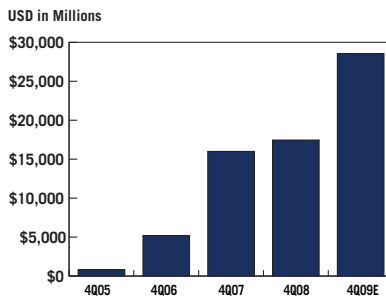


Fundamentals



Robert D. Arnott

RAFI® Managed Assets*



*Includes RAFI assets managed or sub-advised by Research Affiliates® or RAFI licensees.



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WAS IT REALLY A LOST DECADE?

Overconfidence gets human beings into big trouble. Fueled by new developments in science and ready access to current and past knowledge and theory, old cautionary rules are thrown out the window at considerable peril. The past century spans two prominent examples of disasters from learnedness-induced overconfidence. The sinking of the Titanic in 1912—the ultimate shipping disaster—was the direct result of the luxury liner, emboldened by its “unsinkable” engineering, plowing through the twin dangers of poor visibility and icebergs at top speed.

Almost 100 years later, an unshakeable faith in the equity risk premium—reinforced by vast data supporting a 10% annual long-term return—caused the \$8 trillion U.S. pension supertanker to charge ahead with massive equity allocations into a decade that did not reward equity investors, despite the warning signs of high valuation multiples, 1% dividend yields, and skewed indexes.¹ The sinking of the Titanic was tragic for hundreds of families; the equity market underperformance of the last decade has impacted millions of investors.

The “naughts” were the worst decade ever for U.S. equity investors, even after an astounding rebound in the past 10 months of 2009, during which the S&P 500 Index surged 55%.² Yes, worse than the previous two low points: the 1850s

and the Depression-riddled 1930s. The result was the “Lost Decade” where the S&P 500 compounded at -1.0% per annum—3.6% below the rate of inflation! The 1850s and 1930s produced +0.5% and -0.1%, respectively. This cumulative loss dragged the total return of the traditional balanced portfolio of 60% U.S. equities (as measured by the S&P 500) and 40% bonds (as measured by the BarCap Aggregate Index) to 2.3%, trailing inflation by 30 bps per annum.

The picture grows far worse when we incorporate typical pension liabilities and 401(k) target returns. Pension liabilities, as measured by the Ryan Liability Index, advanced at an annualized clip of 8.5% per annum. So while the cumulative gain for the 60/40 portfolio was about 25% (less costs), typical pension liabilities advanced over 125%, nearly halving pension funding ratios. The statistics are far worse for 401(k) investors, very few of whom are even vaguely aware of the liability side (their future spending needs).

Most 401(k) educational materials and retirement planning models use too high a return assumption (often 8%) in calculations to estimate how much money to set aside, and tacitly encourage a reliance on growth stocks. Most 401(k) participants did not achieve these overly optimistic returns; in fact, they

were unlikely to even achieve the returns for a simple 60/40 passive return because of the higher relative costs of mutual funds, as well as a relentless tendency to chase past winners, reinforced by human resource departments which add the recently-best-performing products to the 401(k) fund roster. The concept of rebalancing—building on the idea that past is not prologue—is rarely followed in the retail community.³

In this issue we study this abysmal stretch of portfolio performance, both to glean long-term lessons for how we allocate assets and structure equity indexes and to consider whether the “naughts” might lay a foundation for a splendid decade ahead.

It Didn't Have to Be This Ugly

Plenty of asset classes existed at the end of the spectacular 1990s that, unlike equities,⁴ offered attractive risk premiums. Almost all were cast aside as stocks rose to the stratosphere on the tech bubble. Ignoring diversification, investors plowed their money into the U.S. stock market to such an extent that the P/E ratio (using Robert Shiller's 10-year reported earnings) of the S&P 500 stood at a shocking 44 in December of 1999. Because these other asset classes were ignored, they entered the decade with much more reasonable valuations and, accordingly, produced respectable results over the subsequent 10 years, as illustrated in **Table 1**. Only U.S. large stocks managed negative returns for this period.

