



Economic Index Associates



Economic Index Associates (EIA)

As of December 31, 2024

Executive Summary

• Leveraging its founders' extensive research, the "Invest with the Fed" (IFED) Strategy™ is a dynamic approach that selects portfolios positioned to prosper in the market environment signaled by Federal Reserve actions.

IFED Strategy Performance* (January 1999 – December 2024)

	<i>IFED-A</i> All Cap	<i>IFED-LG</i> Large Cap	<i>IFED-M</i> Mid Cap	<i>IFED-S</i> Small Cap	<i>IFED-LV</i> Low Vol
Annual Return	19.96%	18.67%	18.52%	17.41%	12.92%
Annual Alpha	11.58%	10.49%	8.66%	7.80%	4.05%
Standard Deviation	21.25%	18.58%	20.62%	22.59%	12.93%
Upside Capture	133.90%	125.59%	117.86%	115.09%	111.30%
Downside Capture	84.85%	79.72%	85.28%	87.84%	87.70%
Tracking Error	13.62%	10.71%	9.79%	10.50%	5.23%
Information Ratio	0.85	0.98	0.89	0.74	0.77
Benchmark	S&P 1500	S&P 500	S&P MidCap 400	S&P SmallCap 600	S&P 500 Low Vol

❖ Annual alpha, upside capture, downside capture and tracking error are derived relative to each strategy's benchmark.

* EIA has maintained the first four *IFED* Portfolios since January 2020, and *IFED-LV* since January 2022. Returns prior to these dates were back-tested using the same *IFED* methodology (see disclaimer on slide 32).



Strategy Features

Long-term strategy supported by 30+ years of peer-reviewed research

Pursues alpha by using Fed policy signals and firm-specific metrics to select securities

Weights securities by proprietary *IFED Score* instead of market capitalization

Optimally positions portfolios to benefit from prevailing market conditions

Captures alpha while limiting downside risk

Customizable to meet specific client needs



EIA's US Equity Portfolios¹

Name	Short Name	Starting Universe (By Market Cap)
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Market Cap Offerings

<i>IFED</i> All-Cap U.S. Equity	<i>IFED-A</i>	Largest 1,500
<i>IFED</i> Large-Cap U.S. Equity	<i>IFED-LG</i>	Largest 500
<i>IFED</i> Mid-Cap U.S. Equity	<i>IFED-M</i>	Size Rank 501 - 900
<i>IFED</i> Small-Cap U.S. Equity	<i>IFED-S</i>	Size Rank 901 - 1,500

Investment Style Offering

<i>IFED</i> Low Vol U.S. Equity	<i>IFED-LV</i>	Largest 500
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- ❖ EIA's US Equity Portfolios are comprised of 75 stocks weighted by *IFED Score*
- ❖ *IFED-LV* selects components from the 150 large-cap stocks with the lowest volatility

¹ EIA's five Equity Portfolios: 1) are maintained to provide a record of performance; and, 2) differ from EIA's five customized indexes, the first of which was launched in 2020.

Custom Solutions

- Number of holdings
- Investable universe defined by:
 - market cap
 - sectors
 - traditional risk factor(s)
 - investment style, including ESG
- Liquidity filters and optimization to accommodate large AUM



The Evolution of Index Investing

CAPM

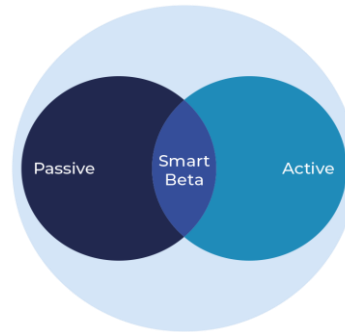


Capital Asset Pricing Model Formula

$$R_a = R_{rf} + B_a (R_m - R_{rf})$$

In the beginning, there was CAPM and indexes were predominantly market-value weighted.

Smart Beta



SMART BETA: AT THE INTERSECTION OF PASSIVE AND ACTIVE

Then, the world changed with “smart beta,” which ushered in the concept of factor- and fundamentally-weighted indexes.

Economic Indexing



Now, EIA uses monetary policy signals to select and dynamically weight securities best positioned for prevailing market conditions.



Timeline – EIA Milestones

1966	EIA founders evaluate Fed monetary policy data as far back as 1966 (over 50 years)
1996	EIA founder's seminal research assessing Fed policy's impact on security returns is published in <i>Journal of Financial Economics</i>
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 " <i>Invest with the Fed</i> "
2018	Economic Index Associates (EIA) is formed
2019	EIA starts calculating the <i>IFED-A</i> , <i>IFED-LG</i> , <i>IFED-M</i> , and <i>IFED-S</i> for prospective client use
2020	EIA launches first <i>IFED</i> customized index (<i>IFED-L</i> ™)
2020	First separately managed accounts apply the <i>IFED Strategy</i>
2021	UBS launches two NYSE-listed ETNs that track <i>IFED-L</i>
2022	EIA partners with Nasdaq® on four indexes - Nasdaq <i>IFED-L</i> ™, Nasdaq <i>IFED-LV</i> ™, Nasdaq <i>IFED-LV5</i> ™, Nasdaq <i>IFED-LV10</i> ™
2023	UBS launches structured products on Nasdaq <i>IFED-LV5</i> and Nasdaq <i>IFED-LV10</i>
2024	EIA contracts with a large public pension fund on a customized portfolio that tracks <i>IFED-LG1</i>

EIA's three founders are authorities on the association of Fed monetary policy with security returns – combined they have published over 200 academic studies, which have over 10,000 citations.

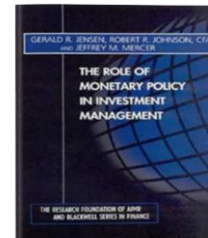
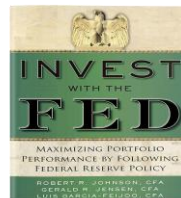


Journal of Financial Economics

Volume 40, Issue 2, February 1996, Pages 213-237



Business conditions, monetary policy, and expected security returns



IFED Methodology



Starting Universe & Stock Scoring

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



Composition & Weighting

- Each stock is ranked by its *IFED Score*
- The 75 stocks with the highest *IFED Scores* for prevailing conditions are selected
- Selected stocks are weighted by *IFED Score*
- Portfolios can be customized to integrate unique features such as liquidity, number of holdings, risk level, etc.



Rebalancing

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

The 12 metrics are based on the research of EIA's founders. EIA's inaugural White Paper (available on request) was published in 2018 and used data from 1979 to 2017, with a post-2013 hold-out sample. EIA's proprietary market indicator has been applied by EIA's founders and others in academic research since the 1990's.

