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Step 2: Nobel Laureates  
Step 3: Stock Pickers  
Step 4: Time Pickers  
Step 5: Manager Pickers  
Step 6: Style Drifters  
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Index Funds  
The 12-Step Recovery Program for Active Investors
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Index Fund Advisors, Inc. (IFA) is a fee-only wealth management firm that provides risk-appropriate, returns-optimized, globally-diversified and tax-managed investment strategies with a fiduciary standard of care.

Founded in 1999, IFA is a Registered Investment Adviser that provides fiduciary wealth management services to individuals, trusts, corporations, non-profits, and public and private institutions. Based in Irvine, California, IFA manages individual and institutional accounts, including IRA, 401(k), 403(b), profit sharing, pensions, endowments and all other investment accounts. IFA also facilitates IRA rollovers from 401(k)s and 403(b)s. As of December 31, 2019 more than 2,400 clients nationally entrusted approximately $4.08 billion of their assets to IFA’s care.

The value of IFA extends beyond superior investment advice. As a holistic financial partner, IFA helps guide investors through life and retirement stages. Our Wealth Advisors take a personalized approach to matching people with portfolios while providing a full-range of wealth services for a better overall client experience.

Through its IFA Taxes division, IFA provides individuals, businesses, trusts and non-profit entities across the United States a wide range of tax planning, tax preparation and accounting services.*

For updates and further information, visit ifa.com.

*IFA Taxes does not provide auditing or attestation services and therefore is not a licensed CPA firm. IRS Circular 230 Disclosure: To ensure compliance with requirements imposed by the IRS, we inform you that any U.S. Federal tax advice contained in this communication is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding penalties under the Internal Revenue Code or (ii) promoting, marketing or recommending to another party any transaction or matter herein.

Past performance does not guarantee future results. This is not to be construed as an offer, solicitation, recommendation, or endorsement of any particular security, product or service. There are no guarantee investment strategies will be successful. Investing involves risks, including possible loss of principal.
IFA FIDUCIARY WEALTH SERVICES

IFA combines personalized advice with customized wealth management services to assist our clients in achieving their long-term financial goals. These services are listed below and include: educational wealth management articles and videos, tax planning and tax preparation, an automatic annual glide path de-risking option, tax-loss harvesting, detailed financial planning, monthly performance reporting and much more...

FIDUCIARY WEALTH SERVICES

WEALTH MANAGEMENT
IFA provides investment advisory services that focus specifically on matching people with portfolios of passively managed or index mutual funds, based on the client's risk capacity.

FINANCIAL PLANNING
IFA offers robust financial planning utilizing eMoney to provide a complimentary, wealth management system that will allow our clients to track their assets, liabilities, income, and spending across all their accounts as well as store all their important documents.

ACCOUNTING
IFA Taxes provides collaborative tax advice, tax planning, accounting, bookkeeping and tax return services to individuals and business entities across the United States.

SOCIAL SECURITY OPTIMIZATION SERVICES
IFA Wealth Advisors and expert resources provide a powerful solution to determine how to maximize your social security benefits and further outline your complete financial picture.

RETIREMENT PLANNING
With the aid of the IFA Retirement Plan Analyzer, IFA Wealth Advisors are able to help clients make more informed decisions in each stage of retirement.

COLLEGE PLANNING
IFA’s College Savings Analyzer helps IFA Wealth Advisors align a client’s college funding objectives with an appropriate college savings and investment plan.

CHARITABLE GIVING SERVICES
IFA Wealth Advisors assist clients in setting up donor advised funds, which are charitable giving accounts that provide an efficient way to make grants to charities.

LENDING SERVICES
IFA Wealth Advisors can assist clients in accessing various lending solutions that are secured by the client’s portfolio. These solutions include pledged lines of credit, non-purpose loans and margin loans through Charles Schwab and Fidelity.

REFERRAL SERVICES

INSURANCE SERVICES

TRUSTEE SERVICES

ESTATE PLANNING SERVICES
THE VALUE OF A PASSIVE ADVISOR

As low-cost index fund investing continues to gain in popularity, numerous researchers have turned their attention to quantifying the value a passive advisor can bring to an index portfolio. One such study conducted by Vanguard, the leading provider of index funds quantified the “advisor alpha.” This advisor alpha is the sum of the value added by advisors who adhere to the principles of controlling costs, maintaining discipline and tax awareness, relative to other advisors or unadvised investors. The greatest contribution a passive advisor brings is behavioral coaching, according to the study — or as William Bernstein so succinctly puts it: “Wall Street is littered with the bones of those who knew just what to do, but could not bring themselves to do it.” The breakdown of the advisor alpha set forth in Vanguard’s 2014 & 2018 studies are shown below.

Breakdown of Vanguard Advisor's Alpha

<table>
<thead>
<tr>
<th>Breakdown of Vanguard Advisor's Alpha</th>
<th>2014</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation with Cost-Effective Funds</td>
<td>0.45%</td>
<td>0.34%</td>
</tr>
<tr>
<td>Disciplined Rebalancing</td>
<td>0.35%</td>
<td>0.26%</td>
</tr>
<tr>
<td>Behavioral Coaching</td>
<td>1.50%</td>
<td>1.50%</td>
</tr>
<tr>
<td>Asset Location</td>
<td>0.0-0.75%</td>
<td>0.0-0.75%</td>
</tr>
<tr>
<td>Annual Withdrawal Strategy</td>
<td>0-0.70%</td>
<td>0-1.10%</td>
</tr>
<tr>
<td>Determining an Appropriate Asset Allocation</td>
<td>Not Quantified</td>
<td>Not Quantified</td>
</tr>
<tr>
<td>Total Return Investing vs. Reaching for Yield</td>
<td>Not Quantified</td>
<td>Not Quantified</td>
</tr>
</tbody>
</table>


A knowledgeable passive advisor can provide several services, including the critical discipline needed to combat emotional, reflex reactions. When advice is combined with funds from DFA, a science-based passive fund company, investors avail themselves of the opportunity to keep more of what the market delivers.

IFA analyzed the performance of 533 clients who had been working with our advisors for at least 11 years from 2008 through 2018. This period included the decline of equities during the global financial crisis of 2008 and early 2009, as well as the subsequent recovery period. Even though many of these clients had inception dates prior to Jan. 1, 2008, we chose this time period so that each investor would have experienced the same market conditions. For each of the 100 benchmark IFA Index Portfolios, our research team maintains monthly historical returns that can be used to benchmark clients' time-weighted returns. IFA determined the annualized returns of the clients' index portfolios and compared that to the original recommended IFA Index Portfolio. The clients were divided into three groups based on how closely they followed IFA’s advice. The results of the study are illustrated in the chart below.

IFA Client Success at Capturing Benchmark Index Returns
11 Years (1/1/2008 to 12/31/2018)

<table>
<thead>
<tr>
<th>Client's Average Percentage of Benchmark Annualized Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clients that Did Follow IFA's Advice</td>
</tr>
<tr>
<td>Average of 209 clients that kept within 9 risk levels of IFA's original recommendation</td>
</tr>
<tr>
<td>100.32%</td>
</tr>
<tr>
<td>Clients that Recalibrated</td>
</tr>
<tr>
<td>Average of 163 clients that decreased their risk level by 10 to 25 compared to IFA's original recommendation</td>
</tr>
<tr>
<td>82.35%</td>
</tr>
<tr>
<td>Clients that Did Not Follow IFA's Advice</td>
</tr>
<tr>
<td>Average of 161 clients that either decreased their risk level by more than 25 or increased by more than 10 compared to IFA's original recommendation</td>
</tr>
<tr>
<td>77.93%</td>
</tr>
</tbody>
</table>

Source: Internal analysis of 533 portfolios of IFA clients that were clients as of 1/1/2008 and stayed through 12/31/2018. Returns calculated as annualized returns. The benchmark is IFA's recommended IFA Index Portfolio at the beginning of the client relationship. All client index portfolios were evaluated for that 11-year period, which we consider to be a difficult period because it includes a steep drop followed by a full recovery. This is not to be construed as an offer, solicitation, recommendation, or endorsement of any particular security, product or service. There are no guarantees investment strategies will be successful. Investing involves risks, including possible loss of principal. IFA Index Portfolios are recommended based on an investor’s risk capacity, which considers their time horizon, attitude towards risk, net worth, income, and investment knowledge. Take the IFA Risk Capacity Survey to determine which index portfolio matches your risk capacity.
IFA’s evidence-based, passive investment strategy is designed to capture the returns of the global markets, with the goal of keeping fees low. IFA’s investment philosophy and subsequent portfolio implementation maximizes global diversification while capturing exposures to the asset class and sub-asset class indexes that have a long history of rewarding investors for risks taken. Specifically, IFA’s philosophy is guided by long-term historical data, avoiding attempts to outsmart the market through timing, style selection, or paying the high prices associated with active management. These destructive behaviors simply erode the returns the market provides patient investors who focus instead on appropriate asset allocation and portfolio implementation. IFA avoids the futile, speculative, and unnecessary cost-generating activities of stock, time, manager, and style picking. Contrarily, IFA employs a disciplined, quantitative approach that emphasizes broad diversification and consistent exposure to the structural trends of global publicly-traded markets.

IFA’s investment philosophy is rooted in Nobel Prize-winning research. Notably, IFA’s strategy is guided by The Efficient Market Hypothesis and Modern Portfolio Theory. IFA bases its portfolio construction on the highly respected research indexes designed by Nobel Laureate Eugene Fama and his associate Kenneth French, incorporating more than 92 years of IFA Index Portfolio risk and return data and third generation index fund designs.

IFA matches people with portfolios by carefully qualifying and quantifying five dimensions of an investor’s risk capacity and matching it to five dimensions of a portfolio’s risk exposure. IFA obtains academically identified capital market rates of returns for our clients from approximately 13,000 public companies in the U.S. and approximately 45 other countries globally. We design highly tax-managed, low cost trading strategies, maintaining proper risk exposures through rebalancing.

IFA utilizes the following five investment tenets derived from academic research, much of which has been recognized with the awarding of the Nobel Prize in Economic Sciences:

1) Financial Markets Are Efficient
As free market prices fully incorporate available information, price change consequently reflects unexpected new information; therefore the current price is the best estimate of a fair price.

2) Risk and Return Are Inseparable
Although there is no such thing as return without risk, not all risks are equally rewarded. Long-term historical risk and return data informs IFA’s investment selection process, and IFA’s Index Portfolios seek to capture the historical risk factors that have appropriately compensated investors for risks taken, including market, size, value, and profitability for equity and term and default for fixed income.

3) Diversification Is Essential
Diversification within and among asset classes lets investors effectively capture the returns offered by the financial markets, in accordance with their risk capacity.

4) Structure Explains Performance
The expected return of a diversified portfolio is determined by its exposure to the compensated risk factors, therefore the high costs and risks of active management are unnecessary and potentially harmful to an investor’s long-term outlook.

5) Advisor Advantage
There are distinct benefits to enlisting the services of a passively-oriented advisor, including disciplined rebalancing, tax loss harvesting, asset location, and glide path.
STEP 1: ACTIVE INVESTORS
Recognize an Active Investor

Active investing is a strategy that investors use when trying to beat a market or appropriate benchmark. Active investors rely on speculation about short-term future market movements. They commonly engage in picking stocks, times, managers, or investment styles.

These self-defeating practices of active investors unnecessarily increase their risk, expenses, taxes, and anxiety. Most importantly, the sport of speculation deprives investors of the returns they could earn if they would simply buy and hold a passively managed blend of globally diversified index funds matched to their risk capacity.

The chart below tells the story. It reflects the findings of a 2020 Dalbar study, revealing that the average equity fund investor significantly underperformed the IFA SP 500 Index (A tracking index for S&P 500®) and IFA Index Portfolio 100 over a 20-year period. The study shows that during the 20 years from 2000 through 2019, the average equity fund investor earned returns of only 4.25% per year, while the IFA SP 500 returned 6.02%. This means that the average equity fund investor grew a $100,000 investment to $229,891, while the growth of $100,000 invested in the IFA SP 500 would have been $321,929. Even better, we see that a simulated passive investor who owned IFA’s Index Portfolio 100, an all-equity, small-value-tilted, globally diversified index portfolio, would have grown a $100,000 investment to $468,894 over the same 20-year period.¹

Average Equity Investor as determined by Dalbar | Study sources, Dalbar 2020 QAIB Study, Morningstar, Inc. IFA Index Portfolios were created in 2000 and use hypothetical back-tested performance, please see Appendix for IFA Index Portfolio Data. The use of the IFA SP 500 Index is for illustrative purposes only, please see Appendix for additional information. Past performance does not guarantee future results. Data is provided for illustrative purposes only, it does not represent actual performance of any IFA client portfolio or account and it should not be interpreted as an indication of such performance.
STEP 2: NOBEL LAUREATES
Defer to the Higher Knowledge of Academia

Active investors disregard some of history's most important lessons. Most do not read the peer-reviewed academic studies and Nobel Prize-winning economic research available. They instead rely on media messages to guide their investing decisions, largely unaware of the fact that media outlets profit handsomely from the advertising dollars of online brokers, trading services and active trader publications that encourage us to trade. Nearly 300 years of statistical, scientific and economic research explain why investors who buy, hold and rebalance an investment in global capitalism reap rewards in proportion to the risks they take. Three centuries of study from notable scientists and researchers regarding risk, probability theory, statistics, the random nature of prices and asset-pricing theory have been painstakingly studied, analyzed and summarized by the legends of financial science, some of whom are depicted below. Collectively, these great minds have delivered to us a method of investing that is founded on the principles of market efficiency, the returns of capital markets, and the "Invisible Hand" which guides market forces, prices, allocation of resources, the cost of capital, and the returns of capitalism. Investing according to the findings of these legends enables you to be a better investor.

Blaise Pascal  Adam Smith  Louis Bachelier  Harry Markowitz  William Sharpe
Merton Miller  Friedrich von Hayek  Paul Samuelson  Eugene Fama  Kenneth French
David Booth  Rex Sinquefield  John Bogle  Burton Malkiel  Michael Jensen
STEP 3: STOCK PICKERS
Accept That Stock Pickers Do Not Beat the Market

The financial press largely focuses on the daily movements of stocks and markets, showering rewards on those who are lucky enough to be in the right place at the right time. But it is virtually impossible for a stock picking fund manager or individual stock picking investor to consistently predict and invest in the stocks that will be future winners, based on the tenets of market efficiency. Stock pickers tend to be overly confident in their “skill” to generate alpha (defined as any return above the benchmark return), but studies have shown that their “winning performance” is usually due to luck, not skill. Professors Laurent Barras, Olivier Scaillet and Russell Wermers conducted a study of 2,076 mutual fund managers over a 32-year period. They found that from 1975 – 2006, 99.40% of these managers displayed no evidence of stock picking skill. In another study, the S&P Indices Versus Active (SPIVA) Scorecard revealed that a large percentage of U.S. and International active funds underperformed their respective benchmarks for a 15-year period ending December 31, 2019. Highlights of the SPIVA study are shown in the chart below.