Widening our opportunity set, the decade doesn't appear so bleak. True, the S&P 500 and EAFE, along with the ubiquitous 60/40 blend, posted negative real returns. However, decent results could be had as three asset classes produced double digit returns—emerging market stocks, emerging market bonds, and REITs. Another four asset classes—emerging local currency, TIPS, long Treasuries, and (surprise, surprise!) fundamentally-weighted global stocks—managed to beat inflation by 5% or more. Equally weighting this collection of 16 asset classes (excluding T-bills and the fundamental indexes, which didn't exist 10 years ago) produces an annualized return of 6.8%—a 4.2% percentage point premium to inflation.⁵ A 6.8% return may have missed many institutions' return targets,⁶ but could hardly be considered a disastrous shortfall.

By embracing a wide assortment of asset classes (in this case, 10 bond-like categories, 4 equity applications, REITs, and commodities), this approach offers diversification and, more importantly, the opportunity to invest in cheap assets and avoid overly concentrating in the most expensive.

Table 1. The 2000s Weren't All Bad—Returns for Selected Asset Classes

Asset Class	Index	Dec 1999 To Dec 2009 Annual Return
Emerging Market Bonds	JPM EMBI Plus TR USD	10.9
REITs	FTSE NAREIT All REITs TR	10.2
Emerging Markets Equity	MSCI EM GR USD	10.1
Emerging Local Currency	JPM ELMI+ TR USD	8.5
Global Fundamental Index*	FTSE-RAFI® All World 3000*	7.8
TIPS	BarCap Gbl Infl Linked US TIPS TR USD	7.7
Long Treasuries	BarCap US Treasury Long TR USD	7.6
Long Credit	BarCap US Long Credit TR USD	7.5
Commodities	DJ UBS Commodity TR USD	7.1
EW Asset Classes		6.8
High-Yield	BarCap US Corporate High Yield TR USD	6.7
Core Bonds	BarCap US Agg Bond TR USD	6.3
Short-Term Bonds	ML US Corp&Govt 1-3 Yr TR USD	4.8
U.S. Fundamental Index*	FTSE RAFI® US 1000 TR USD*	4.7
Bank Loans	Credit Suisse Leveraged Loan USD	4.3
U.S. Small Equity	Russell 2000 TR USD	3.5
Convertibles	ML Convertible Bonds All Qualities	3.3
T-bills	IA SBBI US 30 Day TBill TR USD	2.8
U.S. Inflation	IA SBBI US Inflation	2.6
60-40		2.3
International Stocks	MSCI EAFE GR USD	1.6
U.S. Large Equity	IA SBBI S&P 500 TR USD	-1.0

*The RAFI® portfolios were not available in 1999 and, therefore, are excluded from EW Asset Classes.

Source: Research Affiliates based upon data from Morningstar Encorr and Bloomberg.

The Weighting is the Hardest Part

The failure of the equity-centric balanced portfolio over the last decade was nearly matched by the damaging practice of capitalization weighting equity index portfolios. If you ever thought markets can get a little crazy or a bit disjointed from reality, the venerable index fund, despite all of its wonderful benefits, fails to live up to its considerable potential.

The folly of cap weighting can most vividly be illustrated using the two bookend years of the Lost Decade, 2000 and 2009. In 2000, we saw a bubble and a crash in technology; in 2009, we saw an anti-bubble in deep value and a snap-back.

By early 2000, technology and telecom stocks had risen so much in price, on the promise of the Internet, that they became a combined 45% of market capitalization despite only representing 15% of the economy (as measured by sales, cash flow, book value, and dividends). Greed pushed these stock prices to levels that would be justified only if everything went right. But, many of the companies were competing with one another; they couldn't all achieve their loftiest goals. Their subsequent collapse dragged down the capitalization

weighted indexes far below the average stock's decline, sowing the seeds for our own Fundamental Index® research. Cap weighting predictably held peak exposure to tech just before they crashed.