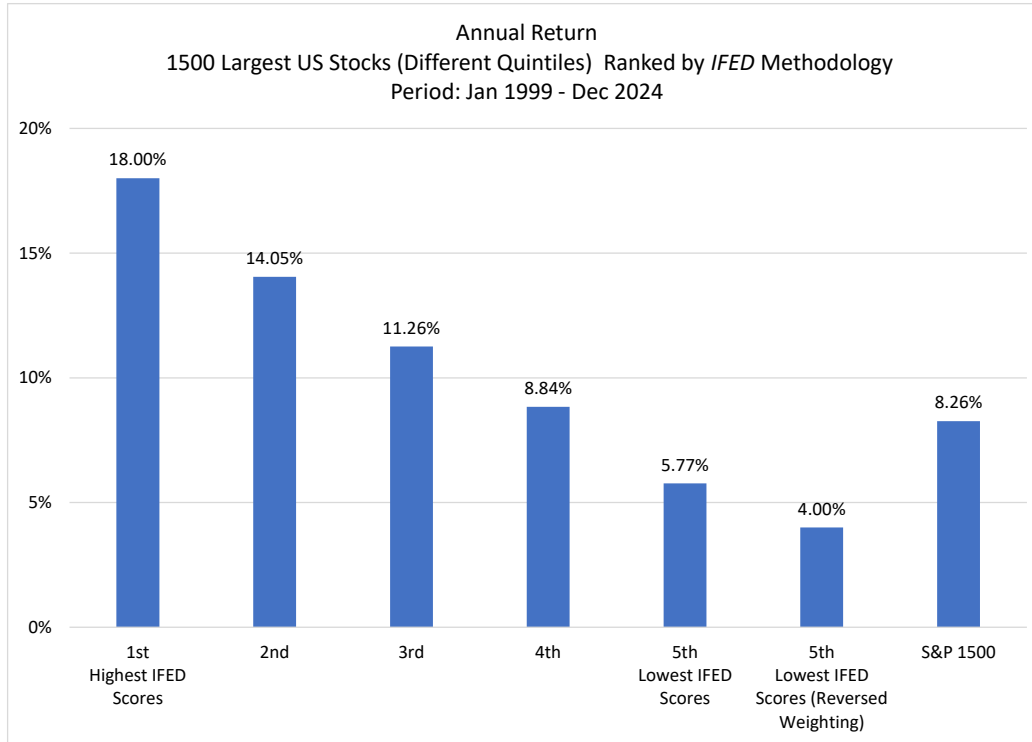


The Twelve Metrics in the IFED Model

IFED Metric	Expansive	Indeterminate	Restrictive	Metric-Motivating Publication – Prominent Examples	Selected EIA 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, 79-95.
Long-term Stock Performance	Negative	Positive	Positive	De Bondt, W.F. and Thaler, R.H., 1987. Further evidence on investor overreaction and stock market seasonality. <i>The Journal of Finance</i> , 42 (3), pp.557-581.	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	Jegadeesh, N. and Titman, S., 1993. Returns to buying winners and selling losers: Implications for stock market efficiency. <i>The Journal of Finance</i> , 48 (1), pp.65-91.	Jensen G. R., Johnson, R.R. and Mercer, J.M., 1997. New evidence on size and price-to-book effects in returns. <i>Financial Analysts Journal</i> 56 (December/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 Rynqaert, M., 1998. Stock returns, dividend yields, and taxes. <i>The Journal of Finance</i> , 53 (6), pp.2029-2057.	CoDecer, 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, 70-79.
Cash Holdings	Neutral	Positive	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.	Becher, David, Jensen, G.R., Mercer, J.M., 2008. Monetary policy indicators as predictors of stock returns. <i>Journal of Financial Research</i> 31, 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, 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-Feijoo, L. and Jensen G. R., 2014. The monetary environment and long-run stock reversals. <i>Journal of Financial Research</i> 37, 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-Feijoo, L., Jensen, G.R. and Jensen, T.K., 2018. Momentum and funding conditions. <i>Journal of Banking & Finance</i> 88, 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-Feijoo, L., Jensen, T.K. and Koch, P., 2024. Operating leverage, profitability, and stock returns under different aggregate funding conditions. <i>Accounting Review</i> 99, 169-199.
Debt Ratio	Neutral	Neutral	Negative	Bhandari, L.C., 1988. Debt/equity ratio and expected common stock returns: Empirical evidence. <i>The Journal of Finance</i> , 43 (2), pp.507-528.	
Gross Profit Margin	Positive	Positive	Neutral	Decy-Marx, R., 2013. The other side of value: The gross profitability premium. <i>Journal of Financial Economics</i> , 108(1), pp.1-28.	



Efficacy of the IFED Scoring Methodology



❖ The stocks in each quintile/portfolio are weighted by *IFED* Score



- The *IFED* methodology captures systematic return patterns related to Fed policy signals
- The methodology uses *IFED* Scores to rank and weight individual stocks
- The methodology effectively identifies stock potential in the prevailing environment
- *IFED-A* is selected from the 1st quintile of stocks



Comparative Returns by Holding Period (through Dec 2024)