Active Funds Versus Their Benchmarks: U.S. Equity and International Equity Funds
15 Years (1/1/2005 - 12/31/2019) | Net-of-Fee

U.S. Equity Funds

<table>
<thead>
<tr>
<th>All Domestic Funds</th>
<th>All Large-Cap Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>89.10%</td>
<td>90.46%</td>
</tr>
</tbody>
</table>

| Percentage of Funds That Outperformed Their Respective Benchmarks |
| Percentage of Funds That Underperformed Their Respective Benchmarks |

<table>
<thead>
<tr>
<th>All Mid-Cap Funds</th>
<th>All Small-Cap Funds</th>
<th>All Multi-Cap Funds</th>
<th>Real Estate Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>88.27%</td>
<td>89.08%</td>
<td>90.21%</td>
<td>83.10%</td>
</tr>
</tbody>
</table>

International Funds

<table>
<thead>
<tr>
<th>Global Funds</th>
<th>International Funds</th>
<th>Int’l Small-Cap Funds</th>
<th>Emerging Market Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>83.16%</td>
<td>90.39%</td>
<td>68.42%</td>
<td>90.57%</td>
</tr>
</tbody>
</table>

Source: S&P Dow Jones Indices LLC, eVestment Alliance. Past performance is no guarantee of future results. Indexes are not available for direct investment and performance does not reflect expenses of an actual portfolio. Chart is provided for illustrative purposes. This is not to be construed as an offer, solicitation, recommendation, or endorsement of any particular security, product or service. There are no guarantees investment strategies will be successful. Investing involves risks, including possible loss of principal.
STEP 4: TIME PICKERS
Accept That Time Pickers Cannot Time the Market

Time pickers (market timers) mistakenly believe they can predict the future movement of the stock market, moving into the market before it goes up and getting out before it goes down. Such decisions usually do not fare well, because they are based on the fallacy that the direction of future price movements can be predicted. At any point in time, any investor can only know the current and past price of any given security. Nonetheless, market timing can be alluring, likely because investors don’t understand that the market continuously sets prices in response to news, which is unpredictable.

In a study titled, “Likely Gains from Market Timing,” Nobel Laureate William Sharpe concluded a market timer must be correct 74% of the time in order to outperform a passive portfolio at a comparable level of risk.³ In 1992, SEI Corporation updated Sharpe’s study to include the average 9.4% stock return from the period 1901 – 1990. This study determined that gurus must be right at least 69% of the time.⁴

CXO Advisory Group tracked public forecasts of self-proclaimed market timing “gurus.” The chart below shows the percentage grades of 28 market timers who had made more than 100 forecasts from 2000 through 2012. The study shows that not one of the “gurus” was able to meet Sharpe’s requirement of 74% accuracy, or SEI’s minimum 69%, thereby failing to deliver accuracy sufficient to beat a simple index portfolio.⁵


This is not to be construed as an offer, solicitation, recommendation, or endorsement of any particular security, product or service. There are no guarantee investment strategies will be successful. Investing involves risks, including possible loss of principal.
Active investors unnecessarily increase their risk, expenses, taxes, and anxiety. Numerous studies have shown actively managed investments generally carry more risk and lower returns than globally diversified, risk-calibrated index portfolios. Despite this fact, investors frequently fall prey to the allure of past winners, hiring the hottest new fund managers only to fire them later because their past performance doesn't persist in subsequent periods.

A 10-year study conducted by Amit Goyal of Emory University and Sunil Wahal of Arizona State University found that manager hiring and firing decisions made by consultants, board members and trustees were a complete waste of time and money. The study, “The Selection and Termination of Investment Management Firms by Plan Sponsors,” reveals the negative impact of manager picking. The results of hiring 8,755 managers shown below, illustrate that during the 10-year period from 1994 through 2003, managers that were hired had outperformed their benchmarks by 2.91% over the three years before being hired. However, over the following three years the managers underperformed their benchmarks by 0.47% per year. Plan sponsors often proceeded to fire their underperforming managers in favor of other recent top performers, only to repeat the cycle again. The study concluded, “In light of such large transaction costs and positive opportunity costs, our results suggest that the termination and selection of investment managers is an exercise that is costly to plan beneficiaries.”

The bar chart reflects the results of the study minus an estimated annual 0.5% management fee and an annual 0.5% cost of transition in the after hiring manager returns. | Source: Amit Goyal and Sunil Wahal, “The Selection and Termination of Investment Management Firms by Plan Sponsors,” The Journal of Finance, Volume LXIII, No. 4, published August 2008. Past performance does not guarantee future results. All data, including performance data, is provided for illustrative purposes only, it does not represent actual performance of any client portfolio or account and it should not be interpreted as an indication of such performance.
STEP 6: STYLE DRIFTERS
Comprehend Active Management Style Drift

Style drift occurs when an active manager drifts from a specific style, asset class or index that is described as the stated investment purpose of a fund. Style drift is a serious problem for investors who believe they are invested in a portfolio that matches their risk capacity. Since managers of active funds seek to outperform the benchmark, they often wander outside the boundaries of the benchmark, altering the fund’s exposure to risk and its volatility of returns.

One particularly egregious example of style drift is the Fidelity Magellan Fund as shown in the top figure below. In the 38-year period from 1982 to 2019, Magellan morphed and evolved several times. For example, in mid-1995, the fund looked like a large value fund, despite the fact that its benchmark was the large blend S&P 500.

In contrast to the style drifting tendencies of actively managed funds like Fidelity’s Magellan, passively managed funds (specifically those provided by DFA) adhere to strict rules of construction and are held constant regardless of market conditions. The figure on the bottom shows the relative style purity of the DFA U.S. Large Company Portfolio, which also has the S&P 500 as its benchmark.

Style Drift of Fidelity Magellan Fund
38 Years (1/1/1982 - 12/31/2019)

Relative Style Purity of DFA U.S. Large Company Portfolio
38 Years (1/1/1982 - 12/31/2019)

Sources: © Morningstar, Inc. IFA. This is not to be construed as an offer, solicitation, recommendation, or endorsement of any particular security, product or service. There are no guarantee investment strategies will be successful. Investing involves risks, including possible loss of principal.
STEP 7: SILENT PARTNERS
Recognize The Partners in Your Returns

There are many silent partners that quietly but determinably eat away at an active investor’s returns pie. A partial list of silent partners that erode investors’ returns includes state and federal taxes, sales commissions, mutual fund expense ratios, fund turnover, and transaction costs.

A John Bogle study concluded that over a 25-year period, $10,000 invested in the average managed equity fund grew to a pre-tax value of $108,300, and an after-tax value of $71,700. In contrast, $10,000 invested in the S&P 500 grew to a pre-tax value of $181,800 and an after-tax value of $159,000.⁷

Part of the disparity in ending wealth is due to active managers charging higher fees than passive managers as compensation for their perceived “skill.” In both U.S. and non-U.S. strategies, the average actively managed fund is more expensive than the average passive fund.

The bar chart reveals the disparity in average expense ratios between all mutual funds and IFA Index Portfolio 60. As of December 2019, a similar portfolio of all mutual funds would have been more than three times as costly as IFA Index Portfolio 60.

Turnover is also a silent devourer of wealth. Active mutual funds are known to have higher turnover rates than passive funds, creating tax liabilities that erode returns. Even for non-taxable investors, high turnover can be expensive. An article in the Financial Analysts Journal stated that the average annual cost of trading incurred by equity mutual funds was 1.44%, which even exceeds the average expense ratio of 1.19%.⁸

Although most index funds are tax efficient by nature, some indexes can be further tax-managed to save an investor more in taxes. Tax-managed index funds are efficient at offsetting realized gains with realized losses, deferring the realization of net capital gains and minimizing the receipt of dividend income. The benefit is that unrealized capital gains remain a growing part of the net asset value of a fund and assist in overall wealth accumulation.

“Some of active management’s true believers will shift assets from expensive products to more reasonably priced products. Impetus for this move will be the growing realization that high fees sap the performance potential of even skillful managers.”

— Richard M. Ennis, editor, Financial Analysts Journal, as quoted in John C. Bogle’s The Little Book on Common Sense Investing
Index funds investors are optimally rewarded for understanding and shouldering stock market risk. In fact, the very reason investors should expect to earn a return is because of the risks they take. The key is to take the risks that have shown to compensate investors and to diversify away uncompensated risks. Stock concentration, fund manager speculation, performance chasing, market timing, and sector concentration are uncompensated risks that carry no additional expected return beyond that of a market portfolio.

The beneficial relationship between risk and return for passive investors is set forth in the scatter plot shown below. The chart plots the risk and return characteristics for a spectrum of the 100 IFA Index Portfolios (numbered) and their composite indexes (lettered) for a 50-year time period. Also shown are the indexes that IFA underweights (letters in squares). These asset classes are underweighted because they have shown to deliver higher risk without an adequate corresponding return. For example, the U.S. Small Growth Index carried significant risk but had lower returns than the Emerging Markets Value Index. The IFA Index Portfolios are comprised of funds that enable reasonable returns for the risks involved. This is why investors should take on as much of the right risks as their risk capacity allows, rebalance and just hold on for as long as they can.

**Risk and Return Scatter Plot of IFA Index Portfolios and IFA Indexes**

50 Years (1/1/1970 - 12/31/2019)

Sources: © Morningstar, Inc. IFA.

This scatterplot is a type of chart that shows the relationship between historical return and risk as measured by standard deviation. Performance figures may contain both live and back-tested data. All data, including performance data, is provided for illustrative purposes only, it does not represent actual performance of any client portfolio or account and it should not be interpreted as an indication of such performance. IFA Index Portfolios were created in 2000 and use hypothetical back-tested performance, please see Appendix for IFA Index Portfolio Data. Past performance does not guarantee future results. Data is provided for illustrative purposes only, it does not represent actual performance of any client portfolio or account and it should not be interpreted as an indication of such performance. IFA utilizes "standard deviation" as a quantification of risk, see the definition in the Appendix.
Historical stock market data provides investors with a powerful set of tools for constructing index portfolios utilizing hypothetical back-tested performance that can maximize expected returns at given levels of risk. By analyzing large samples (minimum 50 years) of hypothetical back-tested performance for various asset classes, including stocks, bonds, and real estate, an investor can better understand the factors that academic research has shown to produce relatively higher historical returns.

### Dimensions of Returns

**Up to 92 Years* (1/1/1928 - 12/31/2019)**

<table>
<thead>
<tr>
<th></th>
<th>US Stocks</th>
<th>International Stocks</th>
<th>Emerging Markets Stocks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SIZE PREMIUM</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative performance</td>
<td>2.02%</td>
<td>4.91%</td>
<td>1.87%</td>
</tr>
<tr>
<td>of small cap stocks vs. large cap stocks</td>
<td>SD: 11.27%</td>
<td>SD: 8.42%</td>
<td>SD: 7.57%</td>
</tr>
<tr>
<td>Returns are annualized, and SD = Standard Deviation.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>VALUE PREMIUM</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative performance</td>
<td>3.18%</td>
<td>4.67%</td>
<td>5.10%</td>
</tr>
<tr>
<td>of value stocks vs. growth stocks</td>
<td>SD: 13.92%</td>
<td>SD: 8.76%</td>
<td>SD: 9.32%</td>
</tr>
<tr>
<td>Returns are annualized, and SD = Standard Deviation.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PROFITABILITY PREMIUM</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of high profitability stocks vs. low profitability stocks.</td>
<td>3.57%</td>
<td>3.63%</td>
<td>3.07%</td>
</tr>
<tr>
<td>Returns are annualized, and SD = Standard Deviation.</td>
<td>SD: 8.51%</td>
<td>SD: 6.45%</td>
<td>SD: 7.30%</td>
</tr>
</tbody>
</table>

The chart below shows historical size, value and profitability premiums for US, International and Emerging Markets stocks using the longest dataset available for each market. Within US stocks, small caps stocks outperformed large cap stocks (Relative Size premium) by 2.02% per year from 1928-2019. International value stocks have outperformed International growth stocks (Relative Value premium) by 4.67% per year from 1975-2019 and the Profitability premium (Relative performance of high profitability stocks vs. low profitability stocks) posted outperformance in Emerging Market stocks of 3.07% per year from 1996-2019. Pursuing these different premiums in the market is no free lunch. While investors should expect these premiums to be positive over the long term, there are periods of time where they are not.

Information provided by Dimensional Fund Advisors LP. All returns are in USD. *Premiums are calculated as the difference in annualized returns between the two indices described over the period shown. Standard Deviation of Premiums are calculated using monthly premium data and annualized. MSCI indices are gross div. For US stocks, indices are used as follows. Small Cap minus Large Cap: Dimensional US Small Cap Index minus the S&P 500 Index. Value minus Growth: Fama/French US Value Research Index minus the Fama/French US Growth Research Index. High Prof minus Low Prof: Dimensional US High Profitability Index minus the Dimensional US Low Profitability Index. For developed ex US stocks, indices are used as follows. Small Cap minus Large Cap: Dimensional International Small Cap Index minus the MSCI World ex USA Index (gross div.). Value minus Growth: Fama/French International Value Index minus the Fama/French International Growth Index. High Prof minus Low Prof: Dimensional International High Profitability Index minus the Dimensional International Low Profitability Index. For Emerging Markets stocks, indices are used as follows. Small Cap minus Large Cap: Dimensional Emerging Markets Small Cap Index minus MSCI Emerging Markets Index (gross div.). Value minus Growth: Fama/French Emerging Markets Value Index minus Fama/French Emerging Markets Growth Index. High Prof minus Low Prof: Dimensional Emerging Markets High Profitability Index minus the Dimensional Emerging Markets Low Profitability Index. Profitability is measured as operating income before depreciation and amortization minus interest expense, scaled by book. Indexes are not available for direct investment and performance does not reflect the expenses of an actual portfolio. Unless indicated otherwise, the performance includes reinvestment of dividends and capital gains but does not include the deduction of IFA’s advisory fees, transaction costs or taxes. Past performance is no guarantee of future results. Actual returns may be lower. For detailed information on the hypothetical backtested performance data in this chart, including sources, updates and important disclosures, see ifabt.comSee “Index Descriptions” at ifaindices.com for descriptions of Dimensional and Fama/French index data. S&P data © 2020 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved. MSCI data © MSCI2020, all rights reserved. © 2020 Index Fund Advisors, Inc. (IFA.com)
STEP 10: RISK CAPACITY
Analyze Your Five Dimensions of Risk Capacity

In order to optimize investment outcome from a risk and return perspective, it is IFA’s view that investors should take on as much risk as their risk capacity allows. Risk capacity can be regarded as a measurement of an investor’s ability to earn stock market returns. The problem is that most investors invest without a clear understanding of risk or with an improper measure of how much risk is right for them.

