The Ellevest Difference

Principles and Methodology for Online Investing

SYLVIA S. KWAN PH.D., CFA, CAIA
CHIEF INVESTMENT OFFICER

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Introduction

Ellevest, Inc. (“Ellevest”) was founded to provide an engaging investing experience to help women meet their financial goals in life. We’ve heard from so many women that they have a different approach to investing than men. Women are more risk-aware, and they prefer less volatility and more certainty of achieving their goals over taking big bets that may or may not be accompanied by greater investment returns. We’ve heard that what matters most to her is the achievement of her financial goals, and not outperformance as compared to an arbitrary benchmark.

Ellevest offers a modern, engaging user experience. The same care, thoughtfulness, and attention to detail that is reflected in our beautiful, easy-to-use interface is applied to the construction of our portfolios, our selection of investments, and the development of the algorithms that drive our forecasts and recommendations.

Some other digital investment advisors may outsource their portfolio management function to third-party advisors. But we don’t believe in taking those kinds of shortcuts. Why build a beautiful experience externally, only to offer generic portfolios and advice? Anyone can do that.

We also don’t believe that how you invest should depend upon your emotions or your personality. That’s why our methodology and algorithms that underlie our recommendations are built from the ground up, incorporating what we’ve learned from women about how they want to invest. Women tell us that they place higher value on the opportunity to reach their goals than on speculative investments (taking greater risks). We estimate initial target amounts for all your goals, and then solve for how to reach them within the constraints of your resources. We show you a forecast amount for each goal, and then allow you to interactively explore how changes to any one goal impact the achievement of all of the goals in your plan. We base our recommendations and algorithms upon our research, expertise, and financial industry experience.

Our core portfolios are constructed thoughtfully, using carefully vetted low-cost exchange-traded funds (ETFs), which are purposefully combined to give you the potential to lower your overall risk. Our projections and forecasts aim to provide as close a reflection of what you can expect by investing with us. That means they include the projected recommendations that we will provide over time (ie, asset allocations
that change over time), and real-world realities like fund fees, inflation, and taxes — on interest income, dividends, and realized capital gains from rebalancing and trading. Because our clients make important investment decisions based on these projections, doing anything less is simply not beneficial to our clients.

When you look at the inner workings of Ellevest, you won’t find generic advice. Instead, you’ll discover a robust, thoughtful investment approach that considers how women have told us they want to invest. That the experience is beautiful and engaging is simply icing on the cake. We invite you to learn more about what’s under our hood.

The Ellevest approach

Our investment process includes these steps:

- Asset allocation
- Investment selection
- Goal-based portfolios created around risk capacity
- Investment plan recommendations
- Realistic forecasts using Monte Carlo simulation
- Ongoing portfolio management

Asset allocation

Asset allocation is the selection and weighting of different types of investments in a portfolio. It is based on the principle that different types of investments perform differently under varying market and economic conditions. But asset allocation is only effective if the assets selected have low correlation with each other — or in other words, if they move differently from one another over time.

Diversifying across different asset classes within a portfolio is an established method of maximizing returns across the risk spectrum. True diversification means that over a given time period, some investments will be up and others will be down. Ellevest collaborates with Morningstar Investment Management, LLC ¹ to determine the set of

¹ Morningstar Investment Management, LLC is a registered investment adviser and subsidiary of Morningstar, Inc. Morningstar Inc. is a leading provider of independent investment research in North America, Europe, Australia, and Asia.
asset classes that we forecast will likely provide effective diversification and the risk and return characteristics that we seek in goal-based portfolios. Because markets change, as well as the relationships between asset classes, we review our set of asset classes annually, and update them as needed.

**Why diversify?**

But why do we diversify? The answer goes beyond the conventional wisdom that you don’t want to put all of your eggs in one basket. We diversify because we can’t predict the future of financial markets with any certainty. If we knew without a doubt which investment or asset class would generate the highest return in the next year, we’d put 100% of our clients’ assets in that single investment or asset class. There would be no reason to diversify. But the reality is that we can’t predict how financial markets will behave, and we don’t know anyone who consistently can. That is why we diversify — to offer protection against the unpredictable. Allocating our portfolio across many different asset classes helps reduce overall risk and offer protection against what we don’t know and can’t foresee.

