



Excerpt of an interview with McKinley Capital Management's Interim Director of Quantitative Research and Chairman of the Scientific Advisory Board, John Guerard, Jr., Ph.D.

MARCH | 2022

A Quant's View of ESG

Q1. . Quants haven't traditionally been involved in ESG investing, why is that?

A. The often-accepted notion that quantitative asset managers aren't involved in ESG is just not true – quants have been working in SRI/ESG since 1995. Lloyd Kurtz, fellow quant and the long-time judge of the *Moskowitz Prize* for research in socially responsible investing started in 1996, published a Barra-based analysis of the KLD (Kinder, Lydenberg, and Domini) Social Index performance titled "*Socially Screened Portfolios: An Attribution Analysis of Relative Performance*" in *The Journal of Investing* in the Fall of 1996. The analysis, co-authored with Dan DiBartolomeo, used the Barra to identify the contribution of 50 smaller (growth) stocks added to the Domini Social Index, composed of 400 stocks, to compensate for the 150 stocks of the S&P 500 stocks that violated social screens for Environmental, Social, Corporate Governance, Sin (Alcohol, Gaming and Tobacco), Military, and Nuclear Power screens. The growth stocks allowed the Domini 400 stocks to perform at the same level as of S&P 500 stocks for over 15 years (from 2007-2022)!

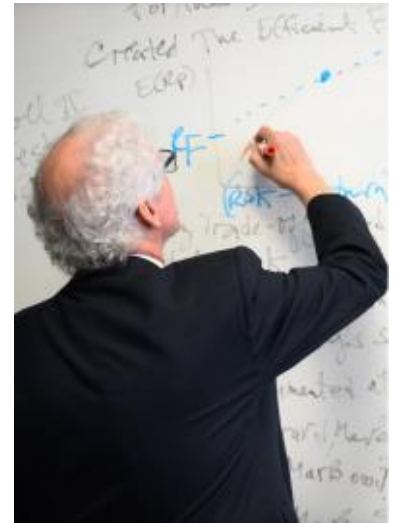
I have produced similar statistics reporting that a large-cap set of 1300 U.S. stocks from 1987 -1994 could be reduced by eliminating the KLD Sin, Military, and Nuclear Power screened stocks, reducing the number to 950, and still outperform the S&P 500 on a risk-adjusted basis using an earlier variation of McKinley Capital's MQ stock selection investment model. My article, "*Is There a Cost of being Socially Responsible in Investing*", *Journal of Investing* (Summer 1997) piece won the first *Moskowitz Prize* in 1996. Since then, faculty members at Harvard, Stanford, New York University, Erasmus, London Business School, Wharton, Chicago, UC-Davis, and Texas have won the *Moskowitz Prize* for their work in socially responsible investing. So, although institutional clients have tended to view ESG investing as synonymous with deep fundamental analysis, quants have been working in the field for almost 30 years. We have consistently shown that a systematic and aligned approach can help more precisely define specific ESG/SRI criteria, and compliment exposure across a client's investment portfolio.

The views contained in this paper represent the views of the author and McKinley Capital Management, LLC. The views and abstract are not an offer to buy or sell a particular security. Please read complete disclosure located at the end of this paper.



Q2. Do you think quants have a role to play in ESG and why?

A. Yes, Quants have a big role in SRI/ESG investing, but I believe our role and best use is in Active Portfolio Management within SRI/ESG. After all, the SSGAs, Pictets, iShares of the world have launched billions of dollars of ETF and traditional funds in SRI/ESG. Even a TIAA-CREF mutual fund has been shown to replicate the S&P 500 Index. Professor Chris Geczy of The Wharton School and I reported in our joint papers* that an underlying stock selection model, such as CTEF or USER (Public Model), or McKinley Capital's MQ model, will further enhance SRI/ESG investing. In our paper delivered at The Wharton School we shared that the USER (Public Model) Model delivered 400 basis points of Active Returns with the Fame-French 3-Factor Model of 1993 (as it did with the APT model of 1997 -2014 in our earlier *JOI* Paper).



Q3. What can a quant-based investment methodology offer to ESG investors?

