important core intuition: that we should want more of a risky asset when we're getting more *excess* return relative to a safe asset (and vice versa), and also that we should want more of the risky asset when it has less risk (and vice versa).

Conceptually, Elm's rules-based asset-allocation seeks to provide a practical, intuitive implementation of this principle across a universe of global asset classes which can be held through highly liquid, low-cost index ETFs.

ELM ETF History

The ELM ETF started life as a conversion from a private fund, Elm Partners Portfolio LLC (EPP), which started investing at the end of 2011. The conversion took place on February 10, 2025, and the ELM Market Navigator started trading with roughly $360 million of assets. The predecessor fund has an audited track record for the 13 years and 42 days up to the conversion, which can be found at elmfunds.com and in the ETF's prospectus.

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[1] The content on this page is being provided for educational purposes only. It does not constitute any form of investment advice, or any form of recommendation to buy or sell any securities or adopt any investment strategy mentioned herein. This material does not have regard to specific investment objectives, financial situation and the particular needs of any specific reader. Any views regarding future prospects may or may not be realized. Past performance is no guarantee of future results.

[2] Specifically that you're trying to maximize CRRA utility, you can only invest in the risky asset or risk-free asset, returns are normally distributed, and you can continuously rebalance.

[3] The Merton Share refers to the optimal investment size based on an investor's risk aversion, maximizing expected utility in a portfolio context

[4] The Kelly Criterion is a formula used to determine the optimal size of a series of bets to maximize logarithmic wealth over time.

The ELM Portfolio

Baseline Selection

The ELM ETF begins with a Baseline Portfolio 75% in equities and 25% in fixed income, as illustrated in Table 1. We have made this choice as we think it represents the asset allocation that a financially-sophisticated investor focused on building long-term savings, and with a typical degree of risk-aversion, would want to hold in what we call the 'Baseline Environment.' In the Baseline Environment we assume that every major risk-asset class has a 4% 'risk premium' – the expected long-term return above the return of a safe asset – and a 'neutral' risk level (described in detail in Risk Level section below).

We determine the Baseline weights to be as representative of the global market portfolio as possible, subject to the availability of low-cost, liquid vehicles to express these exposures, and some compromises of practicality.[5] We also want the Baseline Portfolio to be representative of the preferences of a typical US investor. We include a modest home bias for US equities versus non-US equities, and this is also why the portfolio of safe assets is 100% in US dollar fixed income, and mostly in US Treasuries.

We use ETFs to invest in each asset class. We only use broad-market, low-cost, market-capitalization weighted index ETFs. Most of the ETFs we use are sponsored by Vanguard or Blackrock. The weighted-average expense ratio of the ETFs in the ELM ETF's portfolio is typically about 0.05% per annum, but this changes slightly over time with changes in the portfolio composition. Since the predecessor Fund's inception at the end of 2011, the expense ratios of many of the ETFs we use have fallen, and we expect that to continue. We've listed one of our preferred ETFs next to each asset class in Table 1.

	Elm Baseline Weights	Typical ETF for Bucket	Issuer	ETF Expense Ratio
US Equity Assets	45.6%			
US Broad Equities	36.0%	VTI	Vanguard	0.03%
US Value Equities	2.3%	VTV	Vanguard	0.04%
US Small Cap Equities	2.3%	VB	Vanguard	0.05%
US Real Estate (REITs)	5.0%	SCHH	Schwab	0.07%
Non-US Equity Assets	29.4%			
Europe Broad Equities	11.3%	VGK	Vanguard	0.06%
Asia Pacific Broad Equities	4.7%	IPAC	iShares	0.07%
Canada Broad Equities	1.8%	BBCA	JPMorgan	0.19%
Emerging Marke Broad Equities	11.6%	VWO	Vanguard	0.07%
Fixed Income	25.0%			
US 10yr TIPS	10.0%	SCHP	Schwab	0.03%
US Aggregate Bonds	5.0%	AGG	iShares	0.03%
US Treasury Bills	10.0%	SGOV	iShares	0.09%
Total	100.0%			0.05%

Table 1: ELM Baseline as of June 30, 2025 (you can find the most up-to-date figures on elmfunds.com). The asset classes listed are for illustrative purposes only and do not constitute investment advice or recommendations. ELM may have different allocations now or in the future.