**The Ellevest difference**

Ellevest uses 21 different asset classes across our goal-based portfolios. Some other digital advisors use a smaller set — mostly avoiding asset classes such as global REITs (real estate investment trusts). We believe these asset classes, along with Treasury Inflation Protected Securities (TIPS), offer inflation protection. This is most important as investors approach retirement and as they begin to draw upon their investments during retirement. Although REITs historically have had higher risk, we believe that the inflation protection, diversification benefits, and potential returns they offer may outweigh these risks in the long term.
Ellevest asset classes

Not every asset class is used in each portfolio. Some asset classes are more “tax efficient,” which means that any distributions and/or gains from those investments are taxed at the most favorable tax rates if the investment is held over the long term. In contrast, “tax-inefficient” investments, such as corporate bonds, distribute income that is taxed at the typically higher ordinary tax rates. Placing tax-inefficient investments in tax-deferred accounts such as individual retirement accounts (IRAs) is considered advantageous, since the taxes owed are postponed and not taken out of the account. This allows the principal to grow tax-deferred until the investor retires and begins withdrawing from the account, at which point taxes are owed.

Investment selection

Our core portfolios are composed of low-cost ETFs. Low-cost indexed ETFs are amongst the least expensive and most tax-efficient means of investing in the financial markets. But choosing the lowest-cost ETF for each asset class isn’t necessarily the smartest or least costly means of constructing a portfolio. At Ellevest, we collaborated with Morningstar to find effective ETFs that together achieve the desired asset class exposures. Ellevest selected these ETFs based upon their broad and diverse coverage of the asset class(es) they represent, as well as their low total holding costs, high liquidity (for easy withdrawals), tax efficiency (improves after-tax

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2 The asset classes with diagonal shading are those for which we offer impact investments. To learn more, see Investing in Women.
returns), and low tracking error (how closely the fund follows its benchmark). ETFs that have lower expense ratios certainly exist, but they may trade on lower volumes and higher bid/ask spreads, which tend to increase their overall costs.

But we don’t stop there. We also consider ETFs that would work together effectively in the context of your total portfolio. We combine the ETFs in a portfolio to achieve the desired asset allocation in an analytically rigorous way to reduce costs. For example, rather than choose one ETF per asset class, we might select one very low-cost ETF that is made up of multiple asset classes, and then combine that with smaller allocations to single-asset-class ETFs. Together, this combination results in the desired asset class exposures, but at a lower cost and higher tax efficiency. That’s because purchasing a large ETF that includes multiple asset classes is typically less costly than purchasing its individual component ETFs.

The Ellevest difference

An example of how we select ETFs is our choice of the iShares JP Morgan USD Emerging Markets Bond ETF (EMB) for the Emerging Market Bond asset class in April of 2016, when we developed our initial core portfolios. There were a number of choices for this asset class among ETF offerings, with the Vanguard Emerging Markets Government Bond ETF (VWOB) having the lowest expense ratio at 0.34% (since then, VWOB’s expense ratio has been reduced even further, to 0.30%). A naïve approach to selecting an ETF would be to simply choose the ETF with the lowest expense ratio, which in this case would have been VWOB. However, a closer look at EMB and VWOB and how each ETF traded revealed a different story. The table below shows statistics on these two ETFs at the time of our initial analysis:

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1 The bid/ask spread is the difference in price between the highest price that a buyer is willing to pay and the lowest price for which a seller is willing to sell.