A. A quantitative investment methodology can deliver returns within large stock universes that can help investors achieve their investment goals. Thirty years ago, when I won the *Moskowitz Prize*, I joked with my friends that quant professors at Rutgers and NYU could perform as well as SSGA and Vanguard investors. This is still true today. A quantitative approach can identify the growth, momentum, and analyst revisions and direction of revisions factors that have the potential to drive stock returns.

Q4. How can McKinley's investment model provide an ESG-aware portfolio?

A. A portfolio manager with knowledge of a stock's Standardized Unexpected Earnings (SUE) and changing liquidity conditions, can help with proper implementation of buy and sell decisions. In general, a portfolio manager would not sell a stock with a negative SUE but would look to sell a stock with a SUE that falls below -2.00.

* References: Geczy, C.R. and J.B. Guerard, Jr (2021). 'Price Momentum, Earnings Forecasting, and Valuation: Implications for Inefficient Markets' in C.F. Lee, Ed., *Handbook of Investment Analysis, Portfolio Management, and Financial Derivatives*. Singapore: World Scientific Publishing. Geczy, C., J. Guerard, Jr., and M. Samonov (2020). 'Warning: SRI Need Not Kill Your Sharpe and Information Ratios—Forecasting of Earnings and Efficient SRI and ESG Portfolios.' *Journal of Investing*, 29.



Q5. You were recently a finalist for Best Research Specialist for your work “ESG and Expected Returns on Equities: The Case of Environmental Ratings”. Tell us more about this research.

A. Yes, thank you for noting this distinction! I am honored by the recognition and appreciative of the work ESG Investing does to generate awareness and education of ESG work in asset management. The paper that was recognized was first presented in May 2021 at The Wharton School and is scheduled to be published in an Oxford University Press (OUP) book in 2022. In this paper, Professor Geczy and I created our CTEF and USER (the McKinley Capital 10-factor model) using the Wharton Research Data Services (WRDS) databases for the 1975 – 2017 time. From our paper, let us show tables, for the underlying model data for 1975-2017, used for SRI/ESG Portfolio construction with the KLD Environmental (ENV) variable, 1995-2017. In Table, we report over 40 years of quintile spreads. I started working on a Q-Group funded research project in 1985 that was published in 1992. The expected returns models were known by the time that the SRI/ ESG portfolios were constructed, as was the one-factor CAPM model.

Table 2: Summary Statistics

The table presents summary statistics for USER and CTEF variables across the entire available sample.

Summary Statistics						
		Ann. Arith. Return	Ann. Geom. Return	Ann. Vol	Num of Firms	Avg Signal Value
USER (5/1975 - 12/2017)	Q5 (High)	15.8%	14.5%	20.5%	347	0.0670
	Q4	14.7%	13.7%	18.4%	347	0.0003
	Q3	14.6%	13.8%	17.7%	346	0.0000
	Q2	13.5%	12.5%	18.1%	347	0.0000
	Q1 (Low)	13.0%	11.1%	22.0%	347	-0.0528
	Q5-Q1	2.8%	2.3%	9.4%		
CTEF (5/1975 - 12/2017)	Q5 (High)	15.8%	14.9%	18.8%	366	0.2543
	Q4	15.2%	14.3%	18.9%	365	0.1342
	Q3	15.1%	14.1%	19.0%	364	0.0009
	Q2	13.2%	11.7%	19.9%	365	-0.1371
	Q1 (Low)	11.1%	9.3%	20.9%	366	-0.2454
	Q5-Q1	4.7%	4.5%	6.5%		

The Fama-French Three-Factor model was published in 1993 and the Four-Factor Model was published in 1997.

Table 4a: The Interaction of Expected Return Models and ESG/KLD Scores: The Case of USER and Environmental Scores

The tables show performance and factor exposures of portfolios formed using the 10-factor U.S. Expected Return model (USER) of Guerard (1991 and 1993) and Block et al (1993) incorporating earnings yield, book to market, cashflow to price, and sales to price ratios along with these ratios scaled by the average ratios over the previous five years as well as CTEF and price momentum. CTEF measures consensus earnings per share /B/E/S forecasts, revisions and breadth, and PM is 7/1 price momentum PM). The monthly returns of high (low) KLD Environmental score firms with high or low USER rankings or L/S zero investment portfolio returns are regressed on a one-factor U.S. equity premium (RMRF) model (the CAPM), the Fama-French/Carhart four factor model, and a Fama French/Carhart five factor model that includes the Fama French quality factor. TE is the unbiased residual standard deviation. AR is the appraisal ratio (Information Ratio with unconstrained beta).