Through IFA’s Risk Capacity Survey at ifa.com, investors learn the amount of risk that is appropriate for them. The results of the survey provide a personalized Risk Capacity Score, which is based on the following five dimensions for each investor: time horizon and liquidity needs, attitude toward risk, net worth, income and savings rate, and investment knowledge. This score is the primary tool IFA uses to determine the proper asset allocation for each client. A higher score suggests a capacity of tolerating high risk investing to obtain the potential for higher returns. A lower score indicates a risk aversion and the need to invest more conservatively. Each score corresponds to one of IFA’s 100 Index Portfolios.
STEP 11: RISK EXPOSURE
Analyze Your Six Dimensions of Risk Exposure

To achieve optimal results, investors need to match their Risk Capacity Score with a specific risk exposure. At IFA, we call this process, “matching people with portfolios.” Many investors choose a common 60/40 (stock/bond) asset allocation, regardless of their risk capacity. A more prudent strategy is to invest in a portfolio that directly corresponds to a particular risk capacity.

IFA’s 100 Index Portfolios cover the spectrum of risk and expected return, with portfolios ranging from very high risk to very low risk. Each IFA Index Portfolio is constructed with a specific blend of asset class index funds that capture a quantifiable level of risk exposure.

This is accomplished through exposure to six dimensions of risk—dimensions which have been responsible for approximately 96% of returns.9 Based on the extensive research of Eugene Fama and Kenneth French, these dimensions are: exposure or sensitivity to the market, as a whole, the degree to which the portfolio is tilted toward size (market capitalization), value (book-to-market ratio), and direct profitability (gross profits scaled by book value) of the equity holdings, as well as exposure to term and default risk for the fixed income holdings. Each of IFA’s Index Portfolios offers a sophisticated risk-appropriate approach, capturing risk exposure in order to maximize expected returns at a given level of risk exposure.

SIX DIMENSIONS OF RISK EXPOSURE

Market

Size

Value

Profitability

Term

Default
STEP 12: INVEST AND RELAX
Rebalance, Tax Loss Harvest, Glide Path, & Asset Locate

IFA’s clients enjoy the benefits of investing in 100 riskappropriate, style-pure index portfolios that carry more than 92 years of risk and return data. These portfolios are formulated using investment science based on economic theories and isolated risk factors that have been shown to carry higher returns over time. In summary, clients of Index Fund Advisors are able to invest confidently and comfortably as they step off of the expensive, emotional roller coaster of active investing.

REBALANCE
IFA’s clients benefit from strategies that facilitate investment success. In particular, IFA’s ongoing professional account management includes quarterly analysis for rebalancing opportunities to ensure that portfolio risk exposure remains in line with an individual’s risk capacity.

TAX-LOSS HARVEST
An additional value added feature available to IFA’s clients is opportunistic tax-loss harvesting. By selling funds that have experienced significant losses, investors can “bank” capital losses to offset future gains. Once the IRS wash sale rules have been met, the funds are repurchased. Careful consideration is given to the appropriateness of this strategy on a case-by-case basis.

GLIDE PATH
IFA’s clients may choose to take advantage of a sophisticated Glide Path feature, creating a “set it and forget it” approach for a successful and less stressful investment strategy. When clients choose the Glide Path option, their portfolios will automatically experience a reduction of one risk level each year, thus permitting a smooth and effortless “glide” into retirement.

ASSET LOCATION
Just as important as asset allocation is asset location. For a client who has a mixture of accounts, such as taxable, traditional IRAs and Roth IRAs, taxes can be minimized by constructing an overall portfolio that includes multiple investment vehicles located in different types of accounts. IFA evaluates each account to determine if it should be a stand-alone or part of an asset location strategy.

RETIREMENT ANALYZER
A retirement analysis utilizing Monte Carlo simulation helps clients understand key factors in retirement investing. IFA adds these significant enhancements to its suite of services in order to provide a high standard of care to clients who entrust the management of their valued assets to the firm.
IFA INDEX PORTFOLIOS

IFA offers 100 globally diversified Index Portfolios allocated among two broad asset classes: equity (stocks) and fixed income (bonds).

General asset allocations for 20 of these index portfolios are presented below. They are labeled 5 through 100 in five-point increments. IFA Index Portfolio 5, which has the lowest expected risk and return, consists of 95% bond indexes and 5% stock indexes. Conversely, IFA Index Portfolio 100, which has the highest expected risk and return, has no bonds and the stock indexes are tilted toward small and value companies in the U.S., international, and emerging markets.

Four IFA Index Portfolio fact sheets are shown on the following pages. The hypothetical back-tested data for each portfolio consists of: simulated returns and volatility data, charts that represent annual returns and growth of $1, corresponding annualized returns, and a 50-year monthly rolling period analysis, which provides a hypothetical back-tested simulation of passive investor experiences.

Following the fact sheets are the appendix disclosures for hypothetical back-tested performance data and the index descriptions used to simulate risk and return characteristics.

General Asset Allocations of the IFA Index Portfolios
The Number of the Index Portfolio Equals the % Stock Allocation

IFA Stock Indexes (Global Equity)  IFA Bond Indexes (Global Fixed Income)

IFA Index Portfolios were created in 2000. Please see Appendix for IFA Index Portfolio Data. IFA Index Portfolios are recommended based on an investor’s risk capacity, which considers their time horizon, attitude towards risk, net worth, income, and investment knowledge. Take the IFA Risk Capacity Survey at ifa.com/survey to determine which index portfolio matches your risk capacity.

“We can extrapolate from the study that for the long-term individual investor, who maintains a consistent asset allocation and leans toward index funds, asset allocation determines about 100% of performance.”

IFA Index Portfolio 100
Most Aggressive

Suitable for investors who have at least 15 years before needing approximately 20% of their investments and are willing to accept a very high degree of volatility in exchange for high portfolio growth potential.

Simulated Returns and Volatility Data

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<tbody>
<tr>
<td>Growth of $1 ($)</td>
<td>1.21</td>
<td>0.86</td>
<td>1.18</td>
<td>1.16</td>
<td>0.96</td>
<td>1.23</td>
<td>1.36</td>
<td>2.42</td>
<td>4.69</td>
<td>46.79</td>
<td>319.07</td>
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</table>

Annual Returns: 50 Years (1/1/1970 - 12/31/2019)

Growth of Dollar: 50 Years (1/1/1970 - 12/31/2019) - Log Scale

Performance figures may contain both live and back-tested data. All data, including performance data, is provided for illustrative purposes only, it does not represent actual performance of any client portfolio or account and it should not be interpreted as an indication of such performance. IFA Index Portfolios were created in 2000 and use hypothetical back-tested performance, please see Appendix for IFA Index Portfolio Data. The performance of index portfolios does reflect the deduction of a 0.9% annual investment advisory fee, which is the maximum advisory fee charged by IFA, and mutual fund fees associated with the management of an actual portfolio over the entire period. Past performance does not guarantee future results. IFA utilizes “standard deviation” as a quantification of risk, see the definition in the Appendix.
IFA Index Portfolio 100
Simulated Passive Investor Experiences (SPIEs)  |  Based on 50 Years (1/1/1970 - 12/31/2019)

Examples of 15-Year Monthly Rolling Periods

Rolling Period Return Data: 50 Years (1/1/1970 - 12/31/2019)

<table>
<thead>
<tr>
<th>Per Period Number of Yrs</th>
<th>Months</th>
<th># of Rolling Periods</th>
<th>Median Ann'zd Return (50th %ile)</th>
<th>Return Range (High minus Low)</th>
<th>Median Growth of $1</th>
<th>Lowest Rolling Period Date</th>
<th>Lowest Rolling Period Return</th>
<th>Growth of $1 in Lowest Period</th>
<th>Highest Rolling Period Date</th>
<th>Highest Rolling Period Return</th>
<th>Growth of $1 in Highest Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/12</td>
<td>1</td>
<td>600</td>
<td>1.49%</td>
<td>44.97%</td>
<td>$1.01</td>
<td>10/08-10/08</td>
<td>22.60%</td>
<td>$0.77</td>
<td>1/75-1/75</td>
<td>22.36%</td>
<td>$1.22</td>
</tr>
<tr>
<td>1/4</td>
<td>3</td>
<td>598</td>
<td>3.83%</td>
<td>77.34%</td>
<td>$1.04</td>
<td>9/08-11/08</td>
<td>37.21%</td>
<td>$0.63</td>
<td>3/09-5/09</td>
<td>40.13%</td>
<td>$1.40</td>
</tr>
<tr>
<td>1/2</td>
<td>6</td>
<td>595</td>
<td>6.83%</td>
<td>109.72%</td>
<td>$1.07</td>
<td>9/08-2/09</td>
<td>47.75%</td>
<td>$0.52</td>
<td>3/09-8/09</td>
<td>61.97%</td>
<td>$1.62</td>
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<tr>
<td>1</td>
<td>12</td>
<td>589</td>
<td>15.89%</td>
<td>126.92%</td>
<td>$1.16</td>
<td>3/08-2/09</td>
<td>49.41%</td>
<td>$0.51</td>
<td>3/09-2/10</td>
<td>77.51%</td>
<td>$1.78</td>
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<td>2</td>
<td>24</td>
<td>577</td>
<td>14.60%</td>
<td>82.55%</td>
<td>$1.31</td>
<td>3/07-2/09</td>
<td>31.39%</td>
<td>$0.47</td>
<td>3/09-2/11</td>
<td>51.16%</td>
<td>$2.28</td>
</tr>
<tr>
<td>3</td>
<td>36</td>
<td>565</td>
<td>12.76%</td>
<td>55.40%</td>
<td>$1.43</td>
<td>3/06-2/09</td>
<td>18.28%</td>
<td>$0.55</td>
<td>8/84-7/87</td>
<td>37.13%</td>
<td>$2.58</td>
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<tr>
<td>4</td>
<td>48</td>
<td>553</td>
<td>12.57%</td>
<td>44.03%</td>
<td>$1.61</td>
<td>3/05-2/09</td>
<td>10.39%</td>
<td>$0.64</td>
<td>10/74-9/78</td>
<td>33.63%</td>
<td>$3.19</td>
</tr>
<tr>
<td>5</td>
<td>60</td>
<td>541</td>
<td>12.94%</td>
<td>38.48%</td>
<td>$1.84</td>
<td>3/04-2/09</td>
<td>5.44%</td>
<td>$0.76</td>
<td>8/82-7/87</td>
<td>33.04%</td>
<td>$4.17</td>
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<tr>
<td>6</td>
<td>72</td>
<td>529</td>
<td>12.57%</td>
<td>28.62%</td>
<td>$2.03</td>
<td>10/05-9/11</td>
<td>1.36%</td>
<td>$1.08</td>
<td>1/75-12/80</td>
<td>29.98%</td>
<td>$4.82</td>
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<tr>
<td>7</td>
<td>84</td>
<td>517</td>
<td>12.66%</td>
<td>26.55%</td>
<td>$2.30</td>
<td>3/02-2/09</td>
<td>0.64%</td>
<td>$1.05</td>
<td>8/82-7/89</td>
<td>27.19%</td>
<td>$5.38</td>
</tr>
<tr>
<td>8</td>
<td>96</td>
<td>505</td>
<td>13.11%</td>
<td>24.07%</td>
<td>$2.68</td>
<td>3/01-2/09</td>
<td>0.83%</td>
<td>$1.07</td>
<td>1/75-12/82</td>
<td>24.90%</td>
<td>$5.92</td>
</tr>
<tr>
<td>9</td>
<td>108</td>
<td>493</td>
<td>12.82%</td>
<td>24.72%</td>
<td>$2.96</td>
<td>3/00-2/09</td>
<td>1.06%</td>
<td>$1.10</td>
<td>1/75-12/83</td>
<td>25.79%</td>
<td>$7.88</td>
</tr>
<tr>
<td>10</td>
<td>120</td>
<td>481</td>
<td>12.54%</td>
<td>20.93%</td>
<td>$3.26</td>
<td>3/00-2/09</td>
<td>3.38%</td>
<td>$1.39</td>
<td>9/77-8/87</td>
<td>24.31%</td>
<td>$8.81</td>
</tr>
<tr>
<td>11</td>
<td>132</td>
<td>469</td>
<td>12.85%</td>
<td>22.60%</td>
<td>$3.78</td>
<td>3/02-2/09</td>
<td>2.19%</td>
<td>$1.27</td>
<td>1/75-12/85</td>
<td>24.79%</td>
<td>$11.43</td>
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<tr>
<td>12</td>
<td>144</td>
<td>457</td>
<td>12.75%</td>
<td>21.48%</td>
<td>$4.22</td>
<td>3/07-2/09</td>
<td>3.44%</td>
<td>$1.50</td>
<td>1/75-12/86</td>
<td>24.92%</td>
<td>$14.44</td>
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<tr>
<td>14</td>
<td>168</td>
<td>433</td>
<td>13.36%</td>
<td>18.12%</td>
<td>$5.79</td>
<td>3/05-2/09</td>
<td>5.74%</td>
<td>$2.18</td>
<td>1/75-12/88</td>
<td>23.86%</td>
<td>$20.00</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>180</td>
<td>13.42%</td>
<td>18.87%</td>
<td>$6.61</td>
<td>3/04-2/09</td>
<td>5.22%</td>
<td>$2.15</td>
<td>1/75-12/89</td>
<td>24.09%</td>
<td>$25.47</td>
</tr>
</tbody>
</table>

421 15-Year 1 Monthly Rolling Periods: 50 Years (1/1/1970 - 12/31/2019)

1. 15-years represents the estimated average holding period for investors who score 100 on the Risk Capacity Survey at ifa.com.
2. The Median Annualized Returns, Return Range, and Median Growth of $1 shown for 1, 3, and 6 month periods are not annualized.