4 All data from Morningstar as of 4.28.2016.
At that time, EMB had more than $6B of assets under management (now at $14.9B), compared to VWOB’s assets of less than $1B (now at $1.8B). The average daily number of EMB shares traded was nearly 15 times that of VWOB, and the average daily bid/ask spread for VWOB was 3 times that of EMB. A common practice used for estimating trading costs is to take half of an investment’s bid/ask spread. (This is not an explicit cost, such as an expense ratio, but one that is reflected in the share price that you ultimately pay when you purchase the fund and the share price you receive when you sell, both of which impact your returns. Wider bid/ask spreads negatively impact your returns.) For VWOB, that cost was an additional 6 bps, or 0.06%, which brought its total holding cost close to EMB. However, throughout the trading day, VWOB sometimes traded at very wide bid/ask spreads. As of November 2019, the relative bid/ask spread between the two ETFs (60-day average) is about 2x, but the absolute spreads have narrowed significantly: EMB at 1 bp and VWOB at 2 bps.5

While VWOB appeared to be the least costly option based upon expense ratio, careful consideration of other factors led to our decision to use EMB in our portfolios. Since our initial analysis, VWOB’s AUM has nearly increased to $1.8 billion and its average daily volume has increased to 319,000 shares. In contrast, EMB’s AUM has increased to $14.9 billion, and its average daily volume is now 10.2 million shares.

5 Source: etf.com
Goal-based investment portfolios

Ellevest constructs portfolios based upon modern portfolio theory. Many advisors use mean variance optimization (MVO) to solve for the “efficient frontier” of portfolios, or the set of asset class combinations that generate the maximum return for each level of risk. MVO, and other variants on MVO, are well grounded in modern finance theory and are used by many investment firms to determine the optimal mix of asset classes. Using MVO for portfolio construction is best for long-term investing without a specific goal.

However, the objective of goal-based investing is to help you reach your goal, not simply to maximize returns. At Ellevest, our objective is to minimize the risk of not reaching your goal — not to outperform a benchmark. To address this risk, we use a combination of optimization models, including MVO, which results in a mix of asset classes that works to increase the likelihood that you will reach your goal.

The Ellevest difference

In collaboration with Morningstar, Ellevest portfolios are purposefully constructed using a combination of MVO and surplus optimization, also called liability-driven investing (LDI). LDI is an extension of MVO that considers not only assets, but liabilities as well.

In goal-based investing, the amounts needed for a goal are economically equivalent to a liability. For example, let’s say your goal is to purchase a home in five years with a down payment of $50,000. In economic terms, that $50,000 is a liability you wish to owe in five years. Because LDI considers both assets and liabilities in constructing an optimal portfolio, it is ideal for goal-based investing.

Using a combination of MVO and LDI to construct our portfolios provides us with an effective approach that seeks to maximize returns while minimizing the likelihood of not meeting your goal.

Because of the correlation between goals modeled as liabilities and US stocks, a goal-based optimization approach results in portfolios that have higher allocations to US stocks versus international stocks, relative to portfolios that are driven solely by MVO models. We believe that the higher weighting to US stocks relative to the global
market capitalization results in portfolios that have a greater chance of meeting your goals.

In addition to using LDI, our portfolios are slightly tilted to have a higher weighting to value-oriented equities versus growth equities. Value stocks are stocks that tend to trade at a lower price relative to their fundamental characteristics such as earnings, dividends, and sales. Growth stocks are stocks that are expected to grow at higher rates than their peers, and thus tend to trade at higher prices relative to their fundamental characteristics. Value stocks have historically outperformed growth stocks, and done so with less volatility.\(^6\)

As global market conditions around the world change, our portfolios will also change — but the philosophy remains the same: mindful construction of portfolios with a focus on maximizing not returns, but the likelihood of reaching your financial goals.

**Goal-specific portfolios**

Most advisors recommend portfolios based primarily on an investment horizon, followed by (or sometimes preceded by) an estimate of the investor’s risk tolerance using the results of a questionnaire. Clearly, time horizon is important, but many women (members of our team included) have told us that they don’t have a clue how to answer risk questionnaires or how to determine whether they are risk tolerant or risk averse when it comes to investing.

At Ellevest, we’ve flipped the question of risk on its head — by focusing on risk capacity. One way to think about this is to consider the amount of risk you can afford. More specifically, risk capacity refers to the capability that an investment strategy has to withstand negative events without seriously compromising the achievement of goals.

Not all goals have equal risk capacity. A goal with low risk capacity is one where the inability to achieve the goal creates dire financial consequences. We believe that a goal has high risk capacity if its investment horizon is long enough to allow for achievement of the goal through up and down markets, and/or if the goal isn’t completely compromised should markets do poorly.

