Momentum: The Ever-Rising Tide

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Momentum defined

The momentum premium is the empirical observation that equities which have outperformed in the recent past continue to outperform for a period of time. For our purpose, we are referring to cross-sectional momentum also known as relative strength – comparison of each stock's prior return relative to all other stocks in a starting universe. The seminal research paper on the premium associated with momentum was authored by Jegadeesh and Titman (1993), which showed significant outperformance of a momentum strategy that owned the best performing stocks (top decile) over the prior 12 months (formation period) while shorting the lowest performing stocks (bottom decile) over the same period. Their analysis showed that the best performing momentum portfolio held those stocks for 3 months after the formation period and realized a compounded excess return of 16.90% per year on average (a 6-month holding period returned 14.57% on average). With respect to formation periods, due to the tendency for the most recent month's performance to mean revert (Jegadeesh (1990), Carhart (1997), Asness (1994)), the industry standard definition of momentum is now the prior 12 month's return without the most recent month.

Why it works

There are two basic schools of thought on explaining why the momentum premium exists: risk-based and behavioral. The risk-based theory simply states that these premiums are compensation for increased risk. On the other side, the behavioral theories hinge upon either an underreaction to information or an overreaction to recent trends (Barberis, Shleifer, and Vishny (1998). Similarly, Da, Gurun, and Warachka (2014) relate momentum in stock returns to the frog-in-the-pan hypothesis; the notion that frequent gradual changes attract less attention (than infrequent dramatic changes), therefore, causing investors to underreact to change at least initially. Alternatively, Corzo, Prat, and Vaquero (2014) theorize that sentiment drives momentum due to regret aversion or FOMO (using the parlance of our times).

Who cares?

The momentum premium is robust

Momentum is important for investors to be aware of because its premium is robust. In addition to Jegadeesh and Titman (1993) which showed significant alpha exists with momentum, our own analysis showed similar results. Using data from Ken French's website, we compare in Table 1, Panel A, the strength of the return streams of a top decile, long-only momentum portfolio versus the Russell 3000 Index and other standard stand-alone factor strategies. Momentum has the highest annualized return (by far) and the highest information ratio of the stand-alone strategies. In fact, momentum exhibits a higher annualized return with lower volatility than value. We find similar results in global markets.

Table 1, Panel A: US Performance and Statistics of the Stand-Alone Long-Only Strategies

January 1985 – June 2021

	Russell 3000	Value	Size	Momentum	Growth	Quality
Return (Annualized)	11.80%	12.49%	11.22%	16.10%	12.05%	13.50%
Volatility (Annualized)	15.35%	22.11%	21.09%	20.92%	17.11%	15.52%
Tracking Error (to R3000)	--	12.80%	14.22%	12.12%	6.22%	5.53%
Sharpe Ratio	0.56	0.42	0.38	0.62	0.52	0.67
Information Ratio (to R3000)	--	0.05	-0.04	0.36	0.04	0.31

Fama-French historical returns are calculated using data from Ken French's website, and the corresponding Russell 3000 Index returns are from FTSE Russell. The time period covered is January 1985 through June 2021. The factors displayed are referenced by Ken French as follows: Value (Book/Market – top decile), Low Size (Size - bottom decile), Momentum (top decile), Growth (Book/Market – bottom decile), and Quality (Operating Profitability – top decile). Please see Important Disclosures at the end of this document.

Table 1, Panel B: Global Performance and Statistics of the Stand-Alone Long-Only Strategies

June 1994 – July 2021

	MSCI ACWI IMI	Value	Size	Momentum	Growth	Quality
Return (Annualized)	8.21%	9.25%	8.77%	12.47%	6.72%	10.86%
Volatility (Annualized)	15.38%	16.09%	16.46%	16.44%	16.81%	15.05%
Tracking Error (to MSCI ACWI IMI)	--	5.54%	6.05%	6.93%	5.00%	3.23%
Sharpe Ratio	0.39	0.44	0.40	0.62	0.27	0.57
Information Ratio (to MSCI ACWI IMI)	--	0.19	0.09	0.61	-0.30	0.82

Fama-French International historical returns are calculated using data from Ken French's website, and the corresponding MSCI ACWI IMI returns are from MSCI. The time period covered is June 1994 through July 2021. The factors displayed are referenced by Ken French as follows: Value (High Book/Market), Low Size (Small Cap.), Momentum (High Prior Return), Growth (Low Book/Market), and Quality (High Operating Profitability). The Global portfolios are formed with using a Developed markets weight of 90%, and an Emerging markets weight of 10%. Please see Important Disclosures at the end of this document.

