



Economic Index Associates

Using Fed Policy Signals to Capture Alpha: The IFED Strategy

December 2022

Synopsis

This article provides insight to the origins of the *IFED* strategy and its efficacy. The *IFED* strategy is rules-based and represents a unique combination of top-down and bottom-up investment approaches. The strategy relies on twelve firm-specific financial metrics to select stocks, which integrates a bottom-up dimension into the strategy. The weights applied to the twelve metrics, however, are conditional on the market environment, as defined by gauging Fed policy signals. Relying on Fed policy signals to guide stock selection introduces a top-down dimension that makes the *IFED* strategy dynamic and forward looking.

Combining the two dimensions into an executable investment approach led to the launch of the Nasdaq *IFED* Large-Cap US Equity™ Index (Nasdaq *IFED-L*™) on June 9, 2020. Since its June 2020 launch, Nasdaq *IFED-L* has been the best performing large-cap US equity index, producing a total return of 54.0%. Furthermore, the index has produced an average alpha (vs the S&P 500) of 11.45% per year over its entire backtested history from January 1, 1999 through June 9, 2020, plus its live history through December 31, 2022.

[Economic Index Associates](#) (EIA) is excited to partner with Nasdaq in promoting the *IFED* strategy to the global investment community. We look forward to future collaboration on a suite of indexes that apply the *IFED* approach.

Creation of EIA and the IFED Strategy

EIA's three founders ([Robert Johnson](#), [Gerald Jensen](#) and [Luis Garcia-Feijoo](#)) are the authorities on the association of Fed monetary policy with security returns – combined they have published over 200 academic articles, which have over 10,000 citations. As illustrated in the following timeline, EIA's major milestones revolve around the founders' academic pursuits. Their first seminal research article was refereed by Nobel laureate, Eugene Fama, and was published in 1996 in the *Journal of Financial Economics*. Throughout the firm's early history, its accomplishments were academic achievements.

Timeline – EIA Milestones

- **1966**
EIA founders (Robert Johnson, Gerald Jensen and Luis Garcia-Feijoo) evaluate Fed Monetary Policy data as far back as 1966 (over 50 years)
- 1996**
EIA founder's seminal research assessing Fed policy impact on security return patterns is published in *Journal of Financial Economics*
- 2000**
EIA's founders publish a CFA Institute monograph titled "The Role of Monetary Policy in Investment Management"
- 2015**
EIA's founders publish a book titled "*Invest with the Fed*"
- 2018**
Economic Index Associates (EIA) is formed
- 2020**
EIA launches first *IFED* customized index (*IFED-L*)
- 2020**
First separately managed accounts applying the *IFED* strategy are opened
- 2021**
UBS launches two NYSE-listed ETNs that track *IFED-L*
- 2022**
EIA partners with Nasdaq on the Nasdaq *IFED-L*

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The basic premise of the founders’ original research is captured in their book - *Invest with the Fed*, which was published by McGraw-Hill in 2015. After garnering considerable acclaim for their book – including having it featured in the *Wall Street Journal*, the three were eventually persuaded by industry professionals to translate the strategy into investible products. The founders are true “reluctant investment practitioners” as their intentions were to produce academic research, rather than creating products for the investment community. Economic Index Associates (EIA) was created several years after *Invest with the Fed* was published and only after having audience members at ETF conferences and CFA society presentations request “how to” instructions on implementing the strategy.

Components of the IFED Strategy

The following exhibit outlines the process that underlies the IFED strategy. The process is presented with respect to Nasdaq IFED-L; however, the process is consistent across the various IFED indexes. In addition to Nasdaq IFED-L, EIA maintains a suite of prototype IFED indexes for prospective licensees that can be customized according to any number of parameters.

A key component of the IFED strategy involves the classification of market conditions into alternative environments. Based on the founders’ [extensive research](#), EIA created the IFED market indicator, which assesses Federal Reserve policy signals to classify market conditions as expansive, restrictive or indeterminate.

Once the market environment is identified, the strategy relies on twelve firm-specific financial metrics to assign an IFED score to each stock. A stock’s IFED score indicates the stock’s ability to prosper during the market environment identified by the IFED market indicator. Stocks with higher IFED scores have features that align more closely with prevailing market conditions.