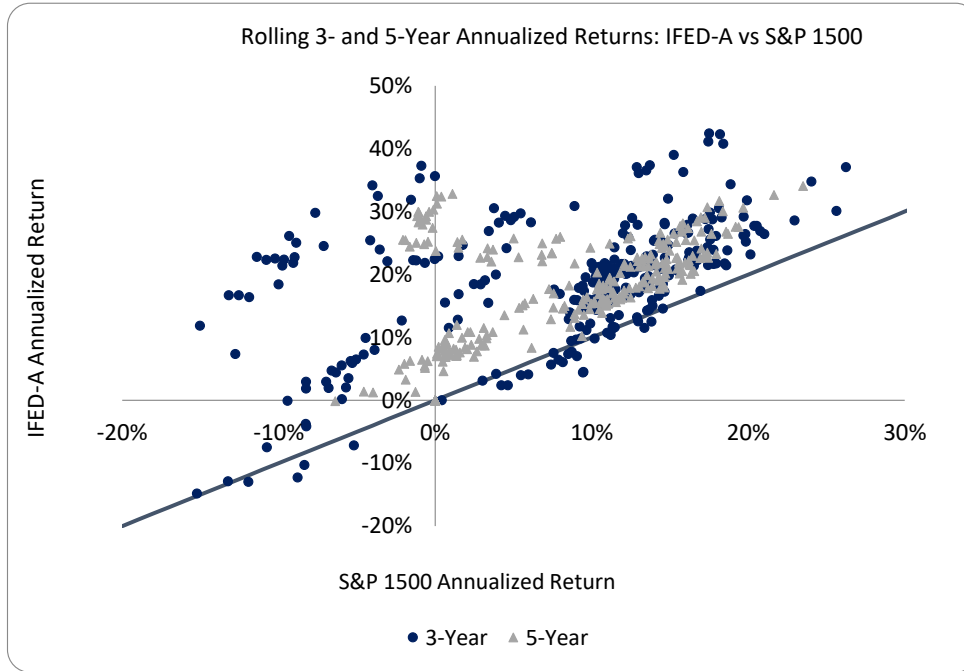
Annual Return

	<i>IFED-A</i>	S&P 1500	<i>IFED-LG</i>	S&P 500	<i>IFED-M</i>	S&P Midcap	<i>IFED-S</i>	S&P SmallCap	<i>IFED-LV</i>	S&P 500 Low Vol
Full Period (1999 – 2024)	19.96%	8.39%	18.67%	8.18%	18.52%	9.85%	17.41%	9.62%	12.92%	8.87%
20 Years	16.46%	10.32%	17.00%	10.35%	15.29%	9.69%	13.64%	8.99%	13.02%	9.04%
10 Years	18.39%	12.79%	19.16%	13.10%	16.65%	9.68%	15.88%	8.96%	14.32%	8.92%
5 Years	20.47%	14.13%	21.11%	14.53%	17.42%	10.34%	21.91%	8.36%	12.59%	6.20%
3 Years	12.87%	8.54%	15.49%	8.94%	9.84%	4.87%	13.83%	1.91%	8.67%	3.16%
2 Years	24.92%	24.71%	23.72%	25.65%	17.53%	15.18%	25.64%	12.31%	12.21%	7.27%
1 Year	14.20%	23.95%	28.39%	25.02%	15.82%	13.93%	14.82%	8.70%	14.74%	14.26%
3 Months*	3.81%	2.22%	7.46%	2.41%	1.78%	0.34%	4.15%	-0.58%	0.88%	-1.97%

* Not annualized



IFED-A Relative Long-Term Performance (1999 – 2024)



- The IFED Strategy has limited downside outcomes – especially when stock market performance lagged
- The findings are very similar for the other IFED Portfolios

* IFED-A starts with a universe of the largest 1,500 US stocks.



Consistency of Outperformance

Outperformance (Jan 1999 – Dec 2024)

	Rolling Return		Rolling Sharpe Ratio		Average	
	% of Time > Benchmark		% of Time > Benchmark		Annual Alpha	
	3-Year	5-Year	3-Year	5-Year	3-Year	5-Year
<i>IFED-A</i> (vs S&P 1500)	91.34%	100.00%	75.81%	84.98%	10.73%	9.98%
<i>IFED-LG</i> (vs S&P 500)	98.19%	100.00%	91.34%	100.00%	9.44%	8.81%
<i>IFED-M</i> (vs S&P MidCap 400)	96.03%	100.00%	94.95%	96.44%	7.82%	7.34%
<i>IFED-S</i> (vs S&P SmallCap 600)	76.90%	95.65%	77.26%	90.91%	6.01%	5.32%
<i>IFED-LV</i> (vs S&P 500 Low Vol)	88.81%	91.70%	86.28%	85.77%	3.92%	3.87%

❖ The *IFED* methodology relies on long-term return patterns, and thus, typically performs better over longer holding periods.



Annual Alphas for IFED Portfolios (through Dec 2024)

Annual Alpha vs Benchmarks

Benchmark	<i>IFED-A</i>	<i>IFED-LG</i>	<i>IFED-M</i>	<i>IFED-S</i>	<i>IFED-LV</i>
	<i>S&P Composite 1500</i>	<i>S&P 500</i>	<i>S&P MidCap 400</i>	<i>S&P SmallCap 600</i>	<i>S&P 500 Low Vol</i>
Full Period (1999 – 2024)	11.58%	10.49%	8.66%	7.80%	4.05%
20 Years	6.14%	6.65%	5.60%	4.64%	3.98%
10 Years	5.60%	6.06%	6.96%	6.92%	5.41%
5 Years	6.34%	6.59%	7.09%	13.56%	6.39%
3 Years	4.34%	6.55%	4.97%	11.92%	5.51%
2 Years	0.21%	-1.94%	2.35%	13.33%	4.94%
1 Year	-9.75%	3.37%	1.89%	6.12%	0.49%
3 Months*	1.59%	5.05%	1.43%	4.73%	2.85%

* Not annualized



IFED Annual Performance by Market Environment

Annual Alpha vs Benchmarks (Jan 1999 – Dec 2024)

	Full Period	Market Environment		
		Expansive	Indeterminate	Restrictive
Alpha: IFED-A vs S&P 1500	11.58%	15.08%	13.97%	8.41%
Sharpe Ratio – IFED-A	0.89	0.75	0.87	1.01
Sharpe Ratio – S&P 1500	0.48	0.09	0.42	0.79
Information Ratio	0.85	0.92	1.16	0.66
Alpha: IFED-LG vs S&P 500	10.49%	10.19%	13.17%	9.24%
Sharpe Ratio – IFED-LG	0.95	0.74	0.89	1.12
Sharpe Ratio – S&P 500	0.47	0.08	0.41	0.78
Information Ratio	0.98	0.92	1.28	0.86
Alpha: IFED-M vs S&P MidCap	8.66%	9.32%	11.21%	7.00%
Sharpe Ratio – IFED-M	0.85	0.63	0.93	0.92
Sharpe Ratio – S&P MidCap 400	0.49	0.15	0.48	0.72
Information Ratio	0.89	0.94	1.77	0.63
Alpha: IFED-S vs S&P SmallCap	7.80%	12.81%	8.72%	4.62%
Sharpe Ratio – IFED-S	0.73	0.68	0.77	0.74
Sharpe Ratio – S&P SmallCap 600	0.44	0.13	0.50	0.59
Information Ratio	0.74	0.99	0.77	0.55
Alpha: IFED-LV vs S&P Low Vol	4.05%	1.85%	5.82%	4.35%
Sharpe Ratio – IFED Low Vol	0.92	0.50	0.96	1.14
Sharpe Ratio – S&P 500 Low Vol	0.66	0.35	0.67	0.85
Information Ratio	0.77	0.40	0.95	0.86



Outperformance is consistent across market environments and across portfolios



Risk-Adjusted Performance Measures

Performance Measures (Full Period: Jan 1999 – Dec 2024)