The momentum premium is persistent

Along with its significant excess returns, the momentum premium displays remarkable persistence. Within equity markets, Geczy and Samonov (2016) show that the outperformance of momentum strategies has existed for at least two-hundred years, while Chabot, Ghysels, and Jagannathan (2008) show the momentum premium existed at least back to the Victorian era. Whatever the period analyzed, it is safe to say that momentum has been around for quite some time.

Further in more modern times, Figure 1 displays our analysis again using Ken French's dataset. We show the cumulative growth of momentum versus the Russell 3000 Index and other standard stand-alone strategies, displaying the same long-term resiliency. Again, similar results in global markets.

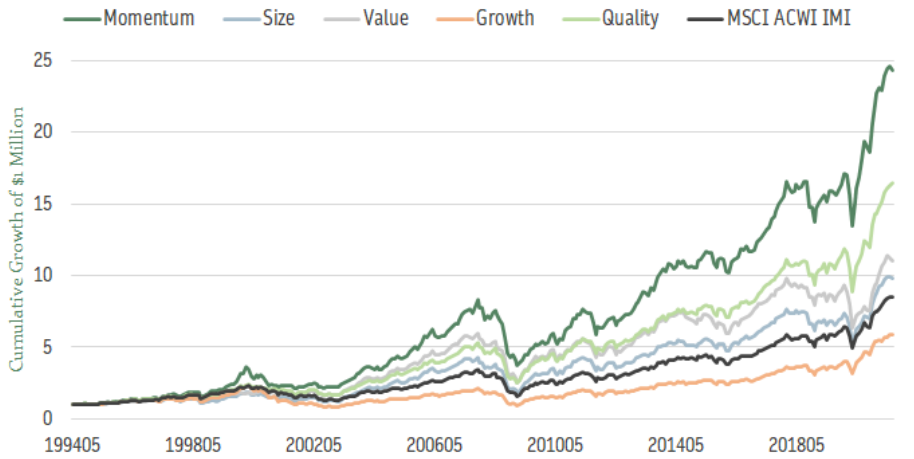
Figure 1, Panel A: Cumulative Growth of US Stand-Alone Strategies

January 1985 – June 2021

Source: Fama-French, FTSE Russell. Please see Important Disclosures at the end of this document.

Figure 1, Panel B: Cumulative Growth of Global Stand-Alone Strategies

June 1994 – July 2021



Source: Fama-French, MSCI. Please see Important Disclosures at the end of this document.

The momentum premium is pervasive

In addition to its persistence and significance, the momentum premium permeates most asset classes. Asness, Moskowitz, and Pedersen (2013) show that momentum works across multiple asset classes including global equities, country equity index futures, government bonds, currencies, and commodity futures. Further, Geczy and Samonov (2017) cite the same phenomenon of momentum working for 215 years across multiple asset classes.

How to use momentum

Given momentum's strength, persistence, and pervasiveness, Fama and French (2008) declared momentum as "the premier market anomaly". Higher returns are great, but all factors/styles go through their periods of underperformance. Therefore, when building active portfolios, investors should be exposed to premiums that reward the risk by themselves, and also diversify their bets effectively. In this regard, Table 2 depicts return correlations (using Axioma) of common factors, showing the significant negative correlation that exists between value and momentum. Interestingly, momentum looks to be a better diversifier (with a higher annualized return) to value than that of growth, a departure to pure style box (value, core, growth) investing. Further, although momentum maintains a positive correlation to growth, its correlation is rather mild, showing differentiation from traditional growth.

Table 2, Panel A: Axioma US Factor Return Correlations

January 1985 – June 2021

	Growth	Value	Size	Profitability
Medium-Term Momentum	**0.22**	**-0.43**	0.05	-0.11
Growth		**-0.27**	-0.05	-0.10
Value			-0.12	0.06
Size				0.18

Axioma data is from the Axioma US Fundamental Equity Risk Model (Jan. 1985 – June 2021). The correlation coefficients that are significant at the 99% level are in bold.