STARTING UNIVERSE AND STOCK SCORING

- 500 largest stocks listed on NYSE and Nasdaq with 3+ years of financial data
- EIA's proprietary monetary indicator uses Fed policy signals to classify the environment
- as expansive, restrictive or indeterminate
- 12 firm-specific metrics* are used to assign each stock an *IFED* score based on its ability to benefit from prevailing market conditions



COMPOSITION & WEIGHTING

- Each stock is ranked by its *IFED* score
- 100 stocks with highest scores for prevailing conditions are selected as potential constituents
- Stocks are weighted by *IFED* score; constraints are applied for liquidity, stock and sector weight
- Result is a final index with approximately 75 stocks



INDEX REBALANCE TIMING

- *IFED* indexes are rebalanced when the market environment changes to avoid applying an out-of-favor investment approach
- *IFED* model reacts to signaled shifts in Fed policy, rather than relying on existing rate levels or economic conditions
 - Integrates a forward-looking aspect

* 1) Market Capitalization; 2) Past Long-term Stock Performance; 3) Past Short-term Stock Performance; 4) Relative Value; 5) Dividend Yield; 6) Cash Ratio; 7) Residual Variability; 8) Change in Net Operating Assets; 9) Balance Sheet Bloat; 10) Equity Issuance; 11) Debt Ratio; 12) Gross Profit Margin

As noted in the exhibit, Nasdaq *IFED-L* is composed of approximately 75 stocks, which is also the case for the *IFED* prototype indexes. The weighting mechanism applied to the *IFED* indexes is unique as the weights are based on each stock's *IFED* score. Thus, each *IFED* index includes the stocks best aligned with market conditions, and also weights the stocks in the index by their ability to prosper in the prevailing environment.

Finally, *IFED* indexes rebalance when necessary to maintain alignment with market conditions. If market conditions change, as reflected by a signaled shift in Fed policy, the indexes rebalance to update the holdings to match the new environment. In addition, on June 1, if there has been no environment change for the prior six months, the indexes refresh to reflect changes in the twelve financial metrics.

For more information on the Nasdaq *IFED-L* and its index methodology please visit our website: www.economicindexassociates.com

Validation of the Twelve Financial Metrics

The following exhibit provides insight regarding the twelve firm-specific financial metrics used in the *IFED* strategy. The first panel in the exhibit identifies each metric's influence in the *IFED* model for each of the three market environments. For example, market capitalization is identified as having a negative coefficient during expansive environments and a zero coefficient during restrictive and indeterminate environments. The negative influence indicates that the *IFED* methodology favors small firms during expansive market conditions, whereas market capitalization is considered unimportant during restrictive and indeterminate

conditions.

The second metric, long-term market performance has a negative coefficient during expansive conditions and positive coefficients during the other environments. Thus, weaker long-term performance is favorable when conditions are expansive (a stock return rebound is anticipated), whereas strong performance is favored otherwise. While the table stipulates the direction of relation, it does not indicate the size of the coefficient in the *IFED* model. In addition to different coefficient signs, the *IFED* model applies different size coefficients to the metrics across the three environments.

The middle panel in the exhibit identifies a prominent research article that promoted each of the financial metrics as a return driver. For each metric, there were ultimately several studies that confirmed the metric’s relevance, however, only one study is recognized here. Importantly, EIA’s founders’ research showed that the return patterns established by other researchers varied significantly based on Fed policy signals. For example, the founders determined that the small firm premium, which was promoted by Banz in 1981, was only significant during expansive conditions. Thus, in the *IFED* methodology, the market capitalization metric has a negative coefficient in expansive periods and a zero coefficient otherwise.