Multifactor Models Regression Parameters (March 1995 - December 2017)

	One Factor Model (CAPM)					Fama French Carhart Four Factor Model								Fama French/Carhart Plus Quality Five Factor Model									
	RMRF	Intercept	Adj R ²	TE	AR	RMRF	SMB	HML	MOM	Intercept	Adj R ²	TE	AR	RMRF	SMB	HML	MOM	Quality	Intercept	Adj R ²	TE	AR	
USER																							
High ENV + High USER	0.95	3.6%	69.9%	9.4%	0.38	0.94	0.29	0.41	-0.07	4.6%	78.7%	8.0%	0.57	1.01	0.38	0.26	-0.19	0.22	1.8%	77.1%	9.5%	0.19	
High ENV + Low USER	1.04	2.8%	69.0%	10.5%	0.27	1.01	0.29	0.32	-0.16	4.2%	77.2%	9.1%	0.46	0.99	0.44	0.28	-0.10	0.36	0.9%	79.8%	8.2%	0.11	
Low ENV + High USER	1.11	-0.3%	64.0%	12.6%	-0.02	1.13	0.16	0.57	-0.10	0.4%	72.5%	10.8%	0.04	1.10	0.35	0.60	-0.29	0.44	-2.8%	80.5%	10.0%	-0.27	
Low ENV + Low USER	1.05	0.1%	58.0%	13.5%	0.01	1.04	0.15	0.76	-0.24	1.0%	78.9%	9.6%	0.11	1.22	0.40	0.39	-0.15	0.59	-4.5%	76.9%	11.4%	-0.40	
High ENV: L/S USER	-0.08	0.8%	1.3%	9.8%	0.08	-0.07	0.00	0.09	0.10	0.4%	4.1%	9.6%	0.04	-0.02	0.07	0.02	0.09	0.14	-1.0%	3.6%	9.9%	-0.10	
Low ENV: L/S USER	0.06	-0.4%	0.7%	8.6%	-0.05	0.09	0.00	-0.18	0.14	-0.7%	15.5%	7.9%	-0.08	0.12	0.05	-0.21	0.13	0.15	-1.8%	15.7%	8.2%	-0.22	
(High+High) - (Low+Low)	-0.10	3.5%				-0.10	0.14	-0.35	0.18	3.5%				-0.21	-0.02	-0.13	-0.03	-0.37	6.4%				
EMC																							
High ENV + High EMC	0.96	3.3%	67.0%	10.1%	0.33	0.91	0.32	0.44	-0.11	2.7%	77.2%	8.4%	0.32	1.00	0.48	0.33	-0.13	0.41	0.4%	79.7%	7.9%	0.05	
High ENV + Low EMC	1.03	3.0%	72.0%	9.7%	0.31	0.96	0.28	0.25	-0.14	3.3%	77.6%	8.7%	0.38	1.00	0.34	0.20	-0.15	0.17	2.3%	77.9%	8.6%	0.27	