[5] We start with the global market cap weights, then modestly adjust for US home-bias, and regional Gross Domestic Product (GDP) and Earnings weights. The latter adjustments can help mitigate extreme valuations such as those seen in 1980s Japanese equities, causing one market to implausibly dominate the baseline.

Dynamic Asset Allocation

The Baseline Portfolio specifies the ideal asset allocation in the Baseline Environment, a hypothetical state of the world with 4% Risk Premia and neutral risk levels for all asset classes. We're not assuming that 4% is the average Risk Premium equity markets will experience over time, or have experienced in the past. Rather, it's just a convenient reference point for establishing preferences in one state of the world.[6] But of course actual Risk Premia and market risk levels are changing all the time, and Elm's asset allocation is designed to adjust to changing market environments. For each risk asset class, we adjust the Baseline Weight to a Target Weight based on that asset class's current level of Risk Premium and market risk. Portfolio weights must add up to 100%, and leverage and shorting are not allowed. Whatever isn't being allocated to the Risk Asset classes is split up amongst the Safe Assets.

Stock Market Risk Premium

Risk Premia deviations cause the Target weight to vary from the Baseline by the same proportion as the Risk Premium varies from 4%,[7] with a maximum variation of ±2/3 the Baseline Weight. Changes in market risk level will cause the Target Weight to vary by either +1/3 (when the equity market is in a low-risk state) or −1/3 (when in a high-risk state) of the Baseline Weight.[8]

In implementing Elm's dynamic scaling, our Risk Premium metric for a broad equity market is 1/PCAPE minus 10year TIPS[9] Real Yield. CAPE is the Cyclically-Adjusted Price Earnings Ratio popularized by Robert Shiller and John Campbell. PCAPE is a slightly adjusted measure that we use at Elm which accounts for the impact of companies paying out less than all their earnings as dividends. You can read about PCAPE and CAPE in more detail here. 1/PCAPE is a forecast for the long-term real return of equities, and the 10-year TIPS Real Yield is our preferred proxy for the long-term safe asset real return. [p. 50]

We believe that a broad stock market's earnings yield is a useful estimate of its long-term real return. Although there is not enough long-term stock market return data to conclusively prove the usefulness of earnings yield as an estimator, such data as exists support its use. Moreover, Elm's use of earnings yield is supported by a simple and intuitively-appealing model of long-term corporate earning growth: namely, the proposition that if companies paid out all their earnings as dividends, their aggregate earnings would grow at the inflation rate. The past 125 years of US public corporate earnings growth is largely consistent with this thesis.[10]

Determining the Risk Level

For the market risk level, instead of measuring this directly, practical considerations have led us to use as a proxy a one-year momentum signal. If the current market level is above its one-year moving average we consider the market to be in a low-risk state, and in a high-risk state when below.[11] Using momentum as a proxy for market risk level is consistent with momentum-scaling and volatility-scaling producing very similar results when applied to equity markets.[12] We use a momentum signal to vary the mix of Safe Assets as well. For example, if TIPS' price momentum is

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[6] Under the hood it's not exactly 4% for each asset class, but close to it. We make minor adjustments for various non-US markets to reflect differing risks and variation in expected return metrics as applied to different markets. However, the adjustments are small, keeping the 4% thought experiment is still valid.

[7] This is the variation most consistent with the Merton Share.

[8] With a narrow transition zone in-between for when risk level is close to neutral

[9] TIPS, or Treasury Inflation-Protected Securities, are U.S. government bonds designed to protect investors from inflation, as their principal value increases with inflation.

[10] After making the relevant adjustment for the fact that companies did not pay out 100% of the earnings as dividends.

[11] Adjusted for inflation, dividends, and risk premium.

[12] See our note Steadfast, Greedy, or Fearful for more on this topic.

positive we'd hold 60% of Safe Assets in TIPS (vs. the 40% Baseline mix), or 20% if TIPS price momentum is negative.