IFED Metric	Expansive	Indeterminate	Restrictive	Metric-Motivating Publication – Prominent Examples	EIA Key Research Connecting Fed Policy & Returns
Market Capitalization	Negative	Neutral	Neutral	Banz, R.W., 1981. The relationship between return and market value of common stocks. <i>Journal of Financial Economics</i> , 9(1), pp.3-18.	Jensen G. R., and Johnson, R.R., 1995. Discount rate changes and security returns in the U.S., 1962-1991. <i>Journal of Banking & Finance</i> 19(1): 79-95.
Long-term Stock Performance	Negative	Positive	Positive	Fama, E.F. and French, K.R., 1996. Multifactor explanations of asset pricing anomalies. <i>The Journal of Finance</i> , 51(1), pp.55-84.	Jensen, G.R., Mercer, J.M., Johnson, R.R., 1996. Business conditions, monetary policy, and expected security returns. <i>Journal of Financial Economics</i> 40, 213-237.
Short-term Stock Performance	Positive	Neutral	Positive	JeFama, E.F. and French, K.R., 1996. Multifactor explanations of asset pricing anomalies. <i>The Journal of Finance</i> , 51(1), pp.55-84.	Jensen G. R., Johnson, R.R. and Mercer, J.M., 1997. New Evidence on Size and Price-to-Book Effects in Stock Returns. <i>Financial Analysts Journal</i> 56 (November/December 1997): 34-42.
Relative Value	Positive	Positive	Positive	Fama, E.F. and French, K.R., 1996. Multifactor explanations of asset pricing anomalies. <i>The Journal of Finance</i> , 51(1), pp.55-84.	Jensen G. R., Johnson, R.R and Mercer, J.M., 1998. The Inconsistency of Small-Firm and Value Stock Premiums. <i>Journal of Portfolio Management</i> (Winter), 27-36.
Dividend Yield	Positive	Positive	Positive	Naranjo, A., Nimalendran, M. and Ryngaert, M., 1998. Stock returns, dividend yields, and taxes. <i>The Journal of Finance</i> , 53(6), pp.2029-2057.	Conover, C.M., Jensen, G.R., Johnson, R.R. and Mercer, J.M., 2005. Is Fed policy still relevant for investors? <i>Financial Analysts Journal</i> , 61(1), pp.70-79.
Cash Holdings	Neutral	Neutral	Positive	Jensen, T., 2022. Do funding conditions explain the relation between cash holdings and stock returns? <i>Journal of Financial and Quantitative Analysis</i> , 57(3), 1174-1203. doi:10.1017/S0022109021000120	Becher, David, Jensen, G.R., Mercer, J.M., 2008. Monetary policy indicators as predictors of stock returns. <i>Journal of Financial Research</i> 31, pp. 357-379.
Residual Variability	Neutral	Negative	Neutral	Ang, A., Hodrick, R.J., Xing, Y. and Zhang, X., 2006. The cross-section of volatility and expected returns. <i>The Journal of Finance</i> , 61(1), pp.259-299.	Jensen, G.R. and Moorman, T., 2010. Inter-temporal variation in the illiquidity premium." <i>Journal of Financial Economics</i> 98, pp. 338-358.
Change in Operating Assets	Negative	Neutral	Negative	Sloan, R.G., 1996. Do stock prices fully reflect information in accruals and cash flows about future earnings? <i>Accounting Review</i> , pp.289-315.	García-Felíjoo, L., and Jensen G. R., 2014. The monetary environment and long-run stock reversals. <i>Journal of Financial Research</i> 37, pp. 3-26.
Balance Sheet Bloat	Negative	Negative	Negative	Hirshleifer, D., Hou, K., Teoh, S.H. and Zhang, Y., 2004. Do investors overvalue firms with bloated balance sheets? <i>Journal of Accounting and Economics</i> , 38, pp.297-331.	García-Felíjoo, L., Jensen, G.R. and Jensen, T.K., 2018. Momentum and funding conditions. <i>Journal of Banking & Finance</i> 88, pp.312-329.
Equity Issuance	Neutral	Negative	Neutral	Pontiff, J. and Woodgate, A., 2008. Share issuance and cross-sectional returns. <i>The Journal of Finance</i> , 63(2), pp.921-945.	García-Felíjoo, L., Jensen, T.K. and Koch, P., 2022. Operating leverage, profitability, and stock returns under different aggregate funding conditions.
Debt Ratio	Neutral	Neutral	Negative	Fama, E.F. and French, K.R., 1992. The cross-section of expected stock returns. <i>The Journal of Finance</i> , 47(2), pp.427-465.	
Gross Profit Margin	Positive	Positive	Neutral	Novy-Marx, R., 2013. The other side of value: The gross profitability premium. <i>Journal of Financial Economics</i> , 108(1), pp.1-28.	