Low ENV + High EMC	1.13	0.0%	64.7%	12.5%	0.00	1.10	0.18	0.56	-0.18	-0.4%	75.7%	10.3%	-0.04	1.22	0.40	0.40	-0.21	0.59	-3.8%	79.3%	9.3%	-0.40	
Low ENV + Low EMC	1.04	-0.2%	58.3%	13.2%	-0.02	1.01	0.18	0.71	-0.21	-1.0%	76.5%	9.9%	-0.10	1.11	0.34	0.59	-0.23	0.44	-3.5%	78.5%	9.4%	-0.37	
High ENV: L/S EMC	-0.07	-2.0%	1.0%	9.6%	-0.21	-0.05	0.04	0.18	0.02	-2.8%	3.3%	9.4%	-0.30	0.00	0.14	0.12	0.01	0.24	-4.2%	6.1%	9.3%	-0.45	
Low ENV: L/S EMC	0.09	-2.1%	2.6%	7.6%	-0.27	0.08	0.01	-0.16	0.02	-1.7%	7.0%	7.4%	-0.23	0.11	0.06	-0.20	0.01	0.15	-2.6%	8.4%	7.4%	-0.35	
(High+High) - (Low+Low)	-0.08	3.5%				-0.10	0.14	-0.27	0.09	3.7%				-0.11	0.13	-0.26	0.10	-0.03	3.9%				
EVALUE																							
High ENV + High EVALUE	0.99	3.5%	64.5%	11.1%	0.32	0.94	0.31	0.45	-0.15	3.1%	74.9%	9.3%	0.34	1.01	0.45	0.35	-0.17	0.37	1.0%	76.6%	8.9%	0.12	
High ENV + Low EVALUE	1.03	2.9%	72.8%	9.3%	0.31	0.97	0.29	0.25	-0.13	3.1%	78.2%	8.5%	0.36	1.01	0.37	0.19	-0.14	0.21	1.9%	78.8%	8.4%	0.22	
Low ENV + High EVALUE	1.15	0.5%	63.6%	13.1%	0.04	1.11	0.22	0.57	-0.20	0.1%	74.8%	10.8%	0.00	1.24	0.46	0.40	-0.23	0.63	-3.5%	78.6%	10.0%	-0.35	
Low ENV + Low EVALUE	1.03	-0.3%	58.6%	13.1%	-0.03	1.01	0.17	0.69	-0.21	-1.1%	76.4%	9.8%	-0.11	1.10	0.33	0.58	-0.23	0.43	-3.5%	78.4%	9.4%	-0.38	
High ENV: L/S EVALUE	-0.04	-1.8%	0.0%	9.9%	-0.18	-0.03	0.03	0.19	-0.03	-2.2%	3.7%	9.7%	-0.23	0.00	0.09	0.15	-0.04	0.16	-3.1%	4.5%	9.0%	-0.33	
Low ENV: L/S EVALUE	0.12	-1.6%	4.8%	7.9%	-0.20	0.10	0.06	-0.13	0.00	-1.1%	8.0%	7.7%	-0.15	0.14	0.13	-0.18	0.00	0.20	-2.3%	10.6%	7.6%	-0.30	
(High+High) - (Low+Low)	-0.04	3.8%				-0.07	0.15	-0.24	0.06	4.2%				-0.08	0.12	-0.22	0.06	-0.06	4.6%				