	<i>IFED-A</i>	S&P 1500	<i>IFED-LG</i>	S&P 500	<i>IFED-M</i>	S&P Midcap	<i>IFED-S</i>	S&P SmallCap	<i>IFED-LV</i>	S&P 500 Low Vol
Sharpe Ratio										
Full Period	0.89	0.48	0.95	0.47	0.85	0.49	0.73	0.44	0.92	0.66
10 Years	0.77	0.76	0.98	0.79	0.73	0.47	0.62	0.39	0.97	0.63
5 Years	0.72	0.71	0.92	0.74	0.66	0.42	0.72	0.30	0.72	0.34
3 Years	0.57	0.43	0.73	0.46	0.41	0.18	0.58	0.04	0.53	0.16
Sortino Ratio										
Full Period	1.80	0.81	1.85	0.79	1.66	0.84	1.43	0.76	1.65	1.12
10 Years	1.56	1.35	1.91	1.41	1.36	0.80	1.25	0.68	1.88	1.08
5 Years	1.53	1.30	1.87	1.36	1.22	0.74	1.55	0.54	1.39	0.57
3 Years	1.29	0.79	1.39	0.83	0.91	0.37	1.38	0.08	1.07	0.29
Information Ratio										
Full Period	0.85		0.98		0.89		0.74		0.77	
10 Years	0.40		0.64		0.93		0.64		0.95	
5 Years	0.36		0.54		0.87		1.00		1.05	
3 Years	0.39		0.61		0.87		1.97		0.99	



Upside/Downside Capture

Performance & Downside Risk Profile* (Jan 1999 – Dec 2024)

	<i>IFED-A</i>	<i>IFED-LG</i>	<i>IFED-M</i>	<i>IFED-S</i>	<i>IFED-LV</i>
Measure	All Cap	Large Cap	Mid Cap	Small Cap	Low Vol
Alpha	11.58%	10.49%	8.66%	7.80%	4.05%
Upside Capture	133.90%	125.59%	117.86%	115.09%	111.30%
Downside Capture	84.85%	79.72%	85.28%	87.84%	87.70%
Upside/ Downside Ratio	1.58	1.58	1.38	1.31	1.27
Benchmark	S&P 1500	S&P 500	S&P MidCap 400	S&P SmallCap 600	S&P 500 Low Vol



All five *IFED* Portfolios have superior upside and downside capture ratios

* Each measure is calculated relative to the strategy's specified benchmark



Performance of IFED Indexes – Full Period vs In Production

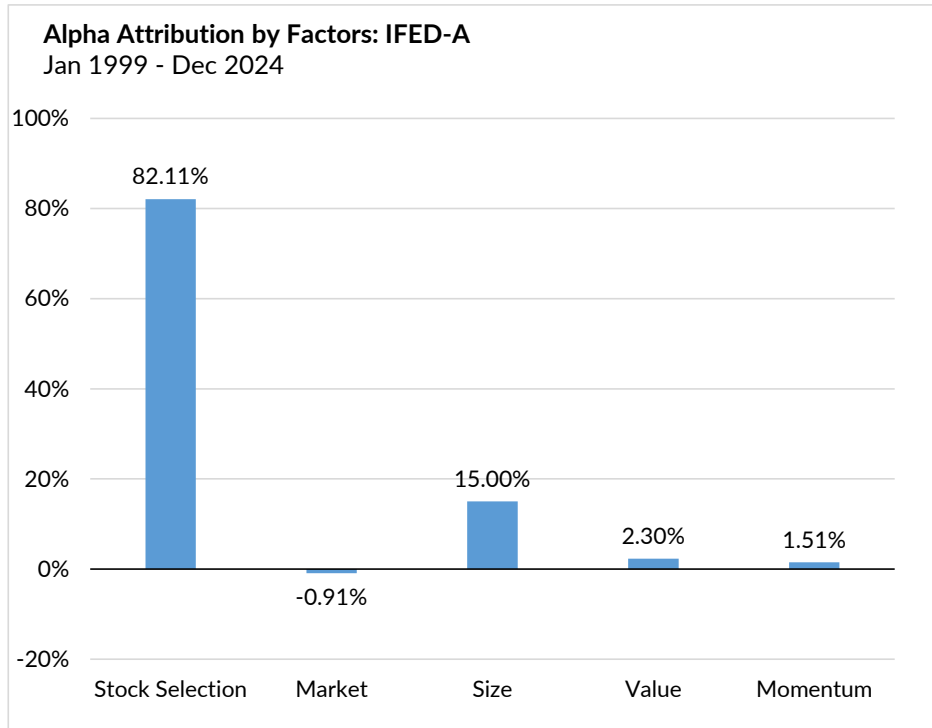
IFED Performance vs Benchmarks

	<i>IFED-A</i>		<i>IFED-LG</i>		<i>IFED-M</i>		<i>IFED-S</i>		<i>IFED-LV</i>	
	1999 – 2024	> Jan 2020	1999 – 2024	> Jan 2020	1999 – 2024	> Jan 2020	1999 – 2024	> Jan 2020	1999 – 2024	> Jan 2022
Measure										
Annual Alpha	11.58%	6.34%	10.49%	6.59%	8.66%	7.09%	7.80%	13.56%	4.05%	6.39%
Information Ratio	0.85	0.36	0.98	0.54	0.89	0.87	0.74	1.00	0.77	1.05
Tracking Error	13.62%	17.71%	10.71%	12.12%	9.79%	8.10%	10.50%	13.61%	5.23%	6.09%
Up Months	62.82%	56.67%	66.35%	65.00%	62.82%	56.67%	61.86%	56.67%	66.99%	63.33%
Down Months	37.18%	43.33%	33.65%	35.00%	37.18%	43.33%	38.14%	43.33%	33.01%	36.67%
Upside Capture	133.90%	119.31%	125.59%	110.37%	117.86%	118.15%	115.09%	122.56%	111.30%	110.36%
Downside Capture	84.85%	96.44%	79.72%	85.58%	85.28%	99.54%	87.84%	86.01%	87.70%	80.91%

The table presents performance for the full period (1999-2024) vs when each Portfolio was put in production (January 2020 for the first four Portfolios and January 2022 for IFED-LV); both periods apply the same IFED methodology.