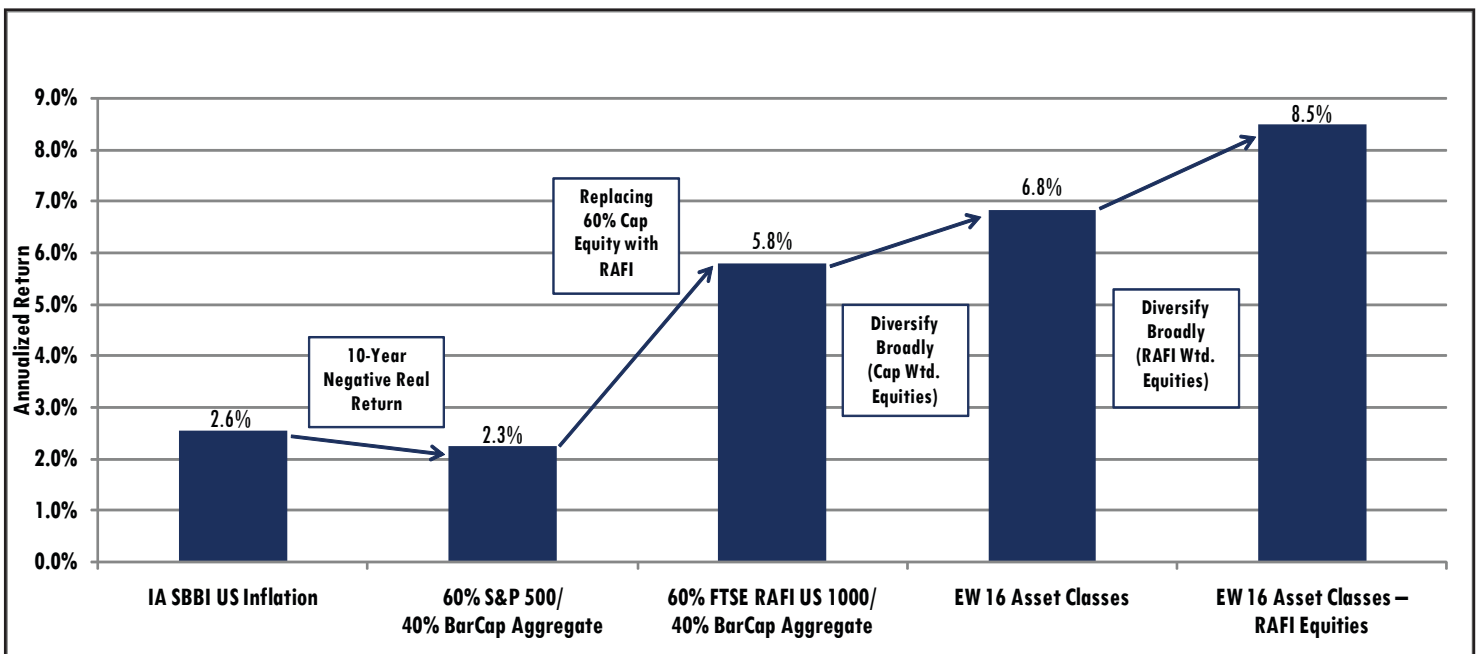
Fast forward to 2009 when indiscriminate selling of deep value stocks, notably financials but also including durables and retail, drove them collectively to a scant 22% of capitalization (down from 31% less than two years before) despite representing over 38% of the economy. Fear had pushed prices (and so portfolio weights) to levels consonant with mass devastation in these sectors—as if the safe haven sectors could have weathered that debacle unscathed. But, every bank failure gives the survivors less competition, increased pricing power, and improved profit potential, exactly as we've seen: as the crisis abated, financial shares led this comeback rally. Even with government intervention on an unprecedented scale, we saw Schumpeter's "creative destruction" at work. Meanwhile, cap weighting held its minimal exposure to these sectors, right before they took off.

Needless to say, the Lost Decade was exacerbated by cap weighting our equity portfolios. **Figure 1** illustrates how the traditional 60/40 portfolio would have done with the FTSE RAFI® US 1000 as a substitute for the S&P 500. The annualized return moves from 2.3% to 5.8%. Substituting the Fundamental Index methodology for the cap-weighted indexes in the four equity sleeves,⁷ the resulting Equally Weighted 16

Asset Class portfolio achieves an 8.5% return versus 6.8% with the cap-weighted indexes during the worst decade of stock returns dating back to the 1800s. Such an annualized return would have fully matched Ryan Labs Liability Index, exceeded the typical endowment goal of inflation plus 5%, and beat the typical 8% assumption in 401(k) planners. All one had to do was be less equity centric, embrace a wider toolkit, and avoid the return drag from cap weighting equities.