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For example, a home goal (that is, saving for a down payment to purchase a home) may have a low to moderate risk capacity. Since this goal has an intended liquidation event, if the market performs poorly, it may mean you are not able to afford exactly the home you want. But it doesn’t necessarily mean you can’t purchase a home at all; it may just mean a more modest home or a delayed purchase. Because of risk capacity, a home goal with a five-year investment horizon is different from a vacation goal with the same horizon. That’s because a vacation goal has more risk capacity in the sense that it’s discretionary.

A higher risk capacity goal is a Build Wealth goal. It’s long term, so your portfolio has the opportunity to weather any ups and downs in the markets. In addition, those funds are likely discretionary in nature, and not earmarked for necessary living expenses. Each portfolio at Ellevest is goal specific, and considers both the investment horizon and risk capacity of the goal.

**Investment plan recommendations**

At Ellevest, we provide you with an investment plan with recommendations for achieving each of your goals. For each goal you choose, we provide recommendations for:

- Your goal target amount (how much you want for your goal)
- Your time horizon (when you want to achieve your goal)
- An amount to deposit when you fund your goal
- An ongoing amount to save toward your goal
- The portfolio we recommend for investing toward your goal

We ask you questions only about yourself — your age, salary, education, and current account balances — and what financial goals you want to achieve. We take it from there and do the heavy lifting.

We’ve heard that it’s challenging for many women (us included) to know or even think about what targets we should aim for — like how much to save if you want to start a business, or how much you need in retirement. So we calculate our best guess for you, based upon your personal information, and then allow you to refine the amounts to your preferences and needs.
Our methodology for estimating initial target amounts by goal is shown below.

<table>
<thead>
<tr>
<th>GOAL</th>
<th>ESTIMATED TARGET AMOUNT</th>
<th>DEFAULT INVESTMENT HORIZON</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Place to Call Home</td>
<td>We use the average price for a home in your zip code and assume a 20% down payment, and add inflation for the duration of the default investment horizon.</td>
<td>6 years</td>
</tr>
<tr>
<td>Start My Own Business</td>
<td>24 months of your salary minus taxes (your take-home pay). We add inflation for the duration of the default investment horizon.</td>
<td>5 years</td>
</tr>
<tr>
<td>Kids Are Awesome</td>
<td>9 months of your salary minus taxes (your take-home pay) We add inflation for the duration of the default investment horizon.</td>
<td>6 years</td>
</tr>
<tr>
<td>Retirement on My Terms</td>
<td>We grow your current salary from today to retirement using a gender-specific salary curve based upon your education level. We assume 90% of your after-tax salary in the year before you retire to be the income you need in retirement.</td>
<td>Your full retirement age as defined by the Social Security Administration</td>
</tr>
<tr>
<td>Once-in-a-Lifetime Splurge</td>
<td>You set the amount you think you’re going to need for your splurge.</td>
<td>You tell us your goal date.</td>
</tr>
<tr>
<td>Build Wealth</td>
<td>Varies depending upon your resources, other goals, and goal priority.</td>
<td>20 years or more</td>
</tr>
</tbody>
</table>

Once you’ve refined and set your financial goal targets, we run our proprietary algorithms to provide you with funding, savings, investing, and timing recommendations to reach your financial goals within the constraints of your resources.
The Ellevest difference

We know that there are many, many paths to reaching your goals, and our recommended investment plan is just one of those paths. Our algorithms work to create a recommendation that balances initial funding and ongoing savings amounts that work with our recommended portfolio to help you achieve your goal within the desired time horizon. However, many other paths to achieving your goal are possible: You could put aside more now and save less later, or put aside nothing now and save more, or wait longer to reach your goal.

At Ellevest, we have built the tools you need to explore all of these paths. You can see immediately how your decision to change any of our recommendations may impact not only the goal you are exploring, but also the achievement of all the goals in your Investment Plan. We determine how these changes affect other goals; for example, starting your business sooner might mean buying a home later. This holistic view and personalized interaction are unique to Ellevest. For each decision you wish to explore, all of our algorithms are run in real time, so you can immediately see the impact on your Investment Plan.

