Decomposition of contributions to EXCESS RETURN from RISK FACTORS

= R - B

$$R_p - R_f = a_p + b_{p1}\,RMRF + b_{p2}\,SMB + b_{p3}\,HML + b_{p4}\,WML + E_p$$

a_p => ALPHA

b_p =>

RMRF =>

SMB => SMALL MINUS BIG

avg. return on 3 small-cap portfolios
MINUS avg. return on 3 large-cap portfolios

HML => HIGH MINUS LOW

avg. return on 2 high Book-to-Market portfolios
MINUS avg. return on 2 low

WML => WINNERS MINUS LOSERS

return on a portfolio of past year's WINNERS minus
return on a portfolio of past year's LOSERS

E_p => ERROR TERM

Source: Performance Measurement, 2026 Level 3 Core, Volume 3, pg: 74-75.

Exhibit 1: Fund 1 Factor Model Attribution

Factor Sensitivity					Contribution to Active Return	
Factor*	Portfolio (1)	Benchmark (2)	Difference (3)	Factor Return (4)	Absolute (3) x (4)	Proportion of Active Return
RMRF	1.22	0.91	0.31	16.32%	5.06%	-126.80%
SMB	0.59	0.68	-0.09	-3.25%	0.29%	-7.33%
HML	-0.17	0.04	-0.21	-9.60%	2.02%	-50.53%
WML	-0.05	0.07	-0.12	3.38%	-0.41%	10.17%
				A. Factor Tilt Return:	6.96%	-174.49%
				B. Security Selection:	-10.95%	274.49%
				C. Active Return (A + B):	-3.99%	100.00%

*RMRF is the return on a value-weighted equity index in excess of the one-month T-bill rate, SMB is the small minus big market capitalization factor, HML is the high minus low factor, and WML is the winners minus losers factor.

7. Based on Exhibit 1 and relative to the benchmark, the manager of Fund 1 *most likely* used a:

A. growth tilt.

B. greater tilt toward small cap.

C. momentum-based investing approach.

8. Based on Exhibit 1, which of the following factors contributed the *least* to active return?

A. HML

B. SMB.

C. RMRF

9. Based on Exhibit 1, the manager could have delivered more value to the portfolio during the investment period by weighting more toward:

A. value stocks.

B. small-cap stocks.

C. momentum stocks.