Below we show as an example the ELM ETF's asset allocation as of 6/30/25, which we will use to illustrate exactly how we arrive at Target Weights for a given broad equity market. In this case, we will focus on the allocation to the US stock market, with relevant numbers in the red box:

Asset Allocation Table

	Elm Baseline Weights	Current Target Weights	Baseline Deviation Breakdown		Risk Premium	Risk Level
		2025-06-30	*Risk Premium*	*Risk Level*		
US Equity Assets	**45.1%**	**24.7%**				
US Broad Equities	35.6%	23.5%	-23.7%	11.7%	1.3%	Low
US Value Equities	2.3%	0.9%	-1.5%	0.2%	1.3%	Neutral
US Small Cap Equities	2.3%	0.1%	-1.5%	-0.6%	1.3%	High
US Real Estate (REITs)	5.0%	0.2%	-3.3%	-1.6%	1.4%	High
Non-US Equity Assets	**29.9%**	**44.6%**				
Europe Broad Equities	11.5%	14.4%	-0.8%	3.8%	4.2%	Low
Asia Pacific Broad Equities	4.7%	7.9%	1.6%	1.6%	4.9%	Low
Canada Broad Equities	1.9%	2.2%	-0.3%	0.6%	3.3%	Low
Emerging Market Broad Equities	11.9%	20.1%	4.2%	4.0%	6.1%	Low
Fixed Income	**25.0%**	**30.7%**				
US 10yr TIPS (Real Yield = 2.02%)	10.0%	17.2%		3.6%		Low
US Aggregate Bonds	5.0%	5.7%		-0.3%		Neutral
US Treasury Bills	10.0%	7.9%				
Total:	**100.00%**	**100.00%**				

Table 2: ELM ETF Asset Allocation as of June 30, 2025. For current figures, please visit elmfunds.com.

In this example, the baseline weight for Broad US equities is 35.6% and the Target Weight is an underweight allocation of 23.5%, because:

- The current risk premium is 1.3%. This is the difference between the Payout-and-Cyclically-Adjusted Earnings Yield (1/PCAPE) of the US equity market (3.27%) and the 10-year TIPS real yield (2.02%). This 1.3% is 67.5% lower than the Baseline level of 4% which is at the ±2/3 maximum variation bound for our risk premium signal. The resulting Risk Premium adjustment of −23.7% = −67% * 36% is in the third column of numbers.
- The US stock market at the end of June 2025 was in a low risk state because momentum was positive, so we adjust the target weight by +1/3 the Baseline Weight. This results in a Risk Level adjustment in the fourth column of numbers of +12% = (1/3) * 36%.
- Putting the two adjustments for risk premium and risk level together brings us to the target allocation for US equities (in the second column of numbers) of: 23.5% = 35.6% − 23.7% + 11.7%.

At the extremes, Dynamic Scaling can result in dramatic departures from the Baseline Portfolio, with as much as 100% or 0% in equities. For example, from 1990-2023 the total equity allocation would have varied from a low of about 10% to a high of 100% (simulated results prior to the December 2011 launch of the ETF's predecessor Fund). We expect a relative return variability of portfolio returns versus the Baseline Portfolio of about 5% per annum over long periods of time.[13]

While not a literal implementation of the Merton Share in a multi-asset world, Elm's dynamic scaling is clearly recognizable as being generally consistent with the Merton Share's call for asset

[13] By relative return variability, we specifically mean the standard deviation of the difference between the actual portfolio returns and baseline returns. For any particular year or period, differences significantly larger than the expected relative return variability are quite possible. We believe the distribution of relative return variability is not well-represented by the normal distribution.

allocations to scale proportionally with risk premia and inversely with market risk level. We think Elm's implementation of dynamic scaling strikes the right balance between simplicity, robustness, and theoretical consistency.

Evaluating the ELM ETF Performance

We show up-to-date historical returns for the ELM ETF (and its predecessor private fund) on our elmfunds.com website, as well as returns for a stock/bond balanced index published by S&P Global/ Dow Jones (their Moderate Portfolio Index ticker P60GLB[14]), the Bloomberg Aggregate Bond index[15] and the MSCI ACWI IMI index[16].

We expect that using Elm's dynamic asset allocation will in the long run result in modestly higher expected risk-adjusted returns, compared to a static approach. However, due to the intrinsic noisiness of financial markets, it can be very challenging to accurately measure investment quality differences over the typical one- to ten-year holding periods for which most people look at their account performance. We explore this in detail in our note What's Past is NOT Prologue, in which we see that it takes vastly more than 10 years of data to reliably distinguish between two strategies where one of the strategies has a Sharpe ratio[17] 0.2 higher than the other. Depending on the base levels of the Sharpe ratios, that 0.2 difference can be very meaningful in terms of long-term investor expected welfare. Theory, reason, and history have combined to give us a strong prior belief about the merits of Elm's approach, and Bayesian analysis can be used to update our beliefs in light of new information. Here are a few additional suggestions for how you can evaluate the ELM ETF:

- Is your ELM ETF investment making it easier for you to achieve and stick with diversified, broad public markets exposure?
- Is your ELM ETF investment aligned with your personal preferences and financial situation?
- Is your ELM ETF investment improving the diversification and efficiency of your overall investing?
- Are the ELM ETF's asset allocation, activity, and costs consistent with what you'd expect based on this paper and your discussions with us?