Realistic forecasts

As part of our investment offering, we forecast goal outcomes using Monte Carlo simulation — a forward-looking, computer-based analysis in which we run our recommended portfolios and savings rates through hundreds of different economic scenarios to determine a range of possible outcomes for achieving your goal.

Monte Carlo simulation begins with a set of capital market assumptions (CMAs). CMAs are the set of elements that describe an economy, including inflation, expected returns and risk characteristics for asset classes, and the term structure of interest rates. We use CMAs developed by Morningstar. Morningstar’s investment management experience is rooted in the pioneering work of Roger Ibbotson and Rex

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We license and use the Wealth Forecasting Engine (WFE) from Morningstar Investment Management. Monte Carlo is an analytical method used to simulate random returns of uncertain variables to obtain a range of possible outcomes. Such probabilistic simulation does not analyze specific security holdings, but instead analyzes the identified asset classes. The simulation generated is not a guarantee or projection of future results, but rather, a tool to identify a range of potential outcomes that could potentially be realized. The Monte Carlo simulation is hypothetical in nature and for illustrative purposes only. Results noted may vary with each use and over time.
Sinquefield from their seminal study “Stocks, Bonds, Bills, and Inflation.” Their work has provided the foundation on which CMA assumptions are formed.

Based upon these CMAs, we create hundreds of economic scenarios — strong-performing markets, high inflation, recessions, low interest rates, poor-performing markets, etc. Each scenario is macro-consistent, meaning the relationships among the elements are consistent with what we know and have observed about market behavior. For example, scenarios with high inflation expectations imply high nominal interest rates. It’s also highly unusual to observe large changes in interest rates from year to year — low interest rates aren’t likely to be followed by a big spike in rates. All of these economic scenarios together provide a universe of simulated economies that span the kinds of market and economic behaviors that we have observed in history.

The CMAs that we use at Ellevest reflect what we believe are the long-term risk and return characteristics of different asset classes, conditional upon current economic conditions. For example, if we are currently in a low interest rate environment, the starting point of our forecasts will reflect scenarios within that context. Our CMAs are reviewed annually, and updated as markets change.

**The Ellevest difference**

Our objective is to provide you with realistic forecasts, using assumptions grounded in research and expertise. These forecasts are intended to show you a reasonable picture of the possible future outcomes, and thus how likely you are to achieve your financial goals, given the decisions you make today. By changing the saving, time horizon, portfolio, and deposit amounts we initially recommend to you, you can immediately see how changes you make today may impact the achievement of your goals in the future. We believe that by seeing how your future outcomes may unfold, you can make more effective decisions.

We know that you make important decisions, such as how long to save and how much to save, based upon the forecasts we show you. That’s why both the recommendations we provide and the forecasts we show you reflect a 70% likelihood of achievement or better. We believe this provides you with a greater level of confidence that you will be able to achieve your financial goals with your investment plan. You may have heard of

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other digital advisors who show higher forecasts, but with only a 50% estimated chance of achievement — a likelihood that doesn’t meet our standards. At Ellevest, we want to help you achieve your goals with a higher level of confidence.

Our forecasts also include the impact of taxes — ordinary tax rates paid on interest income, dividend tax rates paid on dividends, and capital gains taxes paid on realized capital gains due to rebalancing — each year. We believe other digital advisors show forecasts on a pre-tax basis. Yet taxes are a real-world reality — they must be paid on the dividends, interest, and capital gains realized from your portfolio. We believe that showing forecasts that do not account for the taxes we know you would incur would overstate your wealth. Our studies show that over moderate to long time horizons, taxes can account for a non-trivial percentage of your forecast. That means that the $70,000 forecast might net you less than $68,000 if you account for taxes properly.9 This is not the kind of surprise we want for our clients.