Factor Attribution Analysis



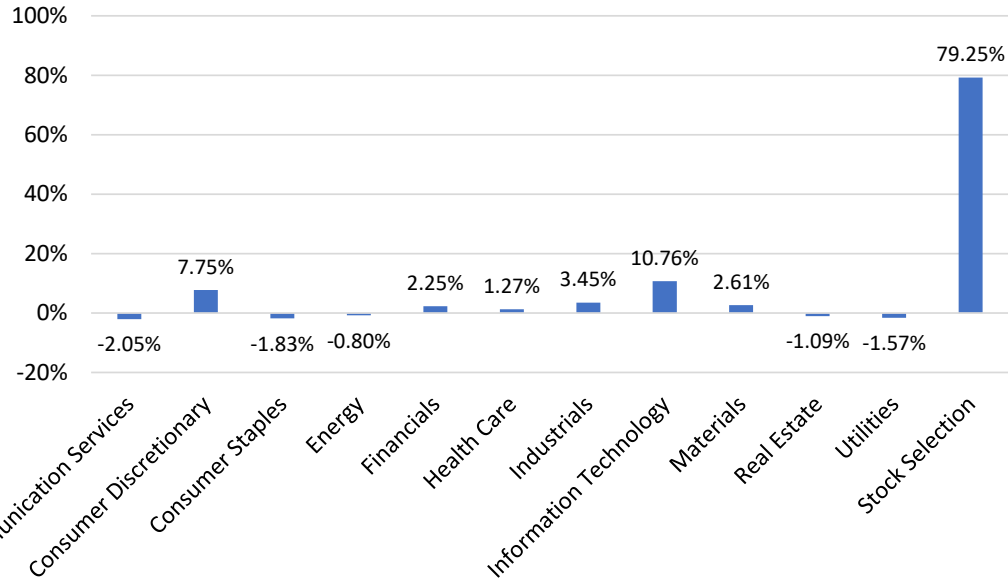
- Attribution analysis confirms that most of the alpha is due to stock selection
 - Stock selection uses 12 firm-specific metrics; thus, factor exposures are incidental and deviate over time
 - During the 26 years, 82.11% of alpha comes from stock selection (relative to factor tilts)
- *IFED Portfolios* accrue some benefit from the four factors, with Size generally being most prominent
- Factor analysis on the other *IFED Portfolios* produce similar results



Sector Attribution Analysis

Alpha Attribution by Sectors: IFED-A

Date: Jan 1999 - Dec 2024



- *IFED Strategy* selects stocks optimally positioned for market conditions; it does not maintain a consistent sector bias
 - 79.25% of *IFED-A's* alpha is due to stock selection (relative to sector tilts)
- The contribution attributed to the various sectors deviates substantially over time
- Sector attribution analysis on the other *IFED Portfolios* produces similar results



Summary

- ✓ Proprietary *IFED Portfolios* use Fed policy signals and firm specific metrics
- ✓ Transparent, rules-based methodology based on 30+ years of peer-reviewed research
- ✓ *IFED Portfolios* are optimally positioned to benefit from prevailing market conditions
- ✓ Alpha captured while limiting downside risk
- ✓ Customizable to address specific client needs

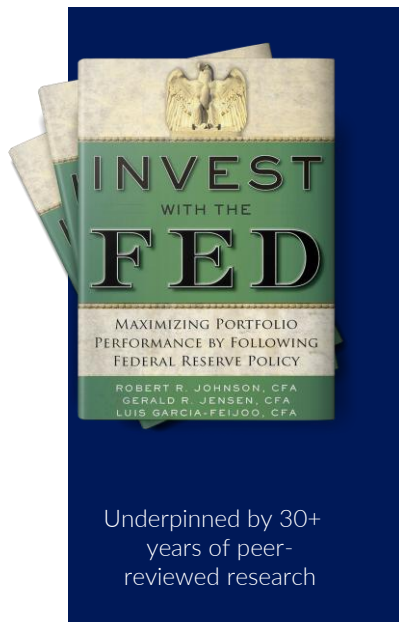


EIA Credentials & Additional Information



EIA's Principals

EIA's three founders (Robert Johnson, Gerald Jensen and Luis Garcia-Feijoo) are 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.



Robert Johnson
PhD, CFA, CAIA

EIA: Chairman & CEO

- Professor of Finance, Creighton University
- Previously Deputy CEO, CFA Institute and CEO of The American College of Financial Services



Gerald Jensen
PhD, CFA

EIA: Director and Chief Investment Officer

- Board of Trustees Professor Emeritus, Northern Illinois University
- Emeritus Professor of Finance, Creighton University



Luis Garcia-Feijoo
PhD, CFA, CIPM

EIA: Director and Head of Index Development

- Professor of Finance, Florida Atlantic University
- Assoc. Research Director, CFA Institute Research Foundation