Performance figures may contain both live and back-tested data. All data, including performance data, is provided for illustrative purposes only, it does not represent actual performance of any client portfolio or account and it should not be interpreted as an indication of such performance. IFA Index Portfolios were created in 2000 and use hypothetical back-tested performance, please see Appendix for IFA Index Portfolio Data. The performance of index portfolios does reflect the deduction of a 0.9% annual investment advisory fee, which is the maximum advisory fee charged by IFA, and mutual fund fees associated with the management of an actual portfolio over the entire period. Past performance does not guarantee future results. IFA utilizes “standard deviation” as a quantification of risk, see the definition in the Appendix.
IFA Index Portfolio 75
Moderately Aggressive
Suitable for investors who have at least 13 years before needing approximately 20% of their investments and are willing to accept a higher degree of volatility in order to achieve higher portfolio growth potential.

Simulated Returns and Volatility Data

<table>
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<tr>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth of $1 ($)</td>
<td>1.16</td>
<td>0.90</td>
<td>1.14</td>
<td>1.12</td>
<td>0.97</td>
<td>1.18</td>
<td>1.28</td>
<td>2.02</td>
<td>3.85</td>
<td>28.45</td>
<td>169.81</td>
<td>5,221</td>
</tr>
<tr>
<td>Annualized Return (%)</td>
<td>16.36</td>
<td>-10.48</td>
<td>13.66</td>
<td>12.22</td>
<td>-3.40</td>
<td>5.79</td>
<td>5.12</td>
<td>7.28</td>
<td>6.97</td>
<td>10.04</td>
<td>10.82</td>
<td>9.75</td>
</tr>
</tbody>
</table>

Annual Returns: 50 Years (1/1/1970 - 12/31/2019)

Growth of Dollar: 50 Years (1/1/1970 - 12/31/2019) - Log Scale

Performance figures may contain both live and back-tested data. All data, including performance data, is provided for illustrative purposes only, it does not represent actual performance of any client portfolio or account and it should not be interpreted as an indication of such performance. IFA Index Portfolios were created in 2000 and use hypothetical back-tested performance, please see Appendix for IFA Index Portfolio Data. The performance of index portfolios does reflect the deduction of a 0.9% annual investment advisory fee, which is the maximum advisory fee charged by IFA, and mutual fund fees associated with the management of an actual portfolio over the entire period. Past performance does not guarantee future results. IFA utilizes “standard deviation” as a quantification of risk, see the definition in the Appendix.
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IFA Index Portfolio 50
Moderate

Suitable for investors who have 8 years before needing approximately 20% of their investments and are willing to accept a moderate degree of volatility in order to achieve moderate portfolio growth potential.

Simulated Returns and Volatility Data

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</thead>
<tbody>
<tr>
<td>Growth of $1 ($)</td>
<td>1.12</td>
<td>0.93</td>
<td>1.09</td>
<td>1.08</td>
<td>0.98</td>
<td>1.14</td>
<td>1.20</td>
<td>1.66</td>
<td>2.98</td>
<td>15.99</td>
<td>80.11</td>
<td>1,233</td>
</tr>
<tr>
<td>Annualized Return (%)</td>
<td>11.59</td>
<td>-6.74</td>
<td>9.17</td>
<td>8.23</td>
<td>-2.31</td>
<td>4.35</td>
<td>3.74</td>
<td>5.21</td>
<td>5.61</td>
<td>8.24</td>
<td>9.16</td>
<td>8.04</td>
</tr>
<tr>
<td>Standard Deviation (%) (Annualized Volatility)</td>
<td>8.18</td>
<td>7.15</td>
<td>2.00</td>
<td>6.27</td>
<td>5.94</td>
<td>6.62</td>
<td>6.39</td>
<td>7.29</td>
<td>8.11</td>
<td>7.91</td>
<td>8.22</td>
<td>11.07</td>
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</tbody>
</table>

Annual Returns: 50 Years (1/1/1970 - 12/31/2019)

Growth of Dollar: 50 Years (1/1/1970 - 12/31/2019) - Log Scale

Performance figures may contain both live and back-tested data. All data, including performance data, is provided for illustrative purposes only, it does not represent actual performance of any client portfolio or account and it should not be interpreted as an indication of such performance. IFA Index Portfolios were created in 2000 and use hypothetical back-tested performance, please see Appendix for IFA Index Portfolio Data. The performance of index portfolios does reflect the deduction of a 0.9% annual investment advisory fee, which is the maximum advisory fee charged by IFA, and mutual fund fees associated with the management of an actual portfolio over the entire period. Past performance does not guarantee future results. IFA utilizes “standard deviation” as a quantification of risk, see the definition in the Appendix.
Period. Past performance does not guarantee future results. IFA utilizes "standard deviation" as a quantification of risk, see the definition in the Appendix.

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### IFA Index Portfolio 25

**Conservative**

Suitable for investors who have 5 years before needing approximately 20% of their investments and are willing to accept a conservative degree of risk for incremental appreciation potential with emphasis on capital preservation.

#### Simulated Returns and Volatility Data

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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Growth of $1 ($)</strong></td>
<td>1.07</td>
<td>0.97</td>
<td>1.05</td>
<td>1.04</td>
<td>0.99</td>
<td>1.08</td>
<td>1.12</td>
<td>1.35</td>
<td>2.18</td>
<td>8.33</td>
<td>33.60</td>
<td>204.75</td>
</tr>
<tr>
<td><strong>Annualized Return (%)</strong></td>
<td>6.82</td>
<td>-2.99</td>
<td>4.68</td>
<td>4.23</td>
<td>-1.22</td>
<td>2.75</td>
<td>2.23</td>
<td>3.03</td>
<td>3.96</td>
<td>6.24</td>
<td>7.28</td>
<td>5.96</td>
</tr>
<tr>
<td><strong>Standard Deviation (%)</strong> (Annualized Volatility)</td>
<td>4.10</td>
<td>3.47</td>
<td>0.89</td>
<td>2.98</td>
<td>2.83</td>
<td>3.28</td>
<td>3.13</td>
<td>3.64</td>
<td>4.04</td>
<td>4.20</td>
<td>4.75</td>
<td>5.98</td>
</tr>
</tbody>
</table>

#### Annual Returns: 50 Years (1/1/1970 - 12/31/2019)

![Annual Returns Graph](image)

#### Growth of Dollar: 50 Years (1/1/1970 - 12/31/2019) - Log Scale

![Growth of Dollar Graph](image)

Performance figures may contain both live and back-tested data. All data, including performance data, is provided for illustrative purposes only, it does not represent actual performance of any client portfolio or account and it should not be interpreted as an indication of such performance. IFA Index Portfolios were created in 2000 and use hypothetical back-tested performance, please see Appendix for IFA Index Portfolio Data. The performance of index portfolios does reflect the deduction of a 0.9% annual investment advisory fee, which is the maximum advisory fee charged by IFA, and mutual fund fees associated with the management of an actual portfolio over the entire period. Past performance does not guarantee future results. IFA utilizes “standard deviation” as a quantification of risk, see the definition in the Appendix.
**IFA Index Portfolio 25**

Simulated Passive Investor Experiences (SPIEs) | Based on 50 Years (1/1/1970 - 12/31/2019)

### Examples of 5-Year Monthly Rolling Periods 1

**Rolling Period Return Data: 50 Years (1/1/1970 - 12/31/2019)**

<table>
<thead>
<tr>
<th>Per Period Number of Months</th>
<th># of Rolling Periods</th>
<th>Median Annualized Return (% of $1)</th>
<th>Return Range (High minus Low)</th>
<th>Median Growth of $1</th>
<th>Lowest Rolling Period Date</th>
<th>Lowest Rolling Period Return</th>
<th>Growth of $1 in Lowest Period</th>
<th>Highest Rolling Period Date</th>
<th>Highest Rolling Period Return</th>
<th>Growth of $1 in Highest Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/12</td>
<td>1</td>
<td>600</td>
<td>0.66%  12.18%</td>
<td>$1.01</td>
<td>10/87-10/87</td>
<td>-5.09%</td>
<td>$0.95</td>
<td>4/80-4/80</td>
<td>7.08%</td>
<td>$1.07</td>
</tr>
<tr>
<td>1/4</td>
<td>3</td>
<td>598</td>
<td>1.70%  20.61%</td>
<td>$1.02</td>
<td>9/08-11/08</td>
<td>-7.11%</td>
<td>$0.93</td>
<td>4/80-6/80</td>
<td>13.50%</td>
<td>$1.13</td>
</tr>
<tr>
<td>1/2</td>
<td>6</td>
<td>595</td>
<td>3.26%  28.47%</td>
<td>$1.03</td>
<td>9/08-2/09</td>
<td>-10.58%</td>
<td>$0.89</td>
<td>7/82-12/82</td>
<td>17.89%</td>
<td>$1.18</td>
</tr>
<tr>
<td>1</td>
<td>12</td>
<td>589</td>
<td>7.47%  40.41%</td>
<td>$1.07</td>
<td>3/08-2/09</td>
<td>-11.09%</td>
<td>$0.89</td>
<td>7/82-6/83</td>
<td>29.32%</td>
<td>$1.29</td>
</tr>
<tr>
<td>2</td>
<td>24</td>
<td>577</td>
<td>7.12%  26.26%</td>
<td>$1.15</td>
<td>3/07-2/09</td>
<td>-5.05%</td>
<td>$0.90</td>
<td>7/84-6/86</td>
<td>21.21%</td>
<td>$1.47</td>
</tr>
<tr>
<td>3</td>
<td>36</td>
<td>565</td>
<td>7.11%  18.78%</td>
<td>$1.23</td>
<td>3/06-2/09</td>
<td>-1.20%</td>
<td>$0.96</td>
<td>8/84-7/87</td>
<td>17.58%</td>
<td>$1.63</td>
</tr>
<tr>
<td>4</td>
<td>48</td>
<td>553</td>
<td>7.27%  18.12%</td>
<td>$1.32</td>
<td>3/05-2/09</td>
<td>0.46%</td>
<td>$1.02</td>
<td>7/82-6/86</td>
<td>18.58%</td>
<td>$1.98</td>
</tr>
</tbody>
</table>

### 541 5-Year 1 Monthly Rolling Periods: 50 Years (1/1/1970 - 12/31/2019)

1. 5-years represents the estimated average holding period for investors who score 25 on the Risk Capacity Survey at ifa.com.
2. The Median Annualized Returns, Return Range, and Median Growth of $1 shown for 1, 3, and 6 month periods are not annualized.

Performance figures may contain both live and back-tested data. All data, including performance data, is provided for illustrative purposes only, it does not represent actual performance of any client portfolio or account and it should not be interpreted as an indication of such performance. IFA Index Portfolios were created in 2000 and use hypothetical back-tested performance, please see Appendix for IFA Index Portfolio Data. The performance of index portfolios does reflect the deduction of a 0.9% annual investment advisory fee, which is the maximum advisory fee charged by IFA, and mutual fund fees associated with the management of an actual portfolio over the entire period. Past performance does not guarantee future results. IFA utilizes “standard deviation” as a quantification of risk, see the definition in the Appendix.
APPENDIX: DISCLOSURE FOR CHARTS

IFA Index Portfolio Data
For detailed information on the hypothetical back-tested performance data shown in this booklet, including sources, and important disclosures, see: Disclosures for the Hypothetical Back-tested Performance of Model IFA Index Portfolios and Indexes. IFA Index Portfolios are labeled with numbers that refer to the percentage of stock indexes in the asset allocation, as opposed to the allocation of bond indexes. For example, an IFA Index Portfolio 90 is 90% IFA stock indexes and 10% IFA bond indexes. The construction of IFA Indexes data starts in 1928 and introduces live mutual fund data of funds that are similar to the preceding index upon the inception date of the funds and uses that monthly mutual fund data up to the current month and are defined in detail at IFA Index Data Sources. Hypothetical back-tested performance of IFA Index Portfolios assumes annual rebalancing of the asset allocation of the components comprising the IFA Index Portfolios. The hypothetical back-tested performance of the IFA Indexes and IFA Index Portfolios was achieved with the benefit of hindsight; it does not represent actual investment strategies for the entire period; and it does not reflect the impact that economic and market factors may have had on the advisor’s decision making if the advisor were actually managing client money during the period shown. The performance of index portfolios does reflect the deduction of a 0.9% annual investment advisory fee, which is the maximum advisory fee charged by IFA, and mutual fund fees associated with the management of an actual portfolio over the entire period. Unless indicated otherwise, the performance of the IFA Indexes when shown individually, does reflect the deduction of mutual fund fees, include reinvestment of dividends and capital gains but does not include the deduction of IFA advisory fees, transaction costs or taxes, which if included, would lower performance. The IFA Indexes and IFA Index Portfolios were created by IFA in 2000.

Standard Deviation
IFA utilizes standard deviation a quantification of risk. Standard deviation is a common measure of risk used by academics, analysts, portfolio managers and advisors. The higher the standard deviation the higher the risk. Standard deviation is calculated as the square root of the variance of the data from the average, which is a measure of the dispersion of a set of data from its average. If data points are far from the average, there is a higher deviation within the data set; thus, the more spread out the data, the higher the standard deviation. In finance, standard deviation is applied to the rate of return of an investment to measure the investment’s volatility. Standard deviation is also known as historical volatility and is used by investors as a gauge for the amount of expected volatility or the uncertainty of expected returns. Among indexes of stocks, those with smaller companies, international companies and emerging market companies have had higher standard deviations than large companies in the U.S. in long time periods. Among bond indexes, those with longer durations and greater probabilities of default have had higher standard deviations in long time periods. However, it is not true that all indexes with higher standard deviations, such as small growth companies have had higher returns in long time periods. Annualized standard deviation is an approximation obtained by multiplying the monthly standard deviation by the square root of 12, which is 3.46. Please note that the number computed from annual data may differ materially from the estimate obtained from monthly data. IFA has chosen this methodology because Morningstar uses the same method. In those charts and tables where the standard deviation of daily returns is shown, it is estimated as the standard deviation of monthly returns divided by the square root of 22, which is 4.69.