How can the Fundamental Index methodology make so much difference in the returns? Simply, the Fundamental Index methodology eliminates price from the portfolio weighting process and is, thus, immune to the corrosive effect of being overweight the overpriced (tech in 2000) and underweight the underpriced (financials and industrials in 2009). Instead, the RAFI approach uses the fundamental economic scale of a company's business as an anchor for rebalancing and contratrades against the market's most extreme bets. This simple change in the index construction approach had powerful implications in the Lost Decade. Indeed, 2000 was the best year ever for a U.S. Fundamental Index portfolio in our historical tests (dating back to 1962). In 2000, this meant slashing our exposure to tech stocks in favor of unloved bricks-and-mortar industries. In 2009, the second best year for the U.S. market, we rebalanced out of growth and safe haven companies, and into the deep value names in financials, industrials, consumer discretionary, and manufacturing. And

Figure 1. The Return Drag from Cap Weighting Equities Hurt Traditional and Diversified Total Portfolios, December 31, 1999–December 31, 2009



Source: Research Affiliates based upon data from Morningstar Encorr and Bloomberg.

for the decade, a global stock investment delivered a respectable 7.8% annual return. As long as they were weighted by company size and not capitalization!

Finance theory tells us that cap weighting is the optimal portfolio. It also dictates that markets are efficient and that all securities are priced to give us the same risk-adjusted return. Faith in these theories seems to be the pillars upon which cap weighting rests. Each new day brings further empirical evidence that weighting securities by capitalization is the index fund's Achilles heel. It reminds us of a Tom Petty classic (though, we took a few liberties):

*The weighting is the hardest part
Every day you see one more card
You take it on faith, you take it to the heart
The weighting is the hardest part*

The disappointment of the past 10 years—on top of an already solid empirical case—spells out a clear flaw in traditional index funds. The weighting is the hardest part. A price-indifferent approach, built on economic scale, neutralizes this return drag for often substantial rewards.

Price Matters

The Titanic disaster led to a complete overhaul of shipping safety regulations. Will the Lost Decade have a similar impact on the management of long-term portfolios? Although it's too early to see significant

changes, the early evidence is not good. The traditional 60/40 balanced portfolio still dominates. The cult of equities still lives. Almost all institutional portfolios, glidepath and target date funds, and balanced portfolios still have an overwhelming equity bias. Within this mega-bet on the stock market, traditional equity index funds dominate. The notion that core holdings should be cap-weighted remains the received wisdom of institutional investors worldwide. Given the results of Table 1 and Figure 1, why on earth do we consider zero tracking error to the S&P 500 risk-free?!

The two key takeaways of the last 10 years bear repeating (in the hope that people will learn from past experience). First, risk premiums are time varying and greatly depend on starting valuations. Stocks—like any other asset class—will disappoint us if we buy them when they're expensive and will delight us if we buy them when they're cheap. Second, if we build our portfolios to hold more of an asset when it is expensive and less when it is cheap, we're likely to see a return drag. Both points relate to price. Price matters: It affects long-term returns and it should factor into our decisions—both between asset classes and within asset classes, particularly in an inefficient world.

Next month, we tackle the second piece of the puzzle: Lessons for the future. Might the coming decade resemble the 1990s because the “naughts” wrung out the excesses in the system? Or might the years ahead present us with some more “naughtiness”?

Endnotes

1 “The U.S. Retirement Market, Second Quarter 2009,” *Research Fundamentals*, Investment Company Institute (October 2009), http://www.icief.org/pdf/09_q2_retmrkt_update.pdf.

2 In reviewing stock returns back to the 1800s, we rely on the data that Peter Bernstein and I assembled for “What Risk Premium is ‘Normal’?” *Financial Analysts Journal*, March/April 2002. We are indebted to many sources for this data, ranging from Ibbotson Associates, the Cowles Commission, Bill Schwert of Rochester University, and Bob Shiller of Yale. For the full roster of sources, see the FAJ paper (http://researchaffiliates.com/ideas/pdf/FAJ_MarApr_2002.pdf).

3 Don Phillips and Russel Kinnel at Morningstar have each done some excellent work in quantifying just how much poor timing costs investors by examining the difference between dollar-weighted returns (the investor's return) versus total returns (the fund's return). It isn't pretty. See Russel Kinnel, “Mind the Gap,” *Morningstar Advisor*, July 26, 2005 (<http://advisor.morningstar.com/articles/article.asp?docId=4142>), and Don Phillips, “Mutual Funds Are Bought, Not Sold: Winning in an Investor-Centric World,” *Morningstar*, 2008 (http://www.icief.org/pdf/idc_phillips_lunch08.pdf).