Annual Returns vs Benchmarks

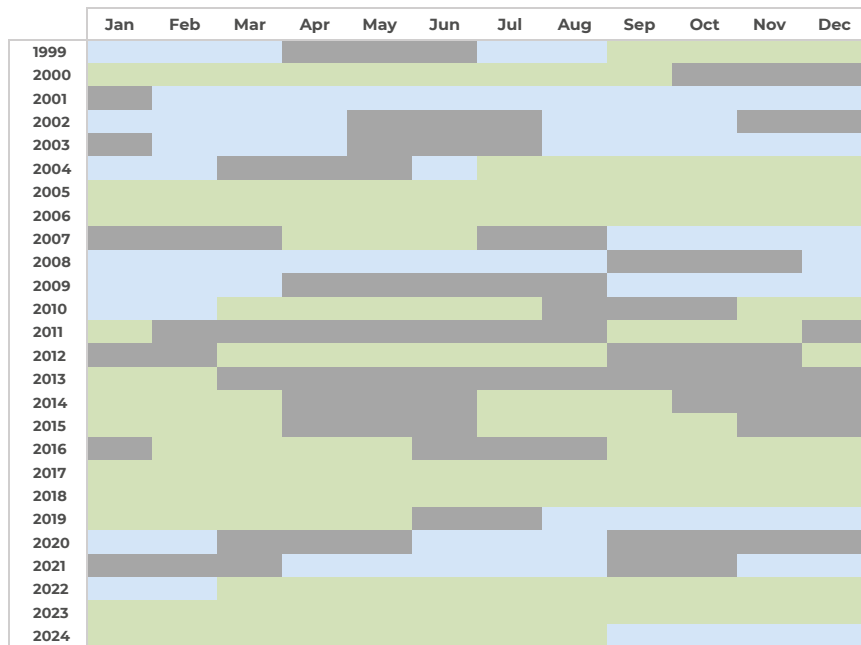
Calendar Year	<i>IFED-A</i>	Alpha (vs S&P 1500)	<i>IFED-LG</i>	Alpha (vs S&P 500)	<i>IFED-M</i>	Alpha (vs S&P MidCap)	<i>IFED-S</i>	Alpha (vs S&P SmallCap)	<i>IFED-LV</i>	Alpha (vs S&P Low Vol)
1999	55.29%	35.03%	58.35%	37.31%	61.30%	46.58%	66.37%	53.97%	0.87%	8.63%
2000	44.06%	51.04%	38.35%	47.45%	38.92%	21.41%	38.06%	26.26%	30.58%	5.55%
2001	11.55%	22.18%	3.25%	15.13%	11.23%	11.84%	15.07%	8.53%	5.67%	1.30%
2002	-1.10%	20.21%	-8.88%	13.22%	-1.08%	13.43%	-5.18%	9.45%	-4.57%	2.60%
2003	64.96%	35.37%	43.08%	14.40%	57.55%	21.93%	55.78%	17.00%	23.79%	1.04%
2004	32.55%	20.77%	25.73%	14.85%	23.91%	7.42%	29.04%	6.39%	23.78%	6.09%
2005	22.86%	17.21%	19.90%	14.99%	13.94%	1.38%	14.88%	7.20%	10.70%	8.50%
2006	6.52%	-8.81%	13.41%	-2.38%	11.58%	1.26%	2.41%	-12.71%	19.77%	0.08%
2007	-4.54%	-10.01%	7.88%	2.38%	-6.49%	-14.47%	-1.46%	-1.16%	2.10%	1.52%
2008	-29.05%	7.67%	-37.03%	-0.03%	-25.21%	11.02%	-35.76%	-4.69%	-23.81%	-2.40%
2009	75.42%	48.17%	77.12%	50.66%	48.96%	11.58%	79.03%	53.46%	26.12%	6.90%
2010	14.93%	-1.45%	13.82%	-1.24%	27.61%	0.97%	21.96%	-4.35%	11.28%	-2.08%
2011	4.56%	2.81%	8.05%	5.93%	5.30%	7.03%	-5.42%	-6.44%	7.91%	-6.87%
2012	11.95%	-4.21%	14.85%	-1.15%	20.17%	2.30%	13.88%	-2.44%	15.49%	5.19%
2013	57.70%	24.90%	47.62%	15.23%	55.83%	22.32%	43.26%	1.95%	40.14%	16.56%
2014	17.98%	4.90%	17.38%	3.69%	10.77%	1.00%	17.67%	11.92%	19.96%	2.47%
2015	4.25%	3.24%	5.61%	4.23%	7.63%	9.81%	0.18%	2.15%	7.51%	3.17%
2016	26.78%	13.76%	23.09%	11.13%	21.29%	0.55%	25.80%	-0.75%	14.39%	4.02%
2017	33.73%	12.60%	38.74%	16.91%	33.25%	17.01%	21.67%	8.44%	28.80%	11.39%
2018	-3.45%	1.51%	1.04%	5.43%	-8.47%	2.61%	-9.91%	-1.43%	1.02%	0.75%
2019	24.86%	-6.05%	21.51%	-9.98%	31.19%	4.99%	17.37%	-5.42%	31.73%	3.47%
2020	42.32%	24.40%	26.82%	8.42%	27.02%	13.36%	47.73%	36.45%	9.88%	10.99%
2021	23.99%	-4.45%	33.39%	4.69%	32.64%	7.88%	23.59%	-3.23%	28.30%	3.88%
2022	-7.84%	9.94%	0.65%	18.76%	-4.06%	9.00%	-6.57%	9.53%	1.94%	6.52%
2023	36.64%	11.17%	19.21%	-7.08%	19.26%	2.82%	37.49%	21.43%	9.73%	9.01%
2024	14.20%	-9.75%	28.39%	3.37%	15.82%	1.89%	14.82%	6.12%	14.74%	0.49%
Positive Alpha Years:		19/26		20/26		25/26		16/26		23/26



Market Environment Characteristics (1999 – 2024)

Market Environment

	Expansive	Indeterminate	Restrictive
Fed Signal	Easing policy	Mixed	Tightening policy
Fed Mandate Priority	Full Employment	Balanced	Price Stability (Inflation)
% Sample Period	24.84%	25.82%	49.35%



IFED Strategy Turnover/Rebalance Data

Shifts in Fed policy signals are the primary trigger for rebalances

During the 26-year period, there are 48 rebalances

- 36 due to changes in the market environment
- 12 due to changes in firm metrics with no environment change*

Rebalances per year: max. = 3 (e.g., 2021); min. = 1 (e.g., 2024)

- Average number of rebalances is 1.8 per annum
- Turnover per rebalance ranges from 40.28% to 97.35%
- Average annual turnover is 168.98%

IFED Portfolio composition changes with each rebalance; alpha is captured by maintaining an allocation that aligns with the market environment

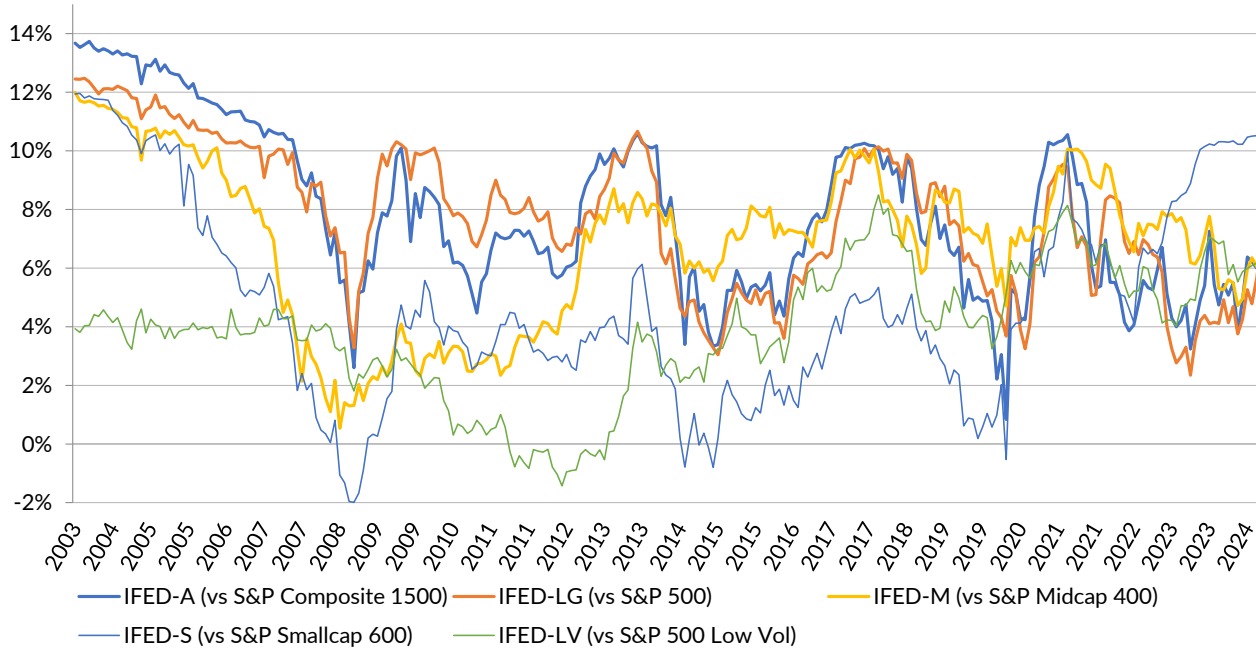


* As of June 1st in any year, if there has been no change in market environment in the prior six months, IFED Portfolios rebalance to reflect updated financial metrics.