REFERENCES
5. Sample list taken from CXO Advisory Group, LLC, www.cxoadvisory.com/gurus/
Index Fund Advisors, Inc. (IFA) does not guarantee any minimum level of investment performance or the success of any index portfolio, index, mutual fund or investment strategy. Past performance does not guarantee future results. There is a potential for loss in any investment, including loss of principal invested. All investments involve risk, and different types of investments involve varying degrees of risk. Investment recommendations will not always be profitable. No representation is being made that any IFA client account will or is likely to achieve profit or losses similar to those shown in hypothetical back-tested performance. Impacts of federal and state taxes and trading costs are not included in the results of index portfolio or index returns.

Hypothetical back-tested performance information shown in text, charts, tables and graphs is provided for informational purposes only and should not be considered investment advice or a recommendation to buy or sell any types of securities.

Overview, Index Funds, IFA Indexes
The IFA investment strategy is based on principles generally known as Modern Portfolio Theory and the Fama and French Four Factor Model for Equities and Two Factor Model for Fixed Income. IFA Index portfolios are designed to provide substantial global diversification in order to reduce investment concentration and the resulting potential increased risk caused by the volatility of individual companies, indexes, or asset classes.

IFA defines "index funds" as funds that follow a set of rules of ownership that are held constant regardless of market conditions. An important characteristic of an index fund is that its rules of ownership are not based on a forecast of short-term events or the mispricing of securities. Therefore, an investment strategy that is limited to the buying and rebalancing of a portfolio of index funds is often referred to as passive investing, as opposed to active investing.

The indexes constructed by IFA (the "IFA Indexes") include several stock and bond indexes that represent a monthly data series that begins with index data from various sources on January 1, 1928. The construction of IFA Index data introduces live mutual fund data of funds that are similar to the preceding index upon the inception date of the funds and uses that monthly mutual fund data up to the current month.

Index portfolios created by IFA (the "IFA Index Portfolios") are allocations of a globally diversified selection of between 11 and 15 IFA Indexes. Each IFA Index Portfolio is assigned a designation number based on the allocation of stock indexes compared to bond indexes within a particular IFA Index Portfolio. For example, the IFA Index Portfolio 90 is 90% IFA stock indexes and 10% IFA bond indexes.

The data for both the IFA Indexes and the model data for IFA Index Portfolios is hypothetical back-tested performance data that represents a combination of index data and mutual fund data. Please refer to the IFA Indexes Data Sources page at www.ifaindexes.com for additional important information, including a description and the time series construction of the underlying indexes and mutual funds relating to each IFA Index. The IFA Index Data Sources, IFA Indexes Time Series Construction (see: http://www.ifa.com/disclosures/charts/#timeseries) and several of the Dimensional Indexes (see: http://www.ifa.com/disclosures/charts/#dfafunds) are an integral part of this disclosure and should be read in conjunction with this explanation of the hypothetical back-tested performance of the IFA Indexes and the model IFA Index Portfolios, which are allocations of the IFA Indexes. In addition, an extensive glossary of terms used throughout IFA's content, which includes these disclosures, can be found at https://www.ifa.com/glossary/.

Hypothetical Back-tested Performance
1. The hypothetical back-tested performance data comprising the IFA Index data represents a combination of index data and actual mutual fund data. The monthly data series begins with index data on January 1, 1928 and introduces live mutual fund data upon the inception date of each of the mutual funds.

2. The investment strategy of the IFA index portfolios is a buy and hold strategy with annual rebalancing of the index allocation on the first of each year. The data shown is hypothetical and is provided to illustrate historical risk and return performance had the IFA Indexes and IFA Index Portfolios been available over the relevant time period shown. IFA did not offer the IFA Index Portfolios until November 1999. Prior to November 1999, IFA did not manage client assets.

All performance results of the IFA Indexes and IFA Index Portfolios are based on performance of indexes in the IFA Index Portfolios. The hypothetical back-tested performance was achieved with the benefit of hindsight; it does not represent actual investments in any investment strategies.

There are certain limitations inherent in hypothetical model results like those portrayed, particularly that such hypothetical model returns do not reflect trading in actual client accounts and do not reflect the impact that material economic and market factors may have had on the adviser’s decision-making had the adviser actually been managing client funds. Unlike an actual performance record, hypothetical back-tested performance results do not represent actual trading. These types of simulated trading programs, in general, benefit compared to actual performance results because such simulated programs are designed with the benefit of hindsight. In addition, simulated trading does not involve or take into account financial risk and does not take into account that material and market factors may have impacted IFA’s decision making, all of which can adversely affect actual trading results and performance. For example, the ability to withstand losses or adhere to a particular trading program in spite of trading losses are material points which can also adversely affect markets in general or the implementation of any specific trading program. Hypothetical back-tested performance does not represent actual performance, trading costs or the impact of taxes and should not be interpreted as an indication of such performance.

3. Hypothetical back-tested performance also differs from actual performance because it is achieved through the retroactive application of model index portfolios designed with the benefit of hindsight. As a result, the IFA Index Portfolios may be changed from time to time and the effect on hypothetical performance results could be either favorable or unfavorable. Hypothetical back-tested performance is calculated by using a software program that starts with the first day of a selected month and ends with the last day of a selected month. Whenever the term IFA Index Portfolio value data is used, it is based on a starting value of one at the beginning of stated time period.

4. Hypothetical back-tested performance results for IFA Index Portfolios are based on a buy and hold strategy, with annual rebalancing on the first of each year. It is important to understand that the assumption of first of the year annual rebalancing has an impact on the monthly returns reported for IFA Index Portfolios throughout the year. If there were monthly rebalancing instead, the monthly return would be calculated with the assumption that the portfolio is in balance at the beginning of each month. For annual rebalancing, the year-to-date and monthly return is calculated with the assumption that the portfolio is in balance only at the beginning of each year. In actual client portfolios,
Index Fund Advisors, Inc.

5. Hypothetical back-tested performance results for IFA Index Portfolios does include the reinvestment of dividends and capital gains and is shown net of IFA's highest advisory fee of 0.90%, and net of mutual fund fees. The impacts of trading costs are not included in the performance results, and will reduce client performance. In the hypothetical performance figures shown, the advisory fee of 0.075% is deducted from month end returns, unless stated otherwise. However, actual client advisory fees are deducted quarterly, in advance by IFA. Depending on the amount of assets under management and other factors (please see IFA's Form ADV Part 2 Brochure for additional information), investment management fees may be less. Note that a client's return will be reduced by the amount of advisory fees charged by IFA and any other expenses, and the inclusion of IFA's advisory fees will have a negative impact on client account performance. IFA accepts no fees from investment product firms.

6. Performance results for actual clients that invest in accordance with the IFA Index Portfolio models will vary from the back-tested performance due to the use of mutual funds for implementation that differ from those mutual funds underlying the IFA Index data, current market conditions, investments cash flows, mutual fund allocations, changing index allocations over time, frequency and precision of rebalancing, not following IFA's advice, retention of previously held securities, tax loss harvesting and glide path strategies, cash balances, lower advisory fees, varying custodian fees, and/or the timing of fee deductions. Tax liabilities will vary for each client and can result from various activities in taxable and tax-deferred accounts. These activities include, but are not limited to rebalancing of portfolios, any sale of securities, tax loss harvesting, interest, dividends and capital gains distributions from equity funds and individual securities in taxable accounts. There are also tax liabilities associated with distributions from tax-deferred accounts. Not all IFA clients follow IFA's recommendations and depending on unique and changing client and market situations, IFA may customize the construction and implementation of the IFA Index Portfolios for particular clients so that actual client accounts differ materially from those shown. IFA provides many index portfolio implementation strategies, such as the use of tax-managed mutual funds, global extended maturity bond funds, municipal bond funds, social or sustainable screens added to funds, diversified portfolios of various index fund providers, use of core funds or global asset allocation funds. These many implementations options for IFA Index Portfolios are expected to have risks and potential returns that vary from the IFA Index Portfolio models. As a result of these and other variances, actual performance for client accounts have been and are likely to be materially different and may be lower than the results shown in the IFA Index Portfolio models. Clients should consult their account statements for information about how their actual performance compares to that of the IFA Index Portfolios and ask your IFA Wealth Advisor to explain any differences.

7. The underlying indexes and mutual funds used in constructing the IFA Indexes are IFA's best estimate of an underlying index or mutual fund that comes closest to the corresponding IFA Index objectives. Simulated index data, retroactively calculated by the applicable mutual fund company (e.g. DFA) or research data source (Fama/ French), is used for the period prior to the inception of the relevant live mutual fund data and a mutual fund expense ratio is deducted from such simulated index data. For example, where a DFA or Fama/ French index serves as the underlying index, DFA or Fama/ French, respectively, calculate the simulated index data used by IFA for the corresponding IFA Index. Such simulated index data does not reflect actual mutual fund data prior to the inception date of the mutual fund comprising the IFA Index. Accordingly, the results shown during the periods prior to the inception date of a mutual fund do not represent actual returns of the IFA Index. Periods selected other than those shown may have different results, including losses.

The launch date for each mutual fund used in creating the IFA Indexes may be found in the description of each IFA Index here: https://www.ifa.com/disclosures/index-data/

IFA Indexes are unmanaged however a mutual fund expense ratio has been deducted from each of the IFA Index returns. Investments cannot be made directly in an index. Past performance is no guarantee of future results.

8. The following summarizes the history of changes made to the IFA Indexes and IFA Index Portfolios: 1992-2000: IFA's original Index Portfolios 20, 40, 60, and 80 (the number refers to the percentage of stock indexes versus bond indexes in the allocation) were suggested by Dimensional Fund Advisors (“DFA”) in 1992 (ifa.com/pdfs/1992.pdf), as an example of globally diversified asset classes, with moderate modifications in 1995 (ifa.com/pdfs/1995.pdf). Twenty IFA Index Portfolios 5 to 100 were created by IFA in 2000, as a lower and higher extension of the DFA 1992 risk and return options. There are numerous other changes that occurred relating to the IFA Index Portfolios from 2002 to present, which include, among other things, changes to performance calculations and associated returns (which resulted in returns of the IFA Index Portfolios being both higher and lower, depending on the particular IFA Index Portfolio), and they are described on www.ifa.com/disclosures/history/

9. Public Market Index Definitions: Performance of the IFA Index Portfolios should not be compared directly to any one of the public market indexes listed below. Correlation of a portfolio with an index will vary upon different factors including fixed income portion, market sector and international exposure. IFA will provide additional disclosure where comparisons are made. Reference to these indexes is not intended to, and does not imply or suggest that any of the IFA Index Portfolios will achieve returns, experience volatility or have other results similar to these indexes.

S&P 500 Index: The S&P 500 Index is an unmanaged float-adjusted market capitalization-weighted index composed of the 500 most widely held, publicly traded companies, whose assets and/or revenues are based in the US. The inclusion of information within charts and graphs relating to the S&P 500 Index is for informational purposes and shown as a comparison to other indexes, index portfolios, stocks or funds and as a general performance of large companies in the U.S.

Russell 2000 Index: The Russell 2000 index is an index measuring the performance of approximately 2,000 smallest-cap American companies in the Russell 3000 Index, which is made up of 3,000 of the largest U.S. stocks. It is a market-cap weighted index.
Russell 2000 Value Index: The Russell 2000 Value Index refers to a composite of small cap companies located in the United States that also exhibit a value characteristic.

Information About Index Fund Advisors, Inc.
10. Index Fund Advisors, Inc. is an SEC registered Investment Adviser. Information pertaining to IFA’s advisory operations, services, and fees is set forth in IFA’s current Form ADV Part 2 (Brochure) which is available upon request and at www.adviserinfo.sec.gov. IFA is not paid any brokerage commissions, sales loads, 12b-1 fees, or any form of compensation from any mutual fund company or broker dealer. The only source from compensation relating to IFA client investments is obtained from asset-based advisory fees paid by clients (note that, unrelated to IFA’s investment management services, IFA also receives tax or accounting related fees paid to IFA’s division providing such tax or accounting services). More information about advisory fees, expenses, mutual fund fees, and prospectuses for mutual funds can be found at https://www.ifa.com/fees/.

Associated Risks
11. IFA Index Portfolios will be implemented for clients by investing in an allocation of mutual funds that match the asset classes, mainly (but not exclusively) mutual funds from DFA. All mutual funds carry risks and those risks can vary depending on the underlying investments and the mutual fund’s investment strategy. IFA Index Portfolios are numbered from 1 to 100 based on the percentage allocation to equity indexes. IFA Index Portfolios with lower equity allocations and lower bond allocations generally have less risk, as measured by standard deviation, than those with a higher equity allocations and lower bond allocations. There is risk of loss in any securities investment, including the risk of loss of principal that the client should be prepared to bear. Clients are provided with a copy of each mutual fund prospectus, which outlines the risks associated with the mutual fund and should be read carefully. There is no guarantee that any IFA Index Portfolio will meet its investment objectives.

Standard Deviation Information
12. IFA utilizes standard deviation as a quantification of risk. Standard deviation is a statistic that measures the dispersion of a dataset relative to its mean (also called an average), and is a common measure of risk used by academics, analysts, portfolio managers and advisors. The higher the standard deviation, the higher the risk. Standard deviation is a measure of the dispersion of a dataset relative to its average, and is calculated as the square root of the variance of the data from the average. If data points are far from the average, there is a higher deviation within the data set; thus, the more spread out the data, the higher the standard deviation. In finance, standard deviation is applied to the rate of return of an investment to measure the investment’s volatility.

Standard deviation is also known as historical volatility and is used by investors as a gauge for the amount of expected volatility or the uncertainty of expected returns. For example, among indexes of stocks, those indexes comprised of smaller companies, international companies and emerging market companies generally have had higher standard deviations than those indexes comprised of large companies in the U.S. over long time periods. As another example, among bond indexes, those bond indexes with longer durations and greater probabilities of default have had higher standard deviations over long time periods. However, it is not true that all indexes with higher standard deviations, such as those indexes comprised of small growth companies, have had higher returns over long time periods.

Annualized standard deviation is an approximation of standard deviation over a period of one or more years and, is calculated by multiplying the standard deviation by the square root of the number of periods in one year. By way of example, the annualized standard deviation for a period of one year is calculated by multiplying the monthly standard deviation by the square root of 12, which is 3.46. In those charts and tables where the annualized standard deviation of daily returns is shown, it is estimated as the standard deviation of monthly returns divided by the square root of 22, which is 4.69.

Please note that the annualized standard deviation number computed from annual data may differ materially from the estimate obtained from monthly data. IFA has chosen this methodology because Morningstar uses the same method.