4 See “The Death of the Risk Premium,” by Rob Arnott and Ronald J. Ryan, first published as a First Quadrant monograph in February 2000, and later published in the *Journal of Portfolio Management* in Spring 2001 (<http://www.ijournals.com/doi/abs/10.3905/jpm.2001.319802>).

5 The equally weighted portfolio is comprised of the indexes in italics, rebalanced monthly.

6 At the start of the decade, pension sponsors were projecting an average 9.5% Pension Return Assumption, and public pensions were using an average 8.5% discount rate for liabilities. At a time when bonds were yielding 6% and stocks were yielding 1%—with an earnings yield of just over 2%—it was clear to many observers that these assumptions were pretty reckless.

7 Thus, the substitution would be: FTSE RAFI US 1000 for the S&P 500 in U.S. Large Company, FTSE RAFI Small Mid 1500 for the Russell 2000 in U.S. Small Company, FTSE RAFI Global ex U.S. for the MSCI EAFE in International, and the FTSE RAFI Emerging Markets for the MSCI Emerging Markets Index.

Performance Update

TOTAL RETURN AS OF 12/31/09	BLOOMBERG TICKER	YTD	12 MONTH	ANNUALIZED 3 YEAR	ANNUALIZED 5 YEAR	ANNUALIZED 10 YEAR	ANNUALIZED 10 YEAR VOLATILITY
FTSE RAFI® 1000 Index ^A	FR10XTR	41.98%	41.98%	-4.25%	2.21%	4.74%	17.86%
S&P 500 ^B	SPTR	26.46%	26.46%	-5.63%	0.42%	-0.95%	16.13%
Russell 1000 ^C	RUTOINTR	28.43%	28.43%	-5.36%	0.79%	-0.49%	16.37%
FTSE RAFI® US 1500 Index ^D	FR15USTR	55.74%	55.74%	-1.52%	4.18%	10.55%	22.30%
Russell 2000 ^E	RU20INTR	27.17%	27.17%	-6.07%	0.51%	3.51%	21.55%
FTSE RAFI® Developed ex US 1000 Index ^F	FRX1XTR	44.05%	44.05%	-2.56%	6.70%	5.86%	19.11%
MSCI EAFE ^G	GDDUEAFE	32.46%	32.46%	-5.57%	4.02%	1.58%	17.86%
FTSE All World Series Developed ex US ^H	FTSDXUS	35.44%	35.44%	-4.37%	5.01%	2.42%	18.09%
FTSE RAFI® Developed ex US Mid Small ^I	FRSDXUS	52.80%	52.80%	-2.89%	5.67%	8.93%	18.02%
MSCI EAFE Small ^J	MCUDEAFE	43.20%	43.20%	-9.67%	1.39%	4.30%	19.73%
FTSE RAFI® Emerging Markets ^K	TFREMU	81.88%	81.88%	10.20%	21.71%	19.14%	25.29%
MSCI Emerging Markets ^L	GDUEEGF	79.02%	79.02%	5.42%	15.88%	10.09%	24.89%
FTSE RAFI® Canada ^M	FRCANTR	44.98%	44.98%	2.63%	9.37%	10.77%	14.20%
S&P/TSX 60 ^N	TX60AR	31.94%	31.94%	0.31%	8.72%	5.56%	16.81%
FTSE RAFI® Australia Index ^O	FRAUSTR	41.16%	41.16%	1.57%	9.23%	10.38%	12.61%
S&P/ASX 200 Index ^P	ASA51	37.03%	37.03%	-0.70%	8.36%	8.90%	13.11%
FTSE RAFI® Japan ^Q	FRJPNTR	12.05%	12.05%	-14.97%	-0.67%	0.44%	18.06%
MSCI Japan ^R	GDDLJN	9.26%	9.26%	-17.34%	-2.58%	-4.46%	17.87%
FTSE RAFI® UK Index ^S	FRGBRTR	29.73%	29.73%	-2.07%	4.47%	4.95%	17.39%
MSCI UK ^T	GDDUUK	27.66%	27.66%	-0.90%	6.02%	1.34%	15.02%