In contrast, the forecasts and outcomes we provide reflect, as much as possible, what you would experience using our service. For taxable accounts, that means simulating the amount incurred each year for taxes from dividends, interest income, and realized capital gains from portfolio turnover due to rebalancing. The appropriate tax rates (based upon your salary and your state of residence) are applied to the different types of portfolio income and gains. These estimated taxes are taken out of your portfolio each year in the simulation, so that the projection shown at the end of your time horizon is a number that we believe is realistic to achieve.

Our forecasts also incorporate growth in your salary, using a gender-specific, education-based salary curve provided by Morningstar. The hard truth is that there are significant differences in gender salary curves; the data shows that wages for women with bachelor’s degrees peak at age 40 in real dollars, compared to age 55 for men. Using a gender-specific salary curve that matches industry data — as opposed to using a simplistic, fixed salary growth assumption (ex, 3% annually) — provides a more realistic view of the actual amounts women can earn, save, and invest, which impacts the achievement of her goals.

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9We ran simulations for a $50,000 portfolio over a 20-year horizon that accounts for taxes each year and one that did not (grows tax-deferred). Both portfolios were invested in a low-cost diversified portfolio comprised of 60% stocks and 40% bonds. Both simulations assume a fee of $20 per year. The portfolio with taxes grew to $67,360 and the portfolio that did not account for taxes grew to $70,427.
Lastly, and most importantly, our projections incorporate changes to your portfolio as you near your goal, which is commonly called a “glide path.” For non-retirement goals, we simulate a glide path of asset allocations that generally becomes more conservative once you get closer to your goal horizon, to help preserve principal and avoid large losses as you near your target goal. For retirement goals, we refresh our analysis and portfolio recommendations on your goal anniversary, based upon your current balances and assumed savings rates for your retirement accounts held at Ellevest, as well as updated information you provide on your retirement accounts held outside of Ellevest. Our revised portfolio recommendations may be more conservative or more aggressive, based upon your progress to date towards your retirement goal. Forecasts offered by certain other advisors usually do not incorporate a glide path, or changing asset allocations, but instead assume your current or target portfolio is maintained for your entire investment horizon. This may lead to higher projections, all else being equal. For goal-based investing, we believe that glide paths are critical to the achievement of your financial goals.

Keeping you on track

Once you’ve implemented your investment plan, we actively monitor your portfolio and your plan. We let you know on your personal dashboard whether or not you are on track for each of your goals. Falling off track means that our estimate of the likelihood that you achieve your goals falls below 70%. If you are off track, we help you get back on track with specific recommendations to achieve a likelihood of at least 70%, such as investing for one more year, or saving more a month.

As financial markets move, your portfolio may shift away from its targets. While small movements are normal and within acceptable tolerances, if your portfolio moves sufficiently away from its targets, we rebalance to bring it back in line with your target portfolio. And as you reach your goal horizon, we rebalance your portfolio to help give you your best chance of achieving your goals.

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10 See Betterment Savings and Advice Assumptions, Wealthfront projection assumptions.
Conclusion

At Ellevest, our goal is to help women take control of their finances and achieve their financial dreams. To accomplish this, we built our goal-based advice from the ground up, with careful attention to every step in the investment process. Instead of simply using status quo tools as a solution to goal-based investing, we rethought each step, developing and designing solutions specifically for solving financial goals, not just maximizing investment returns. Our portfolios, projections, and algorithms that drive our advice are grounded in thoughtful research, deep expertise, and real-world experience. We will continue to seek solutions that improve our methodology and advice to help women lead their best financial lives.
Disclosures

This whitepaper was last updated in April 2020.

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The statements contained herein are the opinions of Ellevest. All opinions and views constitute our judgments as of the date of writing and are subject to change at any time without notice.

Forecasts or projections of investment outcomes in investment plans are estimates only, based upon numerous assumptions about future capital markets returns and economic factors. As estimates, they are imprecise and hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results.

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The information provided does not take into account the specific objectives, financial situation, or particular needs of any specific person.

Diversification does not ensure a profit or protect against a loss in a declining market. There is no guarantee that any particular asset allocation or mix of funds will meet your investment objectives or provide you with a given level of income.

Investing entails risk, including the possible loss of principal, and there is no assurance that the investment will provide positive performance over any period of time.

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