Data Source Information
13. IFA licenses data, in part, from Morningstar Direct, a third-party provider of stock market data. Where data is cited from Morningstar Direct, the following disclosures apply: ©2020 Morningstar, Inc. All rights reserved. The information provided by Morningstar Direct and contained herein: (1) is proprietary to Morningstar and/or its content providers; (2) may not be copied or distributed; and (3) is not warranted to be accurate, complete or timely. Neither Morningstar nor its content providers are responsible for any damages or losses arising from any use of this information. IFA Index Portfolios, times series, standard deviations, and returns calculations are derived using IFA proprietary calculation methods, which apply rebalancing rules, monthly fee adjustments and creates time series construction of data. Our source data comes from many places including Dimensional Fund Advisors and Morningstar Direct software as indicated in the relevant tables and charts.

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15. This material is intended to be informational in nature and should not be construed as tax advice. As a division of Index Fund Advisors, Inc., IFA Taxes provides a wide array of tax planning, accounting and tax return preparation services for individuals and businesses across the United States. IFA Taxes does not provide auditing or attestation services and therefore is not a licensed CPA firm. IRS Circular 230 Disclosure: To ensure compliance with requirements imposed by the IRS, we inform you that any U.S. Federal tax advice contained in this communication is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding penalties under the Internal Revenue Code or (ii) promoting, marketing or recommending to another party any transaction or matter herein.
The following descriptions, definitions and important information explain how IFA Indexes are constructed to simulate similar risk and return characteristics back to 1928. The data for both the IFA Indexes and the model data for IFA Index portfolios is hypothetical backtested performance data that represents a combination of index data and live mutual fund data. This long-term data reduces the possible errors of interpreting past short-term returns as being representative of future short-term returns. Such errors are especially high for periods of 20 years or less. When IFA Indexes are shown in Index Portfolios, all return data reflects a deduction of all mutual fund fees and a 0.90% annual investment advisory fee, which is the maximum advisory fee charged by IFA. Unless indicated otherwise, data shown for each individual IFA Index is shown without a deduction of the IFA advisory fee. This method is used because the creation, choice, monitoring and rebalancing of diversified index portfolios are the services of the independent investment advisor. Therefore, fees are deducted from the whole portfolio data but not the individual index data. Live Dimensional Fund Advisors’ (DFA) fund data reflects the deduction of mutual fund advisory fees, brokerage fees, other expenses incurred by the mutual funds, incorporates actual trading results, and is sourced from DFA. Hypothetical backtested index data also reflects mutual fund expense ratios for the entire period. Both hypothetical backtested and live data reflect total returns, including dividends and capital gains, except for IFA/NSDQ Index. For updates on sources and descriptions of data see www.ifaindexes.com.

Certain DFA Mutual Funds have entered into fee waiver and/or expense assumption arrangements with Dimensional Fund Advisors LP. In these cases, Dimensional Fund Advisors LP has contractually agreed, under certain circumstances, to waive certain fees and/or assume certain expenses of the portfolio. Unless otherwise stated in the prospectus, Dimensional Fund Advisors LP may amend or discontinue these arrangements at any time, one year from the date of the prospectus. The net expense ratio reflects the total annual fund operating expenses of the portfolio after taking into account any such fee waiver and/or expense assumption arrangements. Please read the portfolio’s prospectus for details and more information.

Visit ifa.com/disclosures/history/ to see a summary of history of changes made to the IFA Indexes and Index Portfolios.

- All live mutual fund portfolios tracked in IFA indexes are net of all mutual fund fees.
- Indexes and hypothetical backtested data are also net of estimated mutual fund fees.
- IFA Advisory fees are deducted when IFA indexes are presented in the IFA Index Portfolios.

ADDITIONAL INDEXES
The Dimensional Indices have been hypothetically back-tested by Dimensional Fund Advisors LP and did not exist prior to their index inception dates. Accordingly, results shown during the periods prior to each Index’s index inception date do not represent actual returns of the Index. Other periods selected may have different results, including losses. Backtested index performance is hypothetical and is provided for informational purposes only to indicate historical performance had the index been calculated over the relevant time periods. Backtested performance results assume the reinvestment of dividends and capital gains. Eugene Fama and Ken French are members of the Board of Directors of the general partner of, and provide consulting services to, Dimensional Fund Advisors LP.

IFA U.S. Large Company Index

TIME-SERIES CONSTRUCTION

• Jan 1928 - Sep 1999: Dimensional US Large Cap Index Minus 0.00167%/mo (net expense ratio)
• Oct 1999 - Jun 2017: DFA U.S. Large Company Fund (DFUSX)
• Jul 2017 - Present: Schwab S&P 500 Index (SWPPX)

DEFINITIONS AND OTHER IMPORTANT INFORMATION

- **Dimensional US Large Cap Index**: January 1928 - September 1999: Dimensional US Large Cap Index Composition: Market-capitalization-weighted index of securities of the largest US companies whose market capitalization falls in the highest 90% of the total market capitalization of the Eligible Market. The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and Investment Companies. Source: CRSP and Compustat. The Dimensional US Large Cap Index has been hypothetically back-tested by Dimensional Fund Advisors and did not exist prior to March 1st, 2007. Accordingly, the results shown during the periods prior to March 1st, 2007 do not represent actual returns of the Index. Other periods selected may have different results, including losses. Backtested index performance is hypothetical and is provided for informational purposes only to indicate historical performance had the index been calculated over the relevant time periods. Actual and back-tested performance results assume the reinvestment of dividends and capital gains. The index monthly returns are computed as the simple average of the monthly returns of 12 sub-indices, each one reconstituted once a year at the end of each month of the year. The index is unmanaged however a mutual fund expense ratio has been deducted from the index returns. Investments cannot be made directly in an index. Past performance is no guarantee of future results.

- **DFA U.S. Large Company Fund (DFUSX)**: October 1999 - June 2017: The U.S. Large Company Portfolio generally invests in the stocks that comprise the S&P 500® Index in approximately the proportions that are represented in the S&P 500® Index. The S&P 500® Index comprises a broad and diverse group of stocks. Generally, these are the U.S. stocks with the largest market capitalizations and, as a group, they generally represent approximately 80% of the total market capitalization of all publicly traded U.S. stocks. Actual performance results assume the reinvestment of dividends and capital gains.

- **Schwab S&P 500 Index (SWPPX)**: July 2017 - Present: The investment seeks to track the total return of the S&P 500® Index. The fund generally invests at least 80% of its net assets in stocks that are included in the S&P 500® Index. It generally gives the same weight to a given stock as the index does. The fund may invest in derivatives, principally futures contracts, and lend its securities to minimize the gap in performance that naturally exists between any index fund and its corresponding index. It may concentrate its investments in an industry or group of industries to the extent that its comparative index is also so concentrated. Actual and back-tested performance results assume the reinvestment of dividends and capital gains.

IFA U.S. Large Cap Value Index

TIME-SERIES CONSTRUCTION

• Jan 1928 - Feb 1993: Dimensional Large Value Index minus 0.0217%/mo (net expense ratio)
• Mar 1993 - Present: DFA U.S. Large Cap Value Fund (DFLVX)

DEFINITIONS AND OTHER IMPORTANT INFORMATION

- **Dimensional US Large Cap Value Index**: January 1928 - December 1974: Dimensional US Large Cap Value Index Composition: A subset of the US Large Cap Index. The subset is defined as companies whose relative price is in the bottom 25% of the US Large Cap Index after the exclusion of utilities, companies lacking financial data, and companies with negative relative price.
The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and Investment Companies. Source: CRSP and Compustat

January 1975 - February 1993: Dimensional US Large Cap Value Index Composition: Consists of companies with market capitalizations above the 1000th largest company of the Eligible market whose relative price is in the bottom 30% of large companies after the exclusion of utilities, companies lacking financial data, and companies with negative relative price. The Index emphasizes securities with higher profitability, lower relative price, and lower market capitalization. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and Investment Companies Source: CRSP and Compustat.

The Dimensional US Large Cap Value Index has been hypothetically back-tested by Dimensional Fund Advisors and did not exist prior to March 1st, 2007. Accordingly, the results shown during the periods prior to March 1st, 2007 do not represent actual returns of the Index. Other periods selected may have different results, including losses. Back-tested index performance is hypothetical and is provided for informational purposes only to indicate historical performance had the index been calculated over the relevant time periods. Actual and back-tested performance results assume the reinvestment of dividends and capital gains. The index monthly returns are computed as the simple average of the monthly returns of 12 sub-indices, each one reconstituted once a year at the end of each month of the year. The index is unmanaged however a mutual fund expense ratio has been deducted from the index returns. Investments cannot be made directly in an index. Past performance is no guarantee of future results. The calculation methodology for the Dimensional US Large Cap Value Index was amended on January 1st, 2014 to include profitability as a factor in selecting securities for inclusion in the index.

- **DFA US Large Cap Portfolio I (DFLVX):** March 1993 - Present: The U.S. Large Cap Value Series, using a market capitalization weighted approach, purchases a broad and diverse group of readily marketable securities of large U.S. companies that the Advisor determines to be value stocks. Actual performance results assume the reinvestment of dividends and capital gains.

**SC IFA U.S. Small Cap Index**

**TIME-SERIES CONSTRUCTION**

- Jan 1928 - Mar 1992: Dimensional Small Cap Index minus 0.0292%/mo (net expense ratio)
- Apr 1992 - Present: DFA U.S. Small Cap Fund (DFSTX)

**DEFINITIONS AND OTHER IMPORTANT INFORMATION**

- **Dimensional Small Cap Index:** January 1928 - December 1974: Dimensional US Small Cap Index Composition: Market-capitalization-weighted index of securities of the smallest US companies whose market capitalization falls in the lowest 8% of the total market capitalization of the Eligible Market. The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and Investment Companies Source: CRSP and Compustat.
- January 1975 - Mar 1992: Dimensional US Small Cap Index Composition: Market-capitalization-weighted index of securities of the smallest US companies whose market capitalization falls in the lowest 8% of the total market capitalization of the Eligible Market. The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and Investment Companies and companies with the lowest profitability and highest relative price within the small cap universe. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. Source: CRSP and Compustat.

The Dimensional US Small Cap Index has been hypothetically back-tested by Dimensional Fund Advisors and did not exist prior to March 1st, 2007. Accordingly, the results shown during the periods prior to March 1st, 2007 do not represent actual returns of the Index. Other periods selected may have different results, including losses. Back-tested index performance is hypothetical and is provided for informational purposes only to indicate historical performance had the index been calculated over the relevant time periods. Actual and back-tested performance results assume the reinvestment of dividends and capital gains. The index monthly returns are computed as the simple average of the monthly returns of 12 sub-indices, each one reconstituted once a year at the end of each month of the year. The index is unmanaged however a mutual fund expense ratio has been deducted from the index returns. Investments cannot be made directly in an index. Past performance is no guarantee of future results. The calculation methodology for the Dimensional US Small Cap Index was amended on January 1st, 2014 to include profitability as a factor in selecting securities for inclusion in the index.

- **DFA US Small Cap Portfolio I (DFSTX):** April 1992 - Present: The U.S. Small Cap Portfolio, using a market capitalization weighted approach, purchases a broad and diverse group of readily marketable securities of U.S. small cap companies. Actual performance results assume the reinvestment of dividends and capital gains.

**SV IFA U.S. Small Cap Value Index**

**TIME-SERIES CONSTRUCTION**

- Jan 1928 - Feb 2000: Dimensional Targeted Value Index minus 0.030%/mo (net expense ratio)
- Mar 2000 - Present: DFA Targeted Value Fund (DFVFX)

**DEFINITIONS AND OTHER IMPORTANT INFORMATION**

- **Dimensional Targeted Value Index:** January 1928 - December 1974: Dimensional US Targeted Value Index Composition: Represents an index of small and mid cap securities with low relative price. Small cap companies with low relative price are generally defined as companies with market capitalizations below the 1000th company in the US Market whose relative price is in the bottom 50% of the small and mid cap universe after the exclusion of utilities, companies lacking financial data, and companies with negative relative price. The Eligible Market is composed of securities of US companies traded on the NYSE, AMEX, and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and Investment Companies Source: CRSP and Compustat.
- January 1975 - February 2000: Dimensional US Targeted Value Index Composition: Represents an index of small and mid cap securities with low relative price. Small and mid cap companies with low relative price are generally defined as companies with market capitalizations below the 500th largest company in the Eligible Market, and whose relative price is in the bottom 25% of the small and mid cap universe after the exclusion of utilities, companies lacking financial data, and companies with negative relative price. The index is unmanaged however a mutual fund expense ratio has been deducted from the index returns. Investments cannot be made directly in an index. Past performance is no guarantee of future results. The calculation methodology for the Dimensional US Targeted Value Index was amended on January 1st, 2014 to include profitability as a factor in selecting securities for inclusion in the index.

- **DFA Targeted Value Portfolio I (DFVFX):** March 2000 - Present: The U.S. Targeted Value Portfolio, using a market capitalization weighted approach, purchases a broad and diverse group of readily marketable securities of U.S. small and mid cap companies that Dimensional Fund Advisors LP (the "Advisor") determines to be value stocks. Actual performance results assume the reinvestment of dividends and capital gains.
**IFA Global REIT Index**

**TIME-SERIES CONSTRUCTION**
- Jan 1928 - Dec 1977: 50% IFA Small Cap (SC) + 50% IFA Small Value (SV)
- Jan 1978 - Jan 1993: Dow Jones US Select REIT Index minus 0.020%/mo (net expense ratio)
- Feb 1993 - Jun 2008: DFA Real Estate Fund (DFREX)
- Jul 2008 - Present: DFA Global Real Estate Fund (DFGEX)

**DEFINITIONS AND OTHER IMPORTANT INFORMATION**

- **50% IFA Small Cap (SC) + 50% IFA Small Value (SV):** January 1928 - December 1977: For Definitions see IFA Small Cap Index (SC) and IFA Small Value Index (SV).
  - Currency: USD Copyright 2018 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved.
- **DFA Real Estate Fund (DFREX):** February 1993 - June 2008: The DFA Real Estate Securities Portfolio, using a market capitalization weighted approach, purchases readily marketable equity securities of companies whose principal activities include ownership, management, development, construction, or sale of residential, commercial or industrial real estate. The Portfolio will principally invest in equity securities of companies in certain real estate investment trusts ("REITs") and companies engaged in residential construction and firms, except partnerships, whose principal business is to develop commercial property. Actual and back-tested performance results assume the reinvestment of dividends and capital gains.
- **DFA Global Real Estate Securities Portfolio (DFGEX):** July 2008 - Present: The DFA Global Real Estate Securities Portfolio seeks to achieve exposure to a broad portfolio of securities of U.S. and non-U.S. companies in the real estate industry, with a focus on real estate investment trusts ("REITs") or companies that the Advisor considers to be REIT-like entities. Actual performance results assume the reinvestment of dividends and capital gains.