Rolling 5-Year Average Annual Alpha

IFED Portfolios: Rolling 5-Year Alpha vs Benchmarks
Period: Jan 1999 - Dec 2024



Annual Returns vs Benchmarks

Correlation Analysis (Jan 1999 – Dec 2024)

	S&P 1500	S&P 500	Russell 1000	S&P 400	S&P 600	S&P 500 Low Vol	<i>IFED-A</i>	<i>IFED-LG</i>	<i>IFED-M</i>	<i>IFED-S</i>	<i>IFED-LV</i>
S&P 1500	1.00										
S&P 500	1.00	1.00									
Russell 1000	1.00	1.00	1.00								
S&P 400	0.93	0.91	0.92	1.00							
S&P 600	0.85	0.83	0.85	0.95	1.00						
S&P Low Vol	0.75	0.75	0.74	0.72	0.63	1.00					
IFED-A	0.77	0.75	0.77	0.84	0.87	0.52	1.00				
IFED-LG	0.83	0.82	0.83	0.87	0.85	0.58	0.92	1.00			
IFED-M	0.80	0.78	0.80	0.88	0.89	0.56	0.94	0.91	1.00		
IFED-S	0.76	0.73	0.75	0.84	0.89	0.50	0.96	0.88	0.92	1.00	
IFED-LV	0.81	0.80	0.80	0.80	0.71	0.91	0.64	0.71	0.66	0.61	1.00



EIA's Proprietary Market Indicator

EIA's market indicator is motivated by economic theory & empirical research:

it relies on Fed policy signals that have superior predictive power for fund availability and security returns.

Since its creation by EIA's founders in the mid-1990s, EIA's market indicator has exhibited a significant systematic relation with stock returns in 'out-of-sample periods'.

Over the past 30 years, EIA affiliates have published numerous academic articles supporting the efficacy of the EIA market indicator and its link with equity return premiums.

The Indicator has several features that make it superior to other measures, as it:

- has a forward-looking market conditions aspect;
- incorporates the current and future availability of money;
- captures current and predicted developments in inflation and economic activity;
- represents a robust and unbiased indicator of genuine shifts in market conditions;
- shows a consistent systematic link with security returns across decades;
- is independent of interest rate levels and past economic conditions;
- shows predictive ability in periods that are far removed from the original sample; and
- relies on Fed policy rates that are readily available, objective and measured without error.



Support for EIA's Market Indicator Variable

The following studies directly address the efficacy of the EIA indicator.

Business Conditions, Monetary Policy and Expected Security Returns

- The authors examine evidence that security returns can be forecast by the term premium, default premium, and dividend yield, in light of recent findings that similar return patterns correspond with Federal Reserve monetary policy developments.
- The research extends Fama and French's (1989) analysis by suggesting that the monetary environment influences investors' required returns, and hence the robustness of the models they propose.
- The findings indicate that Fama and French's results vary dramatically across monetary environments; that is, the behavior of the business-conditions proxies and their influence on expected security returns is significantly affected by the monetary sector.

Jensen, Gerald R., Jeffrey M. Mercer and Robert R. Johnson. "Business Conditions, Monetary Policy and Expected Security Returns." *Journal of Financial Economics* 40, 1996, 213-237

New Evidence on Optimal Asset Allocation

- Brocato and Steed (1998) showed that portfolio rebalancing based on NBER business cycle turning points substantially improved in-sample Markowitz efficiency. In a similar vein, the authors investigated potential improvements from rebalancing based on turning points in the monetary cycle. The authors found:
 - o the monetary cycle has greater influence than the business cycle on the variance/covariance structure of multiple asset classes;
 - o substantial improvement on in-sample efficiency beyond a buy-and-hold strategy and the business-cycle approach;
 - o the monetary cycle indicator has a practical advantage over NBER business cycle turning points, in that it relies only on ex ante information; and,
 - o superior portfolio performance in out-of-sample tests using the monetary cycle to time portfolio rebalancing.

Jensen, Gerald R. and Jeffrey M. Mercer. "New Evidence on Optimal Asset Allocation." *Financial Review* 38, August 2003, 435-454.



Support for EIA's Market Indicator Variable

Monetary Policy Signals as Predictors of Stock Returns

- The authors evaluate the most prominent alternative measures of monetary conditions; each measure has strong theoretical justification and an empirical precedence.
- Using regression analysis and variance decomposition, the authors identify a combination of Fed policy rates that, relative to other prominent measures, have a superior linkage with subsequent security returns.
- In forming its market indicator, EIA adopted the combination of Fed policy rates advocated by the authors.

Becher, David, Gerald R. Jensen and Jeffrey M. Mercer. "Monetary Policy Indicators as Predictors of Stock Returns." *Journal of Financial Research* 31, Winter 2008, 357-379.

Momentum and Funding Conditions

- The authors establish a strong link between the EIA indicator and subsequent changes in the availability of money.
- Specifically, the authors show that, in addition to being closely linked with security return patterns, the EIA indicator is significantly and systematically linked with subsequent changes in the most prominent measures of money availability i.e., total reserves, adjusted monetary base, non-borrowed reserves, the Ted Spread and market liquidity. Thus, the authors establish an economic explanation for the link between security returns and the indicator.

Garcia-Feijoo, Luis, Gerald R. Jensen and Tyler K. Jensen. "Momentum and Funding Conditions." *Journal of Banking and Finance* 88, Dec 2018, 312-329



Support for EIA's Market Indicator Variable

Appendix A – Alternative Measures of Aggregate Capital Availability across Funding Conditions

The table shows alternative measures of fund availability across different funding environments. Changes in monetary aggregates are taken from monthly observations in total reserves, non-borrowed reserves, and the adjusted monetary base (Fed descriptors TRARR, BOGNONBR, and AMBSL respectively; the TRARR and BOGNONBR series were discontinued in 2013). Ted Spread is defined as the difference between the three-month LIBOR rate and the three-month Treasury bill rate. ILLIQ is computed monthly following Amihud (2002); ILLIQ changes are computed as $\log(\text{Illiquid } t / \text{Illiquid } t-1)$, following Kamara, Lou, and Sadka (2008). The value of funding liquidity is from Fontaine and Garcia (2012). Monthly changes are from July 1963 through December 2014 (the Ted Spread is for 1986-2014 and the value of funding liquidity is for 1986-2013). Changes are measured in month $t \pm 1$ based on funding conditions determined in month t . Newey-West t-statistics are reported in italics and underneath the monthly average returns. The bandwidth parameter for Newey-West t-statistics is one plus the number of autocorrelated lags that persist in significance at the 5% level. Reported z-scores are Wilcoxon tests comparing distributions. ***, **, * indicate significant differences at the 1%, 5%, 10% levels. Significant differences are noted separately for t-statistics and z-scores.