Table 2, Panel B: Axioma World-Wide Factor Return Correlations

June 1997 – July 2021

	Growth	Value	Size	Profitability
Medium-Term Momentum	**0.08**	**-0.55**	0.11	-0.09
Growth		**-0.24**	-0.24	-0.36
Value			-0.03	0.19
Size				0.25

Axioma data is from the Axioma World-Wide Fundamental Equity Risk Model (June 1997 – June 2021). The correlation coefficients that are significant at the 99% level are in bold.

In fact, Asness, Moskowitz, and Pedersen (2013) find that the value-momentum combination outperforms either value or momentum by itself in every market over time. Similarly, using Ken French's datasets, we find that combining momentum and value lowers the volatility and the tracking error, while preserving both the Sharpe and information ratios, compared to either momentum or value by itself (see Table 3 and Figure 2).

Table 3, Panel A: US Performance and Statistics of the Combined and Stand-Alone Strategies

January 1985 – June 2021

	Russell 3000	Momentum	Value	Momentum/Value
Return (Annualized)	**11.80%**	**16.10%**	12.49%	**14.77%**
Volatility (Annualized)	15.35%	**20.92%**	22.11%	19.48%
Tracking Error (to R3000)	--	12.12%	12.80%	**8.45%**
Sharpe Ratio	0.56	0.62	0.42	**0.60**
Information Ratio (to R3000)	--	0.36	0.05	0.35

Source: Fama-French, FTSE Russell. The Momentum/Value strategy represents a portfolio weighted 50%/50%, rebalanced monthly, and comprised of the Fama-French momentum and value monthly return streams. Please see Important Disclosures at the end of this document.

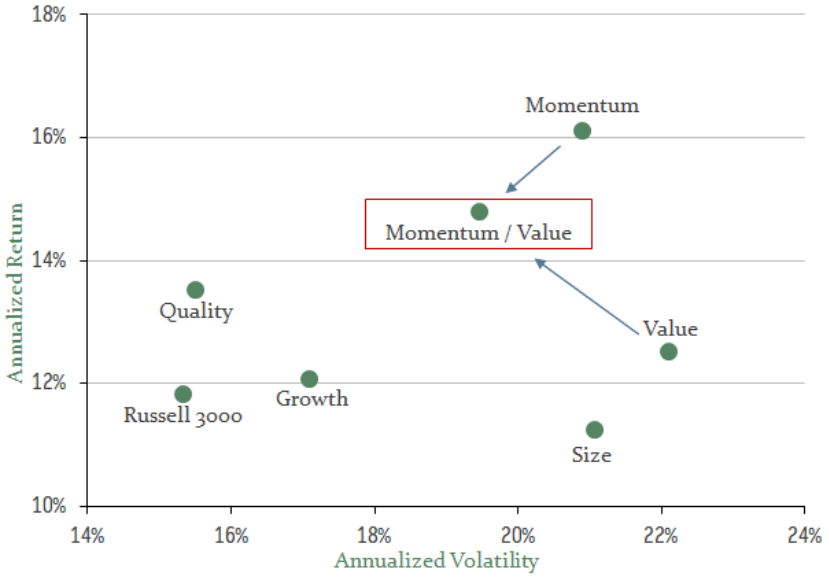
Table 3, Panel B: Global Performance and Statistics of the Combined and Stand-Alone Strategies

June 1994 – July 2021

	MSCI ACWI IMI	Momentum	Value	Momentum/Value
Return (Annualized)	**8.21%**	**12.47%**	9.25%	**10.95%**
Volatility (Annualized)	15.38%	**16.44%**	16.09%	15.68%
Tracking Error (to MSCI ACWI IMI)	--	6.93%	5.54%	**4.53%**
Sharpe Ratio	0.39	0.62	0.44	**0.56**
Information Ratio (to MSCI ACWI IMI)	--	0.61	0.19	0.61