**IFA International Value Index**

**TIME-SERIES CONSTRUCTION**
- Jan 1928 - Jun 1955: IFA US Large Value Index (LV)
- Jul 1955 - Dec 1974: Dimensional UK Large Value Index minus 0.0325%/mo (net expense ratio)
- Jan 1975 - Feb 1994: Fama/French International Value Index minus 0.0325%/mo
- Mar 1994 - Present: DFA International Value Fund (DFIVX)

**DEFINITIONS AND OTHER IMPORTANT INFORMATION**

- **IFA US Large Value Index (LV):** January 1928 - June 1955: For definition see IFA US Large Value Index (LV).
- **Dimensional UK Large Value Index:** July 1955 - December 1974: UK Large Value Index Source: Elroy Dimson, Stefan Nagel and Garrett Quigley “Capturing the value premium in the UK”, Financial Analysts Journal 2003, 59(6): 35-45. Created Returns, converted from GBP to USD using the WM/Reuters at 4 p.m. EST (closing spot), from PPP exchange rate Country Code EX. Actual and back-tested performance results assume the reinvestment of dividends and capital gains.
- **DFA International Value Fund (DFIVX):** March 1994 - Present: The DFA International Value Series, using a market capitalization weighted approach, purchases securities of large non-U.S. companies in countries with developed markets that the Advisor determines to be value stocks. Actual performance results assume the reinvestment of dividends and capital gains.

**IFA International Small Company Index**

**TIME-SERIES CONSTRUCTION**
- Jan 1928 - Dec 1969: IFA Small Cap Index (SC)
- Jan 1970 - Sep 1996: Dimensional International Small Cap Index minus 0.0433%/mo (net expense ratio)
- Oct 1996 - Present: DFA International Small Company Fund (DFISX)

**DEFINITIONS AND OTHER IMPORTANT INFORMATION**

- **IFA Small Cap Index (SC):** January 1928 - December 1969: For definition see IFA Small Cap Index (SC).
- **Dimensional International Small Cap Index:** January 1970 - June 1981: 50% Hoare Govett Small Companies Index (hgsmall.ind), 50% Nomura Small Companies Index (nomura.ind)
  - July 1981 - December 1989: Created by Dimensional. Includes securities of MSCI EAFE countries in the bottom 10% of market capitalization, excluding the bottom 1%. All securities are market capitalized weighted. Each country is capped at 50%. Rebalanced semiannually.
  - January 1990 - September 1996: Dimensional International Small Cap Index: Market-capitalization-weighted index of small company securities in the eligible markets, excluding those with the lowest profitability and highest relative price within the small cap universe. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. The index monthly returns are computed as the simple average of the monthly returns of four sub-indices, each one reconstructed once a year at the end of each quarter of the year. Maximum index weight of any one company is capped at 5%. Countries currently included are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and United Kingdom. Exclusions: REITs and Investment Companies Source: Bloomberg
  - The Dimensional International Small Cap Index has been hypothetically back-tested by Dimensional Fund Advisors and did not exist prior to April 2008. Accordingly, the results shown during the periods prior to April 2008 do not represent actual returns of the Index. Back-tested index performance is hypothetical and is provided for informational purposes only to indicate historical performance had the index been calculated over the relevant time periods. Actual and back-tested performance results assume the reinvestment of dividends and capital gains. The index is unmanaged however a mutual fund expense ratio has been deducted from the index returns. Investments cannot be made directly in an index. Past performance is no guarantee of future results.
  - The calculation methodology for the Dimensional International Small Cap Index was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index.
- **DFA International Small Company Fund (DFISX):** October 1996 - Present: The International Small Company Portfolio is a “fund of funds,” which means the Portfolio generally allocates its assets among other funds managed by Dimensional Fund Advisors LP (the “Advisor”) (the “Underlying Funds”), although it has the ability to invest directly in securities and derivatives. The International Small Company Portfolio seeks to achieve its investment objective of providing investors with access to securities portfolios consisting of a broad range of equity securities of primarily small Canadian, Japanese, United Kingdom, Continental European and Asia Pacific companies. Actual performance results assume the reinvestment of dividends and capital gains.
**IFA International Small Cap Value Index**

**TIME-SERIES CONSTRUCTION**
- Jan 1928 - Dec 1969: IFA U.S. Small Cap Value (SV)
- Jul 1981 - Dec 1994: Dimensional Intl Small Cap Value Index minus 0.0533%/mo (net expense ratio)
- Jan 1995 - Present: DFA Intl Small Cap Value Fund (DISVX)

**DEFINITIONS AND OTHER IMPORTANT INFORMATION**

- **IFA Small Cap Value (SV):** January 1928 - December 1969: For definition see IFA Small Cap Value Index (SV).


- **Dimensional International Small Cap Value Index:** July 1981 - December 1989: Created by Dimensional. Includes securities, of MSCI EAFE countries, in the top 30% of Book-to-Market by market capitalization conditional on the securities being in the bottom 10% of market capitalization, excluding the bottom 1%. All securities are market capitalization weighted. Each country is capped at 50%. Rebalanced semiannually.

  January 1990 - Dec 1994: Dimensional International Small Cap Value Index: Consists of small cap companies in eligible markets whose relative price is in the bottom 35% of their country's respective constituents, after the exclusion of utilities and companies with either negative or missing relative price data. The index also excludes those companies with the lowest profitability within their country's small value universe. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. The index monthly returns are computed as the simple average of the monthly returns of four sub-indices, each one reconstituted once a year at the end of each quarter of the year. Maximum index weight of any one company is capped at 5%. Countries currently included are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and United Kingdom. Exclusions: REITs and Investment Companies. Source: Bloomberg. The Dimensional International Small Cap Value Index has been hypothetically back-tested by Dimensional Fund Advisors and did not exist prior to April 2008. Accordingly, the results shown during the periods prior to April 2008 do not represent actual returns of the Index. Back-tested index performance is hypothetical and is provided for informational purposes only to indicate historical performance had the index been calculated over the relevant time periods. Actual and back-tested performance results assume the reinvestment of dividends and capital gains. The index is unmanaged however a mutual fund expense ratio has been deducted from the index returns. Investments cannot be made directly in an index. Past performance is no guarantee of future results. The calculation methodology for the Dimensional International Small Cap Value Index was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index.

- **DFA International Small Cap Value Portfolio I (DISVX):** January 1995 - Present: The DFA International Small Cap Value Portfolio, using a market capitalization weighted approach, purchases securities of small, non-U.S. companies in countries with developed markets that Dimensional Fund Advisors LP (the "Advisor") determines to be value stocks at the time of purchase. Actual performance results assume the reinvestment of dividends and capital gains.

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**IFA Emerging Market Index**

**TIME-SERIES CONSTRUCTION**
- Jan 1928 - Dec 1969: 50% IFA US Large Value (LV) + 50% IFA US Small Cap (SC)
- Jan 1970 - Dec 1988: 50% IFA International Value (IV) + 50% IFA International Small (IS)
- Jan 1989 - Apr 1994: Fama/French Emerging Markets Index minus 0.0358%/mo (net expense ratio)
- May 1994 - Present: DFA Emerging Markets Fund (DFEMX)

**DEFINITIONS AND OTHER IMPORTANT INFORMATION**

- **50% IFA US Large Value Index (LV) + 50% IFA US Small Cap Index (SC):** January 1928 - December 1969: For definitions see IFA US Large Value (LV) and IFA US Small Cap (SC).

- **50% IFA International Value (IV) + 50% IFA International Small (IS):** January 1970 - December 1988: For definitions see IFA International Value Index (IV) and IFA International Small Index (IS).


- **DFA Emerging Markets Portfolio I (DFEMX):** May 1994 - Present: The Emerging Markets Portfolio pursues its investment objective by investing substantially all of its assets in the Emerging Markets Series. The Emerging Markets Series purchases a broad market coverage of larger companies associated with emerging markets, which may include frontier markets (emerging market countries in an earlier stage of development), authorized for investment by the Advisor's Investment Committee ("Approved Markets"). Actual performance results assume the reinvestment of dividends and capital gains.

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**IFA Emerging Market Value Index**

**TIME-SERIES CONSTRUCTION**
- Jan 1928 - Dec 1969: IFA U.S. Small Cap Value Index (SV)
- Jan 1989 - Apr 1998: Dimensional Emerging Value Index minus 0.0425%/mo (net expense ratio)
- May 1998 - Present: DFA Emerging Markets Fund (DFEMX)

**DEFINITIONS AND OTHER IMPORTANT INFORMATION**

- **IFA U.S. Small Cap Value Index (SV):** January 1928 - December 1969: For definition see IFA U.S. Small Cap Value Index (SV).


- **Dimensional Emerging Value Index:** January 1989 - April 1998: Consists of companies whose relative price is in the bottom 33% of their country's respective constituents, after the exclusion of utilities and companies with either negative or missing relative price data. The index emphasizes companies with smaller capitalization, lower relative price, and higher profitability. The index also excludes those companies with the lowest profitability and highest relative price within their country's small value universe. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. The index monthly returns are computed as the simple average of the monthly returns of four sub-indices,
each one reconstituted once a year at the end of each quarter of the year. Maximum index weight of any one company is capped at 5%. Countries currently included are Brazil, Chile, China, Colombia, Czech Republic, Hungary, India, Indonesia, Malaysia, Mexico, Peru, Philippines, Poland, Russia, South Africa, South Korea, Taiwan, Thailand, and Turkey. Exclusions: REITs and Investment Companies. Actual and backtested performance results assume the reinvestment of dividends and capital gains. Source: Bloomberg.

• DFA Emerging Markets Value Portfolio I (DFEX): May 1998 - Present: The Emerging Markets Value Portfolio pursues its investment objective by investing substantially all of its assets in the Emerging Markets Value Fund. The Emerging Markets Value Fund purchases emerging market equity securities that are deemed by the Advisor to be value stocks at the time of purchase and associated with emerging markets, which may include frontier markets (emerging market countries in an earlier stage of development), authorized for investment by the Advisor’s Investment Committee (“Approved Markets”). Actual performance results assume the reinvestment of dividends and capital gains.

IFA Emerging Market Small Cap Index

TIME-SERIES CONSTRUCTION
- Jan 1928 - Dec 1969: IFA U.S. Small Cap Index (SC)

DEFINITIONS AND OTHER IMPORTANT INFORMATION
- DFA Emerging Markets Small Cap Portfolio I (DEMSX): April 1998 - Present: The Emerging Markets Small Cap Portfolio pursues its investment objective by investing substantially all of its assets in the Emerging Markets Small Cap Series. The Emerging Markets Small Cap Series purchases a broad market coverage of smaller companies associated with each emerging market, which may include frontier markets (emerging market countries in an earlier stage of development), authorized for investment by the Advisor’s Investment Committee (“Approved Markets”). Actual performance results assume the reinvestment of dividends and capital gains.

IFA One-Year Fixed Income Index

TIME-SERIES CONSTRUCTION
- Jan 1928 - Jun 1963: One-Month T-Bills minus 0.0142%/mo (net expense ratio)
- Jul 1963 - Jul 1983: ICE BofAml 1-Year US Treasury Note Index minus 0.0142%/mo (net expense ratio)
- Aug 1983 - Present: DFA U.S. One Year Fixed Income Fund (DFIHX)

DEFINITIONS AND OTHER IMPORTANT INFORMATION
- ICE BofAml 1-Year US Treasury Note Index: July 1963 - July 1983: Actual and back-tested performance results assume the reinvestment of earnings. CRSP/DFA. Total Returns in USD. Source: Ice Data Indices, LLC GCC3 Index. Currency: USD. ICE BofAml index data copyright 2018 ICE Data Indices, LLC.
- DFA One-Year Fixed Income Portfolio (DFIHX): August 1983 - Present: The One-Year Portfolio seeks to achieve its investment objective by generally investing in a universe of high quality fixed income securities that typically mature in one year or less. The Portfolio may, however, take a large position in securities maturing within two years of the date of settlement when higher yields are available. The One-Year Portfolio invests in U.S. government obligations, U.S. government agency obligations, dollar-denominated obligations of foreign issuers issued in the U.S., securities of domestic or foreign issuers denominated in U.S. dollars but not trading in the U.S., foreign government and agency obligations, bank obligations, including U.S. subsidiaries and branches of foreign banks, corporate obligations, commercial paper, repurchase agreements and obligations of supranational organizations. Actual performance results assume the reinvestment of earnings.

IFA Two-Year Global Fixed Income Index

TIME-SERIES CONSTRUCTION
- Jan 1928 - Jun 1977: Five-Year T-Notes minus 0.0142%/mo (net expense ratio)
- Jul 1977 - Dec 1989: ICE BofAml US Treasury Index 1-3 Years minus 0.0142%/mo
- Jan 1990 - Feb 1996: FTSE World Government Bond Index 1-3 Years (hedged to USD) minus 0.0142%/mo
- Mar 1996 - Present: DFA 2-Year Global Fixed Income Fund (DFGFX)

DEFINITIONS AND OTHER IMPORTANT INFORMATION
- FTSE World Government Bond Index 1-3 Years (hedged to USD): January 1990 - February 1996: FTSE World Government Bond Index 1-3 Years (hedged to USD) Total Returns Hedged to USD. Actual and back-tested performance results assume the reinvestment of earnings. Source: FTSE. Currency: USD. Citi fixed income indices copyright 2018 by Citigroup.
**IFA Short Term Government Index**

**TIME-SERIES CONSTRUCTION**
- Jan 1928 - Dec 1972: Five Year T-notes minus 0.0158%/mo (net expense ratio)
- Jul 1987 - Present: DFA Short-Term Government Portfolio (DFFGX)

**DEFINITIONS AND OTHER IMPORTANT INFORMATION**
- **DFA Short-Term Government Portfolio (DFFGX):** July 1987 - Present: The Short-Term Government Portfolio seeks to maximize risk-adjusted total returns from a universe of obligations of the U.S. Government and its agencies maturing in five years or less. The credit quality of the securities purchased by the Portfolio will be that of the U.S. Government or its agencies. Actual performance results assume the reinvestment of earnings.