Aggregate	Average / Median			Difference (t-stat) [z-score]		
	Expansive (E)	Indeterminate (I)	Restrictive (R)	E vs. I	E vs. R	I vs. R
Total Reserves Change (% change)	3.47 0.71	0.41 0.33	-0.01 -0.01	3.06 (1.56) [2.89]***	3.48 (1.78)* [5.21]***	0.42 (2.17)** [2.79]***
Non-Borr. Res. Change (% change)	4.13 0.83	0.80 0.39	-0.18 -0.11	3.33 (0.90) [2.71]***	4.31 (1.16) [5.21]***	0.99 (3.06)*** [2.81]***
Adj. Mon. Base Change (% change)	1.15 0.65	0.66 0.59	0.41 0.45	0.49 (1.53) [1.89]**	0.74 (2.38)** [5.00]***	0.25 (2.50)** [3.33]***
Ted Spread Change (% points)	-0.01 -0.01	0.01 0.00	0.02 0.01	0.04 (1.95)** [3.43]***	0.05 (2.16)** [2.82]***	0.01 (0.40) [0.38]
Market ILLIQ Change (% change)	-0.05 -0.03	0.00 0.00	0.02 0.01	0.05 (2.56)** [2.67]***	0.07 (2.97)*** [2.82]***	0.02 (1.17) [0.38]
Market ILLIQ	0.45 0.27	0.65 0.37	0.72 0.52	0.20 (1.42) [2.08]**	0.27 (1.93)* [2.22]**	0.07 (0.46) [0.96]
Funding Liquidity	0.26 0.28	0.40 0.42	0.70 0.73	0.14 (2.14)** [7.88]***	0.44 (4.95)*** [2.42]**	0.30 (3.21)*** [5.92]***

This table is taken from Appendix A in: Garcia-Feijoo, Luis, Gerald R. Jensen and Tyler K. Jensen. "Momentum and Funding Conditions." *Journal of Banking and Finance* 88, 2018, 312-329.

- The data confirms the efficacy of the EIA market indicator i.e., it shows that our approach identifies environments with significantly different funding levels and changes in fund availability.
 - o The table shows statistically significant differences in each measure across the three environments. The capital availability measures are derived in the month after the determination of the market environment.
 - o In other research, we establish that the cumulative changes in capital availability continue to grow in subsequent months as well, so the pattern is not limited to a one-month phenomenon.
- Each measure in Appendix A is widely used by economists and financial researchers as an indicator of the funds available to financial market participants and businesses to finance their financial and business decisions.
 - o Thus, our indicator is linked empirically (in a leading manner) with underlying variables that have strong economic relevance.
 - o Clearly, the availability of funds influences economic activity and the decisions of businesses and investors alike.



Research Relating Risk Premiums & Monetary Policy Signals

Small-Firm and Value Premiums

- Small stock and low price-to-book (value) premiums are economically and statistically significant only in expansive monetary policy periods and are small, and in some instances negative, in restrictive policy periods.

Jensen, Gerald R., Robert R. Johnson and Jeffrey M. Mercer. "New Evidence on Size and Price-to-Book Effects in Stock Returns." *Financial Analysts Journal* 53, December/December 1997, 34-42.

Jensen, Gerald R., Robert R. Johnson and Jeffrey M. Mercer. "The Inconsistency of Small-Firm and Value-Stock Premiums." *Journal of Portfolio Management* 24, Winter 1998, 27-36.

Premiums Associated with Mergers and Acquisitions

- Relative to mergers and acquisitions, funding conditions are significantly related to the benefits accrued, the participants, and the number of deals that are transacted. The findings suggest that favorable funding conditions promote an active and financially attractive merger market.

Becher, David, Tyler K. Jensen and Tingting Liu. "Acquisitions and Funding Conditions." *Journal of Corporate Finance* 65, 2020.

Premiums Associated with Firm Profitability and Operating Leverage

- Firms with high levels of operating leverage outperformed during periods of unconstrained funding conditions.
- The strong association existing between operating leverage and firm profitability supports the existence of a corresponding relation between funding conditions and the profitability premium in returns

Garcia-Feijoo, Luis, Tyler K. Jensen and Paul Koch. "Operating Leverage, Profitability and Stock Returns under Different Aggregate Funding Conditions. Forthcoming *Accounting Review*.

Illiquidity Premium

- Illiquid stocks experienced relatively large price increases when monetary conditions became expansive.
- Findings support the claim that the price of asset liquidity is dependent on the monetary environment.

Jensen, Gerald R. and Theodore Moorman. "Inter-temporal Variation in the Illiquidity Premium." *Journal of Financial Economics* 98, December 2010, 338-358.



Research Relating Risk Premiums & Monetary Policy Signals

Premiums Related to Long-run Stock Reversals and Distressed Firms

- The price rebound for stocks that experienced long run poor performance (losers) occurred only during favorable funding environments.
- Small, distressed losers reversed substantially but only when funding conditions were unconstrained.

Garcia-Feijoo, Luis and Gerald R. Jensen. "The Monetary Environment and Long-Run Stock Reversals." *Journal of Financial Research* 37, Spring 2014, 3-26.

Premium Related to Momentum

- The findings suggest that the momentum premium is significantly related to the funding environment.
- Over the sample period, funding conditions explained the momentum premium even after controlling for existing market conditions.

Garcia-Feijoo, Luis, Gerald R. Jensen and Tyler K. Jensen. "Momentum and Funding Conditions." *Journal of Banking and Finance* 88, 2018, 312-329.

Premium Related to Cash Holdings

- Over the sample period, the positive association between cash holdings and stock returns only existed during constrained funding environments.
- The return pattern over the sample period was more prominent for firms with growth options.

Jensen, Tyler K. Do Funding Conditions Explain the Relation Between Cash Holdings and Stock Returns? *Journal of Financial and Quantitative Analysis*, February 2021, 1-30.



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