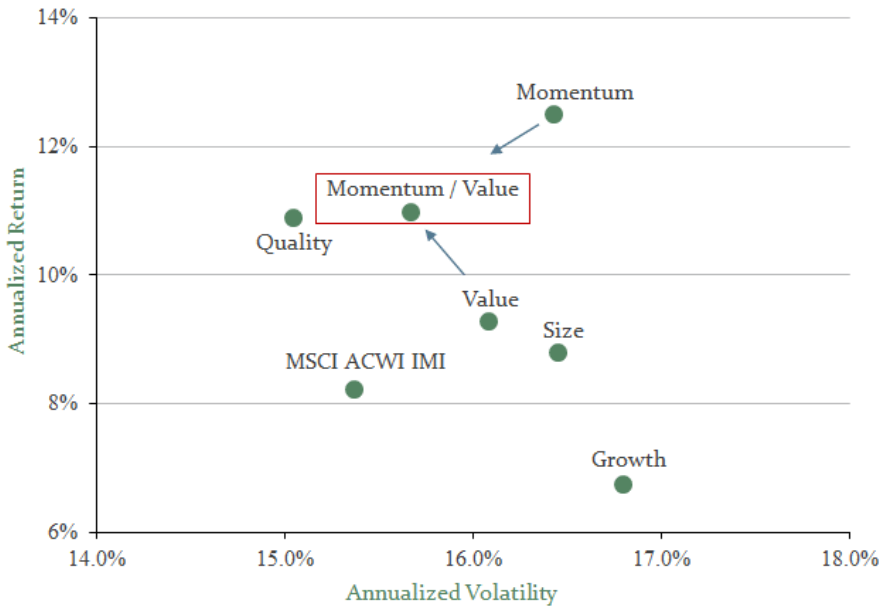
Source: Fama-French, MSCI. The Momentum/Value strategy represents a portfolio weighted 50%/50%, rebalanced monthly, and comprised of the Fama-French momentum and value monthly return streams. Please see Important Disclosures at the end of this document.

Figure 2, Panel A: US Compound Annual Growth Rates versus the Standard Deviation of Returns
January 1985 – June 2021



Source: Fama-French, FTSE Russell. The Momentum/Value strategy represents a portfolio weighted 50%/50%, rebalanced monthly, and comprised of the Fama-French momentum and value monthly return streams. Please see Important Disclosures at the end of this document.

Figure 2, Panel B: Global Compound Annual Growth Rates versus the Standard Deviation of Returns
June 1994 – July 2021



Source: Fama-French, MSCI. The Momentum/Value strategy represents a portfolio weighted 50%/50%, rebalanced monthly, and comprised of the Fama-French momentum and value monthly return streams. Please see Important Disclosures at the end of this document.

What's the catch?

While momentum may be simple in theory, the premium is difficult for investors to harvest in practice. For starters, as with any consistent strategy, there will be periods of underperformance. In momentum's case, they tend to be relatively short, but sharp. Daniel and Moskowitz (2016) show that during periods of high market volatility, which follow a market decline, sharp market/trend reversals cause momentum strategies to be susceptible to crashes. However, combining momentum with value, allows one to minimize the damage of those types of crashes. In addition, to harvest the momentum premium sustainably, a practitioner must turnover portfolio holdings more frequently than other strategies. Jegadeesh and Titman (1993) point out that the out-performance of momentum strategies tends to decay after the first year holding period. Further, they note that to execute a consistently successful momentum strategy, one needs close to 170% turnover per year. Obviously, higher turnover places implementation costs, strategy capacity, and rebalancing frequency as important considerations before investing. Despite these considerations, Frazzini, Israel, and Moskowitz (2012) provide evidence in favor of success in implementing momentum strategies and argue that premium is robust enough to survive trading costs. Still, there can be no doubt that specialized skill is required for an investment manager to deliver on the momentum premium.

Conclusion

In our research and that of others, we find the momentum premium to be robust, persistent, and pervasive. Although differing opinions exist about why the momentum premium works, there is no denying its empirical power. Further, given existing excess return correlations between momentum and value, combining these two factors can effectively diversify a portfolio, while maintaining exposure to positively paying premiums. Successful implementation of momentum-based strategies in practice requires specialized skill to survive implementation costs and manage risks. Still, one cannot escape the prominence of the momentum premium. Thus, upon research of the momentum premium, *past performance may in fact be indicative of future returns.*

About EAM

EAM Investors is solely focused on delivering alpha for clients in global equity markets. Our Informed Momentum approach to investing combines stock selection, tailored risk management, and efficient implementation to effectively deliver the momentum premium. This investment process is the foundation of our firm and is applied consistently across all our strategies. For our clients, we deliver persistent risk exposures, resulting in more consistent and predictable alpha.