**IFA Five-Year Global Fixed Income Index**

**TIME-SERIES CONSTRUCTION**
- Jan 1928 - Nov 1990: IFA Short Term Government Index (3G)
- Dec 1990 - Present: DFA Five-Year Global Fixed Income Fund (DFGBX)

**DEFINITIONS AND OTHER IMPORTANT INFORMATION**
- **IFA Short Term Government Index (3G):** January 1928 - November 1990: For definition see IFA Short Term Government Index (3G). Actual and back-tested performance results assume the reinvestment of earnings.
- **DFA Five-Year Global Fixed Income Portfolio (DFGBX):** December 1990 - Present: The Five-Year Global Portfolio seeks to achieve its investment objective by generally investing in a universe of U.S. and foreign debt securities maturing in five years or less. The Five-Year Global Portfolio primarily invests in obligations issued or guaranteed by the U.S. and foreign governments, their agencies and instrumentalities, corporate debt obligations, bank obligations, commercial paper, repurchase agreements, obligations of other domestic and foreign issuers, securities of domestic or foreign issuers denominated in U.S. dollars but not trading in the United States, and obligations of supranational organizations. Actual performance results assume the reinvestment of earnings.

**IFA SP 500 Index**

**TIME-SERIES CONSTRUCTION**
Jan 1928 - Sep 1999: Dimensional US Large Cap Index Minus 0.00167%/mo (net expense ratio)
Jul 2017 - Present: Schwab S&P 500 Index (SWPPX)

**DEFINITIONS AND OTHER IMPORTANT INFORMATION**
- **Dimensional US Large Cap Index:** January 1928 - September 1999: Dimensional US Large Cap Index Composition: Market-capitalization-weighted index of securities of the largest U.S. companies whose market capitalization falls in the highest 90% of the total market capitalization of the Eligible Market. The Eligible Market is composed of securities of U.S. companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and Investment Companies. Source: CRSP and Compustat.
- **DFA U.S. Large Company Fund (DFUSX):** October 1999 - June 2017: The U.S. Large Company Portfolio generally invests in the stocks that comprise the S&P 500® Index in approximately the proportions they are represented in the S&P 500® Index. The S&P 500® Index comprises a broad and diverse group of stocks. Generally, these are the U.S. stocks with the largest market capitalizations and, as a group, they generally represent approximately 80% of the total market capitalization of all publicly traded U.S. stocks. Actual performance results assume the reinvestment of dividends and capital gains.
- **Schwab S&P 500 Index (SWPPX):** July 2017 - Present: The investment seeks to track the total return of the S&P 500® Index. The fund generally invests at least 80% of its net assets in stocks that are included in the S&P 500® Index. The fund may invest in derivatives, principally futures contracts, and lend its securities to minimize the gap in performance that naturally exists between any index fund and its corresponding index. It may concentrate its investments in an industry or group of industries to the extent that its comparative index is also so concentrated. Actual and back-tested performance results assume the reinvestment of dividends and capital gains.

**IFA NSDQ Index**

**TIME-SERIES CONSTRUCTION**
- Feb 1973 - Sep 2003: NASDAQ Composite Index
- Oct 2003 - Present: Nasdaq Composite Total Return (XCM) (Source: Morningstar)

**DEFINITIONS AND OTHER IMPORTANT INFORMATION**
- **Fama/French US Small Growth Simulated Portfolio (ex Utilities):** January 1928 - January 1973: Composition: US operating companies trading on the NYSE, AMEX or Nasdaq
DEFINITIONS AND OTHER IMPORTANT INFORMATION

• Dimensional US Market Index: January 1928 - April 1992: Dimensional US Market Index Composition: Market-capitalization-weighted index of securities of all US companies. The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITS, and Investment Companies Source: CRSP and CompuStat. The Dimensional US Market Index has been hypothetically back-tested by Dimensional Fund Advisors and did not exist prior to March 1st, 2007. Accordingly, the results shown during the periods prior to March 1st, 2007 do not represent actual returns of the Index. Other periods selected may have different results, including losses. Backtested index performance is hypothetical and is provided for informational purposes only to indicate historical performance had the index been calculated over the relevant time periods. Actual and backtested performance results assume the reinvestment of dividends and capital gains. The index monthly returns are computed as the simple average of the monthly returns of 12 sub-indices, each one reconstituted once a year at the end of each month of the year. The Index is unmanaged and is not subject to fees and expenses typically associated with managed accounts or investment funds. Investments cannot be made directly in an index. Past performance is no guarantee of future results.

• Vanguard US Total Market Index (VITSX): May 1992 - Present: The investment seeks to track the performance of a benchmark index that measures the investment return of the overall stock market. The fund employs a passive management investment approach designed to track the performance of the MSCI US Broad Market index, which consists of all of the U.S. common stocks traded regularly on the New York Stock Exchange and the Nasdaq over-the-counter market. It typically holds 1,200-1,300 of the stocks in its target index. Actual performance results cannot be made directly in an index. Past performance is no guarantee of future results.

DEFINITIONS AND OTHER IMPORTANT INFORMATION

• Dimensional US Large Cap High Price-to-Book Index: January 1928 - December 1992: Dimensional US Large Cap High Price-to-Book Index Composition: A subset of the US Large Cap Index. The subset is defined as companies whose relative price is in the top 20% of the US Large Cap Index after the exclusion of utilities, companies lacking financial data, and companies with negative relative price. The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITS, and Investment Companies Source: CRSP and CompuStat. The Dimensional US Large Cap High Price-to-Book Index has been hypothetically back-tested by Dimensional Fund Advisors and did not exist prior to March 1st, 2007. Accordingly, the results shown during the periods prior to March 1st, 2007 do not represent actual returns of the Index. Other periods selected may have different results, including losses. Backtested index performance is hypothetical and is provided for informational purposes only to indicate historical performance had the index been calculated over the relevant time periods. Actual and backtested performance results assume the reinvestment of dividends and capital gains. The index monthly returns are computed as the simple average of the monthly returns of 12 sub-indices, each one reconstituted once a year at the end of each month of the year. The Index is unmanaged and is not subject to fees and expenses typically associated with managed accounts or investment funds. Investments cannot be made directly in an index. Past performance is no guarantee of future results.

• Dimensional US Large Growth Index: January 1975 - November 1992: Dimensional US Large Growth Index Composition: Consists of companies with market capitalizations above the 1000th name whose relative price is in the top 50% of the all large cap companies after the exclusion of utilities, companies lacking financial data, and companies with negative relative price. The Index emphasizes companies with higher profitability, lower relative price, and lower market capitalization. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITS, and Investment Companies Source: CRSP and CompuStat. The Dimensional US Large Growth Index has been hypothetically back-tested by Dimensional Fund Advisors and did not exist prior to December 31st, 2012. Accordingly, the results shown during the periods prior to December 31st, 2012 do not represent actual returns of the Index. Other periods selected may have different results, including losses. Backtested index performance is hypothetical and is provided for informational purposes only to indicate historical performance had the index been calculated over the relevant time periods. Actual and backtested performance results assume the reinvestment of dividends and capital gains. The index monthly returns are computed as the simple average of the monthly returns of 12 sub-indices, each one reconstituted once a year at the end of each month of the year. The Index is unmanaged and is not subject to fees and expenses typically associated with managed accounts or investment funds. Investments cannot be made directly in an index. Past performance is no guarantee of future results.

• Vanguard Growth Index (VIGIX): December 1992 - Present: The investment seeks to track the performance of a benchmark index that measures the investment return of large-capitalization growth stocks. The fund employs a passive management investment approach designed to track the performance of the MSCI US Prime Market Growth Index, a broadly diversified index of growth stocks of large U.S. companies. It attempts to replicate the target index by investing all, or substantially all, of assets in the stocks that make up the index, holding each stock in approximately the same proportion as its weighting in the index. Actual performance results assume the reinvestment of dividends and capital gains.
profitability subgroups. It is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: CRSP and Compustat. Actual and backtested performance results assume the reinvestment of dividends and capital gains.

DEFINITIONS AND OTHER IMPORTANT INFORMATION

- **Fama/French Small Growth Research Index:** January 1928 - May 1998: Composition: The index portfolios for July of any given year to June of the following year include all NYSE, AMEX, and NASDAQ stocks for which we have market equity for December of the prior year and June of the given year, and (positive) book-to-market equity data for fiscal year ending in the prior year. Exclusions: ADRs, Investment Companies, Tracking Stocks, non-US incorporated companies, Closed-end funds, Certificates, Shares of Beneficial Interests, and negative book values. Sources: CRSP databases for returns and market capitalization: 1926 - present. Compustat and hand-collected book values: 1926 - present. CRSP links to Compustat and hand-collected links: 1926 - present. Breakpoints: The market capitalization of the median NYSE firm, so the big and small categories contain the same number of eligible NYSE firms. The B/M breakpoints split the eligible NYSE firms with positive book equity into three categories: 30% of the eligible NYSE firms with positive BE are in Low (Growth), 40% are in Medium (Neutral), and 30% are in High (Value). Rebalancing: Annual (at the end of June) 1926-Present. Actual and backtested performance results assume the reinvestment of dividends and capital gains.

- **Dimensional US Low Profitability Index:** was created by Dimensional in April 2013 and represents an index consisting of non-US developed companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three low-profitability subgroups. It is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: CRSP and Compustat. Actual and backtested performance results assume the reinvestment of dividends and capital gains.

- **Dimensional US High Profitability Index:** was created by Dimensional in January 2014 and represents an index consisting of US companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three high-profitability subgroups. It is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: CRSP and Compustat. Actual and backtested performance results assume the reinvestment of dividends and capital gains.

- **Dimensional International Small Cap Index** was created by Dimensional in April 2008 and is compiled by Dimensional. It represents a market-capitalization-weighted index of securities of the smallest US companies whose market capitalization falls in the lowest 8% of the total market capitalization of the Eligible Market. The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and investment companies. From January 1975 to the present, the index also excludes companies with the lowest profitability and highest relative price within the small cap universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: CRSP and Compustat. The index monthly returns are computed as the simple average of the monthly returns of 12 sub-indices, each one reconstituted once a year at the end of a different month of the year. The calculation methodology for the Dimensional US Small Cap Index was amended on January 1, 2014, to include profitability as a factor in selecting securities for inclusion in the index. Actual and backtested performance results assume the reinvestment of dividends and capital gains.

- **Dimensional US Low Profitability Index:** was created by Dimensional in January 2014 and represents an index consisting of US companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three low-profitability subgroups. It is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: CRSP and Compustat. Actual and backtested performance results assume the reinvestment of dividends and capital gains.

- **Dimensional International Low Profitability Index** was created by Dimensional in January 2013 and represents an index consisting of non-US developed companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three low-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg. Actual and backtested performance results assume the reinvestment of dividends and capital gains.
DEFINITIONS AND OTHER IMPORTANT INFORMATION

### Dimensional International High Profitability Index

- **Dimensional International High Profitability Index**: was created by Dimensional in January 2013 and represents an index consisting of non-US developed companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three high-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg. Actual and backtested performance results assume the reinvestment of dividends and capital gains.

### Dimensional Emerging Markets High Profitability Index

- **Dimensional Emerging Markets High Profitability Index**: was created by Dimensional in April 2013 and represents an index consisting of emerging markets companies and is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three high-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg. Actual and backtested performance results assume the reinvestment of dividends and capital gains.

### Dimensional Emerging Markets Low Profitability Index

- **Dimensional Emerging Markets Low Profitability Index**: was created by Dimensional in April 2013 and represents an index consisting of emerging markets companies and is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three low-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg. Actual and backtested performance results assume the reinvestment of dividends and capital gains.

### Dimensional Emerging Markets Small Cap Index

- **Dimensional Emerging Markets Small Cap Index**: was created by Dimensional in April 2008 and is compiled by Dimensional, January 1994–Present: Dimensional Emerging Markets Small Cap Index Composition: Market-capitalization-weighted index of small company securities in the eligible markets excluding those with the lowest profitability and highest relative price within the small cap universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. The index monthly returns are computed as the simple average of the monthly returns of four sub-indices, each one reconstituted once a year at the end of a different quarter of the year. Source: Bloomberg. The calculation methodology for the Dimensional Emerging Markets Small Cap Index was amended on January 1, 2014, to include profitability as a factor in selecting securities for inclusion in the index. Actual and backtested performance results assume the reinvestment of dividends and capital gains.

### Fama/French Total US Market Research Index


### Fama/French US Value Research Index

- **Fama/French US Value Research Index**: Provided by Fama/French from CRSP securities data. Includes the lower 30% in price-to-book of NYSE securities (plus NYSE Amex equivalents since July 1962 and Nasdaq equivalents since 1973). Actual and backtested performance results assume the reinvestment of dividends and capital gains.

### Fama/French US Growth Research Index

- **Fama/French US Growth Research Index**: Provided by Fama/French from CRSP securities data. Includes the higher 30% in price-to-book of NYSE securities (plus NYSE Amex equivalents since July 1962 and Nasdaq equivalents since 1973). Actual and backtested performance results assume the reinvestment of dividends and capital gains.

### Fama/French International Value Index

Fama/French International Growth Index

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Fama/French Emerging Markets Value Index

DEFINITIONS AND OTHER IMPORTANT INFORMATION


Fama/French Emerging Markets Growth Index

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The Investing Kit includes Mark Hebner’s highly-acclaimed book, *Index Funds: The 12-Step Recovery Program for Active Investors*, and a companion DVD of the documentary film of the same name based on the book. It also includes the *Galton Board - Stock Market Edition*, a device that demonstrates the similarities between the bell curve, cascading beads, and the stock market. The kit provides investors with a comprehensive education of how markets work, with each piece providing an integral component to deliver a multimedia demonstration of the futility of speculating in the stock market and the wisdom of buying, holding and rebalancing a risk-appropriate portfolio of index funds.

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Index Funds

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The Index Fund Advisors (IFA) app can help you replace speculation with an education. Read about passive investment strategies from our articles or keep up to date by watching the latest IFA.tv video.

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- Read and share evidence based investing articles and videos
- Gain access to the documentary film Index Funds: The 12 Step Recovery Program for Active Investors
- Setup an account with IFA
- Contact IFA’s wealth advisors via phone, email or Facetime
- Available on both the Apple App Store and Google Play Store for Android.