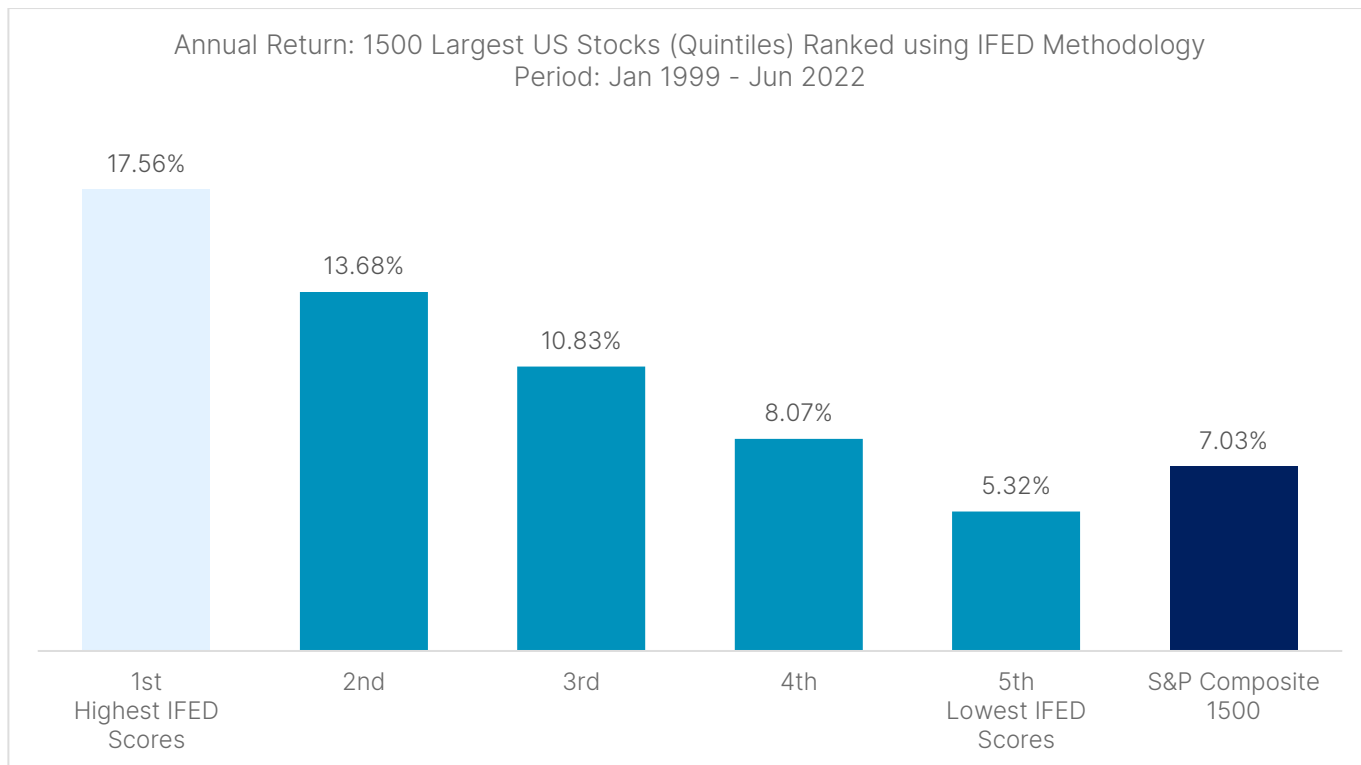
The final panel in the table presents a chronological list of selected research studies performed by EIA’s founders as a basis for the *IFED* strategy. Leveraging the founders’ extensive research, the *IFED* methodology was designed to most effectively capture the return patterns identified in the research. This effort is ongoing as the final study on the list is a working paper that investigates the relation between Fed policy signals and firm fundamentals. The EIA team does not anticipate changing the *IFED* strategy; however, we stand ready to refine the strategy if new research indicates such action is warranted.

Effectiveness of the IFED Strategy

To provide insight regarding the *IFED* scoring model, the following chart illustrates the effectiveness of the *IFED* scores in distinguishing between the different echelons of stock alignment with market conditions i.e., their ability to prosper in the prevailing market environment. The chart shows stock return performance for the 1500 largest U.S. corporations ranked by their *IFED* scores. Those 300 stocks with the highest *IFED* scores are placed in quintile 1, the next highest 300 in quintile 2, on down to the 300 stocks with the lowest *IFED* scores in quintile 5. Note, the ~ 75 stocks in Nasdaq *IFED-L* are selected from the 300 stocks in quintile 1.

There are several conclusions that are supported by the above chart. First, the *IFED* strategy is very effective at distinguishing between stocks that are well-suited for the prevailing environment versus those that are

poorly suited. The annual return difference from top to bottom quintile is over 12%, 17.56% versus 5.32%.



Second, the strategy even effectively differentiates between the minor gradations of score differences across the inner quintiles. There is greater than a 2% return difference across each step in the progression. The monotonic drop in returns as one progresses from the stocks with the highest to those with the lowest *IFED* scores strongly supports the strategy's proficiency. This indicates that the *IFED* methodology is robust and is not driven by a small group of stocks or an isolated time frame.

Third, weighting by *IFED* score is more effective than weighting by market cap. Four of the five quintiles outperform the market average even though logic suggests it should only be two of five. The reason for this is that the stocks within each quintile are weighted by *IFED* score, whereas the market average is based on market-cap weighting.

Clearly, weighting index constituents by *IFED* score is superior to the most common alternative.