Note the high – low intercepts of the Fama -French 4- and 5-Factor Models.

The intercepts are the portfolio alphas.

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Table 4b: The Interaction of Expected Return Models and ESG/KLD Scores: The Case of USER and Environmental Scores

The tables show performance and factor exposures of portfolios formed using the 10-factor U.S. Expected Return model (USER) of Guerard (1991 and 1993) and Block et al (1993) incorporating earnings yield, book to market, cashflow to price, and sales to price ratios along with these ratios scaled by the average ratios over the previous five years as well as CTEF and price momentum. CTEF measures consensus earnings per share /B/E/S forecasts, revisions and breadth, and PM is 7/1 price momentum PM). The monthly returns of high (low) KLD Environmental score firms with high or low USER rankings or L/S zero investment portfolio returns are regressed on a one-factor U.S. equity premium (RMRF) model (the CAPM), the Fama-French/Carhart four factor model, and a Fama French/Carhart five factor model that includes the Fama French quality factor. TE is the unbiased residual standard deviation. AR is the appraisal ratio (Information Ratio with unconstrained beta).

	One Factor Model (CAPM)					Fama French Carhart Four Factor Model								Fama French/Carhart Plus Quality Five Factor Model									
	RMRF	Intercept	Adj R ²	TE	AR	RMRF	SMB	HML	MOM	Intercept	Adj R ²	TE	AR	RMRF	SMB	HML	MOM	Quality	Intercept	Adj R ²	TE	AR	
MQ																							
High ENV + High MQ	0.90	3.5%	69.8%	8.9%	0.40	0.90	0.27	0.35	0.02	2.2%	76.0%	7.9%	0.28	0.98	0.41	0.25	0.00	0.38	0.0%	78.5%	7.5%	0.00	
High ENV + Low MQ	1.09	2.9%	66.7%	11.6%	0.25	1.02	0.40	0.28	-0.29	2.0%	77.9%	9.4%	0.30	1.02	0.40	0.28	-0.29	0.20	2.8%	77.9%	9.4%	0.30	
Low ENV + High MQ	1.06	0.6%	61.2%	12.7%	0.05	1.08	0.14	0.57	-0.04	-1.0%	69.5%	11.2%	-0.09	1.20	0.35	0.42	-0.06	0.56	-4.2%	73.0%	10.5%	-0.40	
Low ENV + Low MQ	1.12	-0.9%	55.5%	15.0%	-0.06	1.03	0.23	0.71	-0.36	-0.5%	76.8%	9.8%	-0.05	1.13	0.40	0.58	-0.38	0.48	-3.3%	78.9%	10.3%	-0.32	
High ENV: L/S MQ	-0.19	-1.7%	5.7%	11.3%	-0.15	-0.08	-0.05	0.01	0.29	-4.1%	22.3%	10.1%	-0.40	-0.04	0.02	-0.03	0.28	0.19	-5.1%	23.2%	10.0%	-0.51	
Low ENV: L/S MQ	-0.06	-1.0%	0.1%	12.4%	-0.08	0.05	-0.08	-0.15	0.32	-3.0%	21.6%	10.9%	-0.27	0.07	-0.05	-0.17	0.31	0.09	-3.5%	21.6%	10.9%	-0.32	
(High+High) - (Low+Low)	-0.22	4.5%				-0.14	0.04	-0.36	0.38	2.7%				-0.16	0.01	-0.33	0.38	-0.10	3.3%				
CTEF																							
High ENV + High CTEF	0.95	2.3%	69.9%	9.3%	0.25	0.95	0.22	0.37	-0.01	1.1%	75.3%	8.4%	0.13	1.05	0.39	0.24	-0.03	0.47	-1.6%	78.8%	7.8%	-0.20	
High ENV + Low CTEF	1.05	4.2%	66.5%	11.2%	0.38	0.93	0.38	0.31	-0.26	5.2%	77.7%	9.1%	0.56	0.95	0.42	0.28	-0.26	0.12	4.5%	77.8%	9.1%	0.49	
Low ENV + High CTEF	1.09	1.2%	60.8%	13.1%	0.09	1.07	0.15	0.56	-0.15	0.4%	70.9%	11.2%	0.04	1.19	0.37	0.40	-0.18	0.58	-2.9%	74.4%	10.5%	-0.27	
Low ENV + Low CTEF	1.09	-1.6%	58.6%	13.8%	-0.12	1.05	0.22	0.72	-0.24	-2.2%	76.8%	9.8%	-0.21	1.14	0.39	0.60	-0.26	0.46	-4.8%	78.9%	9.8%	-0.48	
High ENV: L/S CTEF	-0.10	-4.2%	1.4%	11.0%	-0.38	0.02	-0.16	0.05	0.24	-6.3%	14.6%	10.1%	-0.62	0.09	-0.03	-0.05	0.22	0.36	-8.3%	19.1%	9.9%	-0.85	
Low ENV: L/S CTEF	0.00	0.4%	-0.4%	10.3%	0.04	0.02	-0.07	-0.17	0.08	0.3%	4.1%	10.0%	0.03	0.05	-0.02	-0.20	0.08	0.13	-0.4%	4.5%	10.0%	-0.04	
(High+High) - (Low+Low)	-0.14	3.9%				-0.10	0.00	-0.35	0.23	3.3%				-0.10	0.00	-0.35	0.23	0.01	3.2%				

This data illustrates that buying stocks with good CTEF and USER scores and good ENV scores is preferable to buying lowly-ranked CTEF and USER stocks with poor ENV scores. In other words, it suggests investors do not need to choose between values and returns.



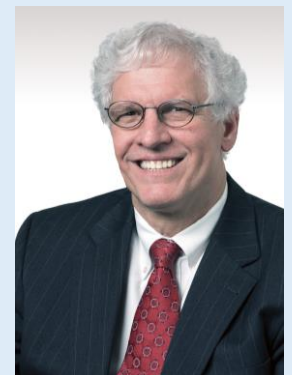
Q6. What do you see as the opportunities in ESG for institutional investors?