Definition of Indices: (A) The FTSE RAFI® 1000 comprises the 1000 largest companies selected and weighted using our Fundamental Index methodology; (B) The S&P 500 Index is an unmanaged market index that focuses on the large-cap segment of the U.S. equities market; (C) The Russell 1000 Index is a market-capitalization-weighted benchmark index made up of the 1,000 highest-ranking U.S. stocks in the Russell 3000; (D) The FTSE RAFI® 1500 comprises the 1001st to 1500th largest companies selected and weighted using our Fundamental Index methodology; (E) The Russell 2000 is a market-capitalization weighted benchmark index made up of the 2,000 smallest U.S. companies in the Russell 3000; (F) The FTSE RAFI® Developed ex US 1000 Index comprises the largest 1000 non US-listed companies by fundamental value, selected from the constituents of the FTSE Developed ex US Index; (G) MSCI EAFE (Morgan Stanley Capital International Europe, Australasia, Far East) is an unmanaged index of issuers in countries of Europe, Australia, and the Far East represented in U.S. dollars; and (H) The FTSE All World ex-US Index comprises Large and Mid-Cap stocks providing coverage of Developed and Emerging Markets excluding the United States. It is not possible to invest directly in any of the indexes above; (I) The FTSE RAFI® Developed ex US Mid Small Index tracks the performance of small- and mid-cap equities of companies domiciled in developed international markets (excluding the United States), selected based on the following four fundamental measures of firm size: book value, cash flow, sales, and dividends. The equities with the highest fundamental strength are weighted according to their fundamental scores. The Fundamentals Weighted® portfolio is rebalanced and reconstituted annually. Performance represents price return only; (J) The MSCI EAFE Small Cap Index targets 40% of the eligible small-cap universe (companies with market capitalization ranging from US\$200 to US\$1,500 million) in each industry group of each country in the MSCI EAFI Index; (K) The FTSE RAFI® Emerging Markets Index comprises the largest 350 companies selected and weighted using the Fundamental Index® methodology; (L) The MSCI Emerging Markets Index is an unmanaged, free-float-adjusted cap-weighted index designed to measure equity market performance of emerging markets; (M) The FTSE RAFI® Canada Index comprises the Canadian stocks represented among the constituents of the FTSE RAFI® Global ex US 1000 Index, which in turn comprises the 1,000 non-U.S.-listed companies with the largest fundamental value, selected from the constituents of the FTSE Developed ex US Index; (N) The S&P/Toronto Stock Exchange (TSX) 60 is a cap-weighted index consisting of 60 of the largest and most liquid (heavily traded) stocks listed on the TSX, usually domestic or multinational industry leaders; (O) The FTSE RAFI® Australia Index comprises the Australian stocks represented among the constituents of the FTSE RAFI® Global ex US 1000 Index, which in turn comprises the 1,000 non-U.S.-listed companies with the largest fundamental value, selected from the constituents of the FTSE Developed ex US Index; (P) The S&P/ASX 200 Index, representing approximately 78% of the Australian equity market, is a free-float-adjusted, cap-weighted index; (Q) The FTSE RAFI® Japan Index comprises the Japanese stocks represented among the constituents of the FTSE RAFI® Global ex US 1000 Index, which in turn comprises the 1,000 non-U.S.-listed companies with the largest fundamental value, selected from the constituents of the FTSE Developed ex US Index; (R) The MSCI Japan Index is an unmanaged, free-float-adjusted cap-weighted index that aims to capture 85% of the publicly available total market capitalization of the Japanese equity market; (S) The FTSE RAFI® UK Index comprises the U.K. stocks represented among the constituents of the FTSE RAFI® Global ex US 1000 Index, which in turn comprises the 1,000 non-U.S.-listed companies with the largest fundamental value, selected from the constituents of the FTSE Developed ex US Index; (T) The MSCI UK Index is an unmanaged, free-float-adjusted cap-weighted index that aims to capture 85% of the publicly available total market capitalization of the British equity market

Source: All index returns are calculated using Total Return data from Bloomberg except for the FTSE RAFI Developed ex US Mid Small (FRSDXUS) and the MSCI EAFE Small (MCUDEAFE) which uses price return data.

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