Consistency of IFED Strategy Outperformance

The following exhibits report long-term, backtested performance for the Nasdaq *IFED-L* index relative to the S&P 500. Comparable results are produced for other *IFED* indexes that EIA maintains, including Mid, Small and All-Cap indexes. Nasdaq *IFED-L* is selected for presentation because it was the first customized index launched by EIA. Since Nasdaq *IFED-L* launched in June of 2020, it has offered the opportunity to present a live track record for comparison purposes.

Please note that all performance/returns data prior to the live calculation of the index beginning on June 9, 2020 is back-tested. All back-tested index values for periods prior to the launch date of an index are merely indicative, and they are provided "AS IS" for informational and educational purposes only. Nasdaq makes no guarantee as to the accuracy, timeliness, completeness, or fitness for any particular purpose of or for any index values, either historical or back-tested. Nothing contained herein should be construed as investment advice, either on behalf of a particular security or an overall investment strategy. Past performance is not indicative of future results.

The table below shows Nasdaq *IFED-L* performance by market environment. Over the 23+ year time frame, Nasdaq *IFED-L* produced a significant level of outperformance (alpha) in each of the market environments, which further supports the strategy's robustness. It is perhaps not surprising that the strategy is least effective during indeterminate periods given that those periods are defined by conflicting Fed policy signals. It is reassuring that even during indeterminate periods, the strategy continues to produce a significant level of outperformance.

Nasdaq IFED-L Performance Measures (Jan 1999 – Dec 2022)

Full Period	Market Environment			
	Full Period	Expansive	Indeterminate	Restrictive
Return - Nasdaq <i>IFED-L</i>	18.26%	11.72%	20.80%	20.63%
Return - S&P 500	6.81%	1.56%	7.46%	9.60%
Annual Alpha (Mean) vs S&P 500	11.45%	10.15%	13.48%	11.06%
Sharpe Ratio – Nasdaq <i>IFED-L</i>	0.92	0.71	0.85	1.11
Sharpe Ratio – S&P 500	0.38	0.04	0.35	0.66
Information Ratio	1.07	0.92	1.29	1.02

As noted previously, the average annual alpha of Nasdaq *IFED-L* has been an impressive 11.45%, over the period January 1, 1999 to December 31, 2022. Perhaps more impressively, as shown below, Nasdaq *IFED-L* beat the S&P 500 3-year and 5-year rolling returns 86% and 99% of the time during that same time frame. The *IFED* strategy relies on long-term established return patterns that occasionally are obscured by unusual events e.g., a financial crisis or pandemic, but the patterns ultimately prevail in the long run.

Nasdaq IFED-L Outperformance vs S&P 500 (Jan 1999 - Dec 2022)

Rolling Month	Rolling Quarter	Rolling Year	Rolling 2 Years	Rolling 3 Years	Rolling 5 Years
56.25%	63.64%	69.68%	76.23%	86.17%	98.69%

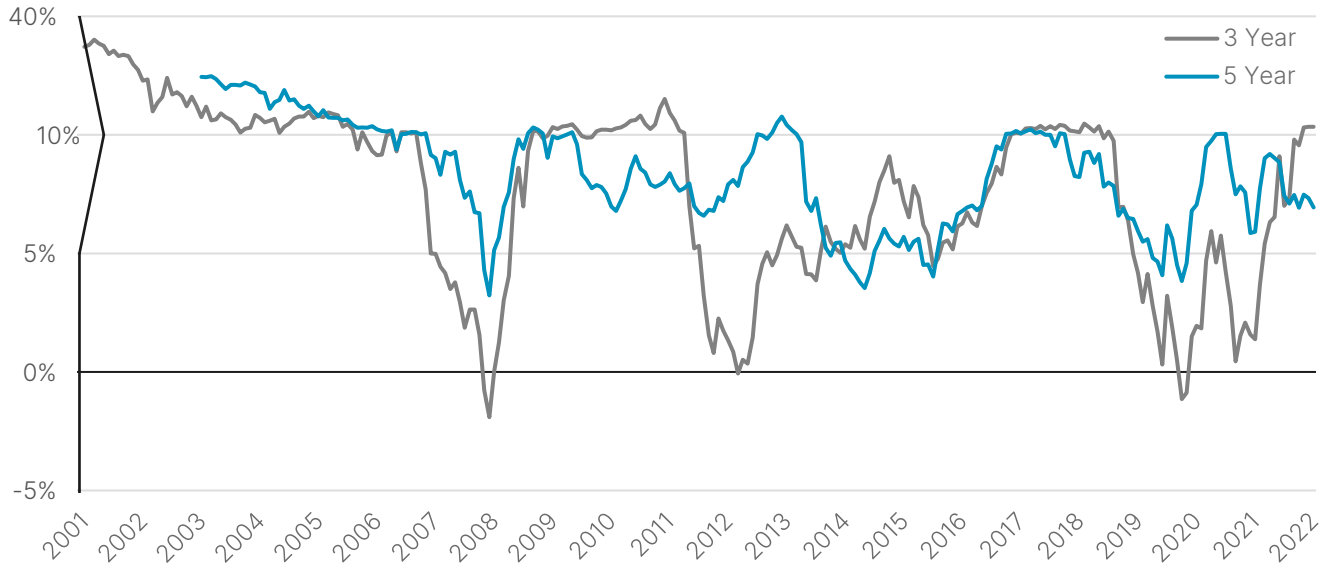
The following graph illustrates the timing of the outperformance and offers additional insights. Note the following observations from the time-series graph:

- The periods of underperformance are few in number, small in magnitude and are short in duration. For 5-year performance, the only underperformance was a miniscule amount observed for a short time in 2016;
- After any short period of underperformance, the strategy has rebounded consistently and produced strong outperformance for an extended time frame thereafter;
- The *IFED* strategy has consistently outperformed across the past 23+ year period even though this period has witnessed several unusual events, e.g., pandemic, financial crisis, negative interest rates, etc. The *IFED* strategy was designed based on patterns identified by academic research that extended back to the 1960s, yet the strategy has continued to produce superior performance.

Please note that all performance/returns data prior to the live calculation of the index beginning on June 9, 2020 is back-tested. All back-tested index values for periods prior to the launch date of an index are merely indicative, and they are provided "AS IS" for informational and educational purposes only. Nasdaq makes no guarantee as to the accuracy, timeliness, completeness, or fitness for any particular purpose of or for any index values, either historical or back-tested. Nothing contained herein should be construed as investment advice, either on behalf of a particular security or an overall investment strategy. Past performance is not indicative of future results.

Nasdaq IFED-L Rolling 3-Year and Rolling 5-Year Alpha vs S&P 500

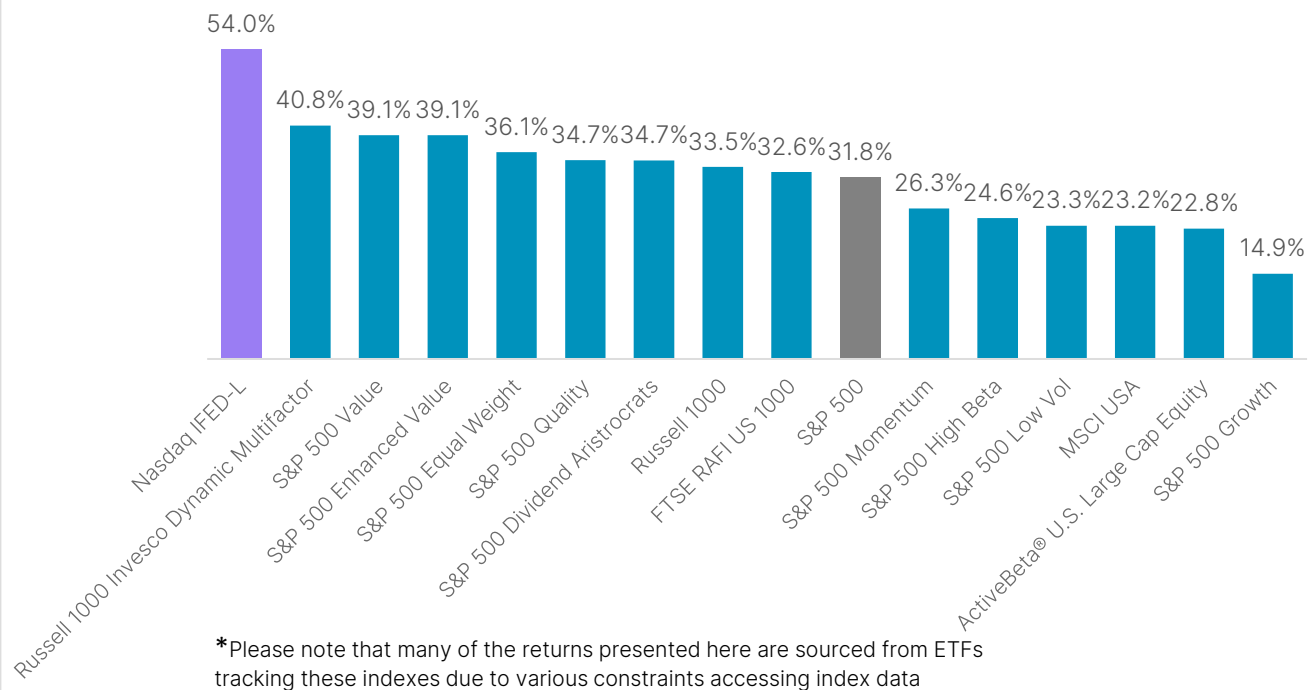
Period: Jan 1999 - Dec 2022



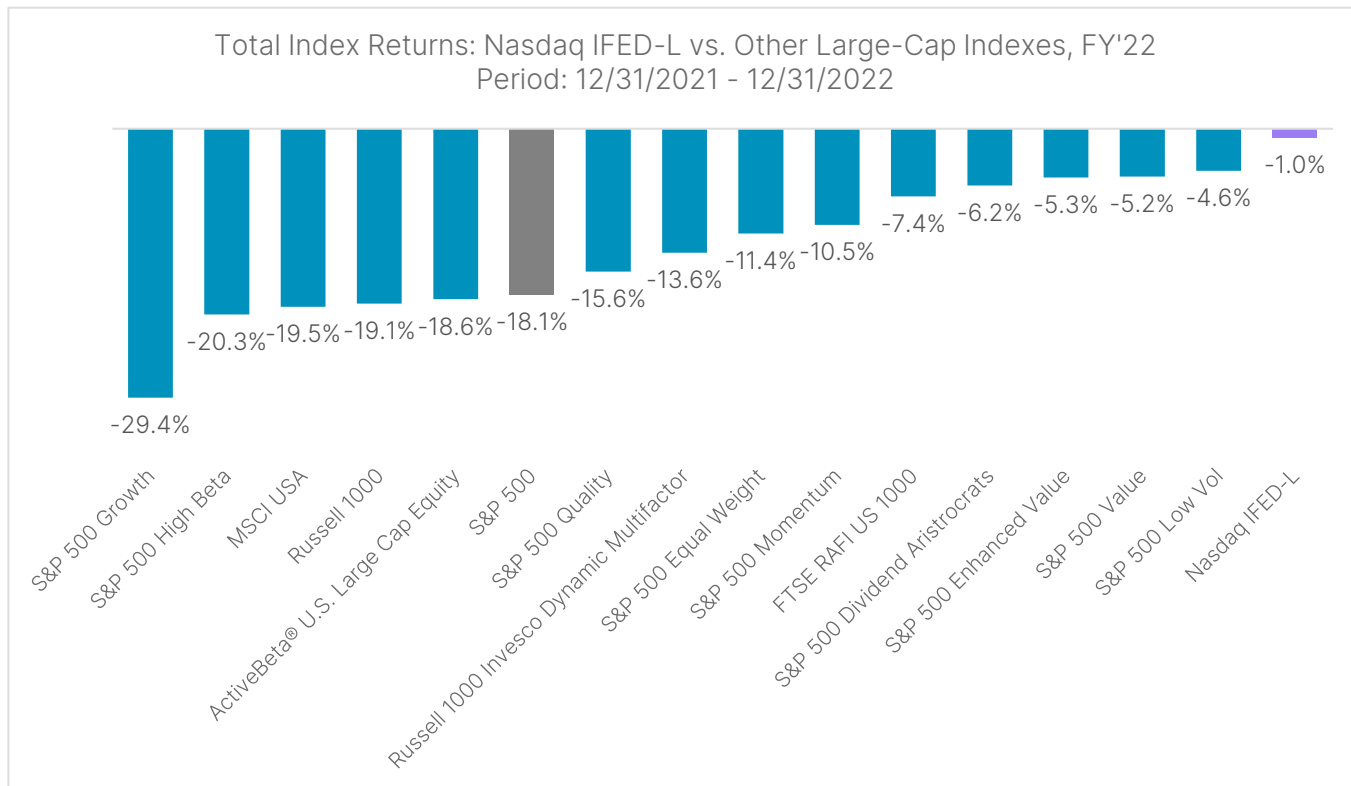
IFED Strategy Recent Performance (Through December 31, 2022)

The effectiveness of the IFED approach is supported by Nasdaq IFED-L’s 22.2% total alpha since the index was launched on June 9, 2020. Furthermore, as illustrated in the following graph, the 54.0% total return over this two-year-plus period far surpasses that of the other prominent large-cap indexes. By repositioning index holdings to align with changing market conditions, Nasdaq IFED-L outperformed other indexes over a very challenging market environment that included several historic events, including a pandemic, record inflation, Russia’s invasion of Ukraine, and historic supply-chain disruptions.