We note that one of the ELM ETF's goals is *not* to generate higher returns compared to the S&P500, or whichever market index is doing the best over a given period. Setting aside whether this can be consistently achieved net of fees and costs, attempting to do this generally involves some combination of taking more risk and accepting less diversification, and all of Elm's choices are going in the other direction. The benefits of lower risk levels and greater diversification are harvested primarily through being able to maintain larger fractions of your wealth invested in risky assets [p. 59], through avoiding high fees and other costs, and through your spending policy [p. 132-141]. As Vanguard founder John Bogle counseled: *The best investment approach is the one you're going to stick with.*

[14]The Dow Jones Moderate Portfolio Index is designed to measure a total portfolio of stocks, bonds, and cash, allocated to represent an investor who desires 60% of the risk of the global securities market.

[15]The Bloomberg USAgg Index is a broad-based flagship benchmark that measures the investment grade, US dollar-denominated, fixed-rate taxable bond market. The index includes Treasuries, government-related and corporate securities, MBS (agency fixed-rate pass-throughs), ABS and CMBS (agency and non-agency)

[16]The MSCI AC World Index Net IMI captures large, mid and small cap representation across Developed Markets (DM) and Emerging Markets (EM) countries covering approximately 99% of the global equity investment opportunity set. Returns are calculated net of withholding taxes for all US-based constituents in the index.

[17]Sharpe Ratio measures an asset's excess return relative to its volatility, helping investors assess risk-adjusted performance.

Other ELM ETF Details

Expense Ratio

The ELM ETF has a stated fee of 0.26% per annum, less a fee waiver of 0.02%[18] through for a net fee of 0.24%. The 0.24% includes the expense ratios of the ETFs that the ELM ETF is invested in, which typically average about 0.05%. According to ETF.com, ELM's expense ratio of 0.24% is 75% lower than the average expense ratio of US-listed asset allocation ETFs of 0.97%[19].

Rebalancing

We rebalance the ELM ETF's asset allocation at least twice per month, based on an average of the current target weights over the past roughly four weeks. In effect this means that new market conditions can take up to about four weeks to fully filter through to the portfolio. This reduces the idiosyncratic risk associated with when we choose to rebalance, and reduces portfolio turnover versus going fully to target weights each rebalancing.

Tax Efficiency

The ELM ETF is managed in a tax-aware manner, and hopes to distribute little to possibly no capital gains tax distributions through tax loss harvesting in the portfolio, tax-sensitive trading and use of the in-kind creation and redemption of shares of the ETF.

UK HMRC Reporting Status

The ELM ETF has been granted UK Reporting Status by the UK HMRC. Some UK investors find UK Reporting Status beneficial. Please seek expert tax advice to see if this is of benefit to your particular circumstances.

Custody

The ETF's assets are custodied at US Bank. See the ELM ETF prospectus for more details, available on elmfunds.com.

Communications and Investor Resources

Twice a year Elm holds a video call to which all Elm clients are invited, during which the managers discuss new developments and answer questions. Investors can read the articles we have published over the past 13-plus years, use tools which describe our asset allocation approach, and address numerous other investing questions at our elmwealth.com website. The Elm team is always available to answer questions from investors directly.

Getting Started

If you're interested in more details, up-to-date asset allocation, holdings and performance, please visit the elmfunds.com website. You can request a meeting by emailing our partner Jerry Bell (jerry@elmwealth.com).

Further Reading and References

- Haghani, V. and White, J. (2023). *The Missing Billionaires: A Guide to Better Financial Decisions.* Chapters 1 - 5 in particular. *Wiley.* (we'd be happy to send you a copy if you do not already have one)

[18] Through February 10, 2026. This waiver may not be terminated without the approval of the Trust's Board of Trustees (the "Board") and should not be construed to be a permanent reduction of the management fees of the Adviser.

[19] As of June 30, 2025

- Haghani, V. and Dewey, R. (2016). "A Case Study for Using Value and Momentum at the Asset Class Level." *The Journal of Portfolio Management.* (if you have trouble finding it, please ask us for a copy)