A. There are great opportunities for SRI/ESG investors. First, a plan sponsor can clearly hire asset managers with good models of expected returns and make excess returns, after eliminating all KLD socially challenged stocks, as Dr. Chris Geczy and I reported in 2020. Frankly, I would market this fund on an incentive fee basis; 15 basis points of annual fee plus 40% of the excess returns exceeding 250 basis points, annualized, over the benchmark. No plan sponsor should pay Active Fees for passive performance. Second, I believe the KLD database in the U.S. is superior to its international first-cousin maintained by MSCI; and therefore I suggest using the U.S. KLD criteria with the (MSCI-owned) KLD non-U.S. criteria in creating a Global SRI/ESG product. Finally, one must be careful with SRI/ESG products which often do not “truly” screen KLD stocks that violate social screens. A 70- or 300-stock portfolio that only throws out 3-5 stocks on an ENV basis is not probably a true-blue SRI/ESG portfolio.

Quants have developed and analyzed SRI/ESG products for nearly 30 years beginning with Peter Kinder, Amy Domini, Steve Lydenberg, and Lloyd Kurtz. Brian Bruce, the editor of the *Journal of Investing* (JOI), has published many of the *Moskowitz Prize* winning papers since 1996. The Wharton WRDS database is a great resource which Professor Geczy and I use for the classes we teach at The Wharton School and the University of Washington, respectively.

Presented by: John Guerard, Jr., Ph.D.
Interim Director of Quantitative Research and Chairman of the Scientific Advisory Board
McKinley Capital Management, LLC

Dr. John Guerard, Jr., Ph.D., joined McKinley Capital as Director of Quantitative Research in 2005. Known affectionately around the firm as Dr. G, John focused on the maintenance and enhancement of the firm’s quantitative capabilities and investment models. His passion for global equity markets, along with his academic credentials and broad practitioner experience, made him an invaluable member of the McKinley Capital team. Dr. Guerard is a winner of the esteemed *Moskowitz Prize*, the only global award recognizing outstanding quantitative research in sustainable and responsible investing. In 2020, John took on a new role as Chairman of the firm’s Scientific Advisory Board. In February 2022, John reassumed the role of Interim Director of Quantitative Research due to the departure of Anureet Saxena, Ph.D., CFA. John’s tenure, pedigree and experience provide a seamless transition for staff and clients while a new McKinley Capital Director of Quantitative Research is recruited. John is engaged in numerous writing projects including his recently sent-to-press book, *“The Leading Economic Indicators and Business Cycles in the United States: 100 Years of Research and Empirical Evidence and Opportunities for the Immediate Future.”* John recently co-authored the widely used academic text *“Quantitative Corporate Finance”* (John B. Guerard, Jr., Anureet Saxena and Mustafa Gultekin, Revised edition, New York: Springer, 2020). In 2022, John was a finalist for the ESG Research Specialist Award from UK-based ESG Investing. Prior to his tenure at McKinley Capital, John held a number of senior-level positions including Vice President for Daiwa Securities Trust Co. where he co-managed the Japan Equity Fund with Nobel Prize winner Dr. Harry Markowitz, Ph.D. He currently teaches at the University of Washington and is a former adjunct faculty member and faculty member of The Wharton School of the University of Pennsylvania and Rutgers University Graduate School of Management.





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The material provided herein may contain confidential and/or proprietary information and should not be further disseminated without written approval from McKinley Capital's Compliance Department. This proposal contains a hypothetical model portfolio generated using the mean-variance optimization procedure. The expected returns were derived from stock volatilities using a proprietary methodology and were used in conjunction with Axioma's fundamental worldwide medium horizon risk model (WW-MH4) and optimizer to derive optimized portfolios. The simulation was run for 2006-2020 time period with monthly rebalancing. The simulation period was determined by a variety of factors including data availability. The optimal portfolios were benchmarked to Russell 1000 index and subject to active asset, industry and sector bounds, turnover constraint, tracking error constraints, etc. The ex-post performance is reported net of transaction cost of 12bps per annum.. This model and the performance are hypothetical and may not be relied upon for investment purposes. Models may not relate or only partially relate to services currently offered by McKinley Capital and model results may materially differ from the investment results of McKinley Capital's clients. Returns are absolute, were generated using McKinley Capital's proprietary growth investment methodology as described in McKinley Capital's Form ADV Part 2A, are unaudited, and do not replicate actual returns for any client. McKinley Capital's investment methodology has not materially changed since its inception but it has undergone various enhancements.

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