Total Index Return: Nasdaq IFED-L vs. Other Large-Cap Indexes Since Launch
Period: 6/9/2020 - 12/31/2022



Nasdaq *IFED-L*'s superior performance has continued, as it maintained its top position in 2022, producing a total return of -1.0% vs -18.1% for the S&P 500. This consistency of outperformance supports the strategy's overall robustness as the overall period from its June 9, 2020 launch through December 31, 2021 was a generally favorable period for the market, whereas, 2022 witnessed an unfavorable market for stocks. Furthermore, the consistency of outperformance compares favorably with the other indexes. For example, the second-best performer from June 9, 2020 through December 31, 2022 was the Russell 1000 Invesco Dynamic Multifactor Index; however, that index drops to ninth best in 2022 performance.

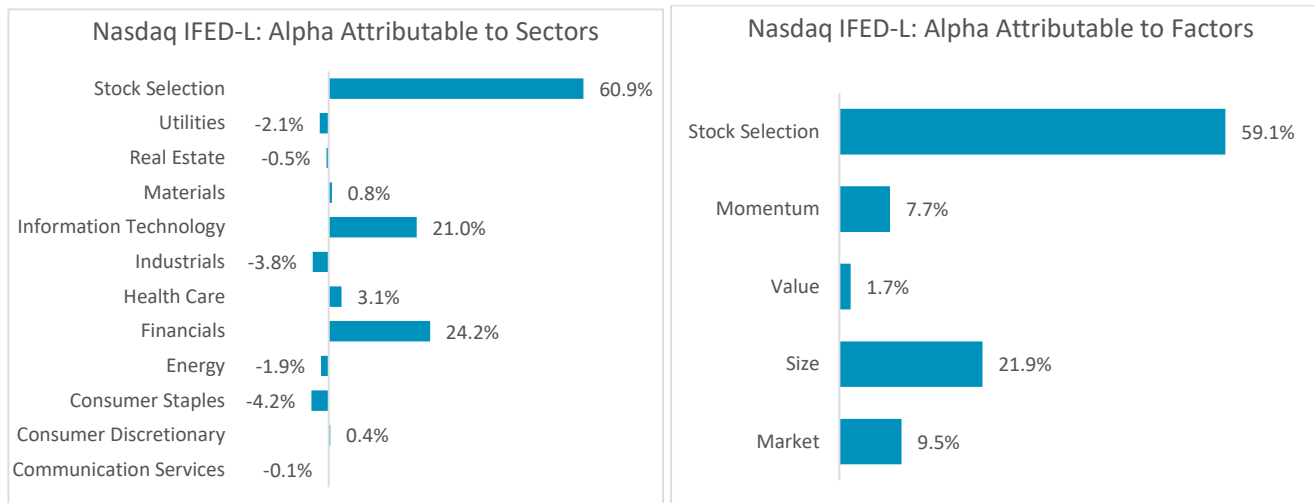


The IFED Strategy Sources Alpha from Stock Selection

The *IFED* strategy is an active stock selection approach that is guided by signaled shifts in Fed policy. The strategy does not maintain any consistent sector or factor exposure biases because it relies on twelve firm-specific financial metrics. In contrast, most investment approaches rely on a small and static set of firm features or factor exposures. The twelve metrics underlying the *IFED* strategy reflect diverse features of the underlying stocks, and furthermore, they are varied by market conditions. The result is that *IFED* index composition reflects a diverse portfolio of environment-aligned holdings.

Both sector and factor attribution analyses (see charts below) confirm that the Nasdaq *IFED-L*'s alpha is sourced from its stock selection process, namely using twelve firm-specific metrics to identify stocks appropriately aligned with the market environment. To seek outperformance and avoid holding a portfolio that has become out-of-favor, the *IFED* strategy relies on Fed policy signals to assign appropriate weights to the twelve metrics.

RETURN ATTRIBUTION (JAN 1999 - DEC 2022)



Future Nasdaq IFED Indexes

Economic Index Associates (EIA) is a developer and licensor of active index strategies that are replicable, investable, rules-based and transparent. EIA believes that Fed policy signals can be used to position a portfolio so that it is appropriately aligned with the prevailing market environment.

The Nasdaq *IFED-L* index was created via a partnership with Nasdaq whereby an existing successful index, *IFED-L* was rebranded. The original *IFED-L* index was launched by EIA on June 9, 2020. EIA and Nasdaq plan to launch additional indexes applying the *IFED* strategy in coming months.

In partnering with EIA, Nasdaq recognizes the value of dynamic rules-based indexes that are based on robust research and empirical evidence. With its Nasdaq partnership, EIA is pleased that its indexes will reach a broader audience to allow more investors to benefit from having their portfolios properly positioned for changing market conditions.

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