About the Authors

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David joined EAM as Director of Applied Research in 2021. He has over thirteen years of investment experience. Prior to joining EAM, David was Director of Research at Denali Advisors, an institutional equity manager with US and Non-US strategies. He has additional experience in research and risk management from Nicholas-Applegate Capital Management. He also serves as an Adjunct Instructor in the Department of Mathematics at San Diego City College. David received a Ph.D. in Mathematics at the University of California, San Diego, a Master of Science in Applied Mathematics and a Bachelor of Science in Applied Mathematics from California State University, San Diego. David has published papers in the Journal of Investment Management, Financial Analyst Journal, and Applied Economics, among other financial publications. He has been awarded the "Harry M. Markowitz, Special Distinction Award" from The Journal of Investment Management.

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Travis is CEO and Chief Investment Officer of EAM Investors, a firm he co-founded in 2007. In addition, he is Portfolio Manager for EAM's US and Global strategies. Prior to founding EAM, Travis was a Partner, Managing Director and Portfolio Manager with Nicholas-Applegate Capital Management where he had lead portfolio management responsibilities for their Micro and Ultra Micro Cap investment strategies and a senior role in the firm's US Micro/Emerging Growth team. Travis has 23 years of institutional investment experience specializing in small and micro cap equities. He holds an MBA from San Diego State University and a BA in Economics and a BA in Psychology from the University of Arizona.

Important Disclosures

The information provided here is for general informational purposes only and should not be considered an individualized recommendation or personalized investment advice. The investment strategies mentioned here may not be suitable for everyone. Each investor needs to review an investment strategy for his or her own particular situation before making any investment decision. All expressions of opinion are subject to change without notice in reaction to shifting market conditions. Data contained herein from third-party providers is obtained from what are considered reliable sources. However, its accuracy, completeness or reliability cannot be guaranteed. Supporting documentation for any claims or statistical information is available upon request. Investing involves risk including loss of principal. Past performance is no guarantee of future results and the opinions presented cannot be viewed as an indicator of future performance.

The Russell 3000 Index measures the performance of the 3,000 largest publicly traded companies in the U.S., representing the majority of the U.S. investable equity market. It is a market-capitalization weighted index. It is unmanaged, does not incur management fees, costs and expenses and cannot be invested in directly. The U.S. Dollar is the currency used to express performance.

The MSCI ACWI IMI Index captures large, mid and small cap representation across 23 Developed Markets and 27 Emerging Markets countries, covering 99% of the global equity investment opportunity set. It is a market-capitalization weighted index. It is unmanaged, does not incur management fees, costs and expenses and cannot be invested in directly. The U.S. Dollar is the currency used to express performance.

Fama-French historical returns referenced in this document are calculated using monthly data from Ken French's website. https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

The corresponding Russell 3000 Index returns are from FTSE Russell for the time period January 1985 through June 2021. The corresponding MSCI ACWI IMI returns are from MSCI for the time period June 1994 through July 2021.

The factors displayed are referenced by Ken French as follows for the US opportunity set: Value (Book/Market – top decile), Low Size (Size - bottom decile), Momentum (top decile), Growth (Book/Market – bottom decile), and Quality (Operating Profitability – top decile).

For the Global opportunity set, factors displayed are referenced by Ken French as follows: Value (average return of a small cap High Book/Market and a large cap High Book/Market portfolio), Low Size (average return of nine Small Cap portfolios.), Momentum (average return of a small cap High Prior Return and a large cap High Prior Return portfolio), Growth (average return of a small cap Low Book/Market and a large cap Low Book/Market portfolio) and Quality (average return of a small cap High Operating Profitability and a large cap High Operating Profitability portfolio).

To calculate factor returns for the global equity universe, we construct monthly returns series for each factor assuming a 90% weight for developed markets and 10% weight for emerging markets. The US and Global Momentum/Value strategy represents a portfolio weighted 50%/50%, rebalanced monthly, and comprised of the Fama-French momentum and value monthly return streams.

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