

Return and risk

GOVERNMENT PENSION FUND GLOBAL

Press seminar
Oslo, 20 March 2019



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| Factor and risk-adjusted return | |

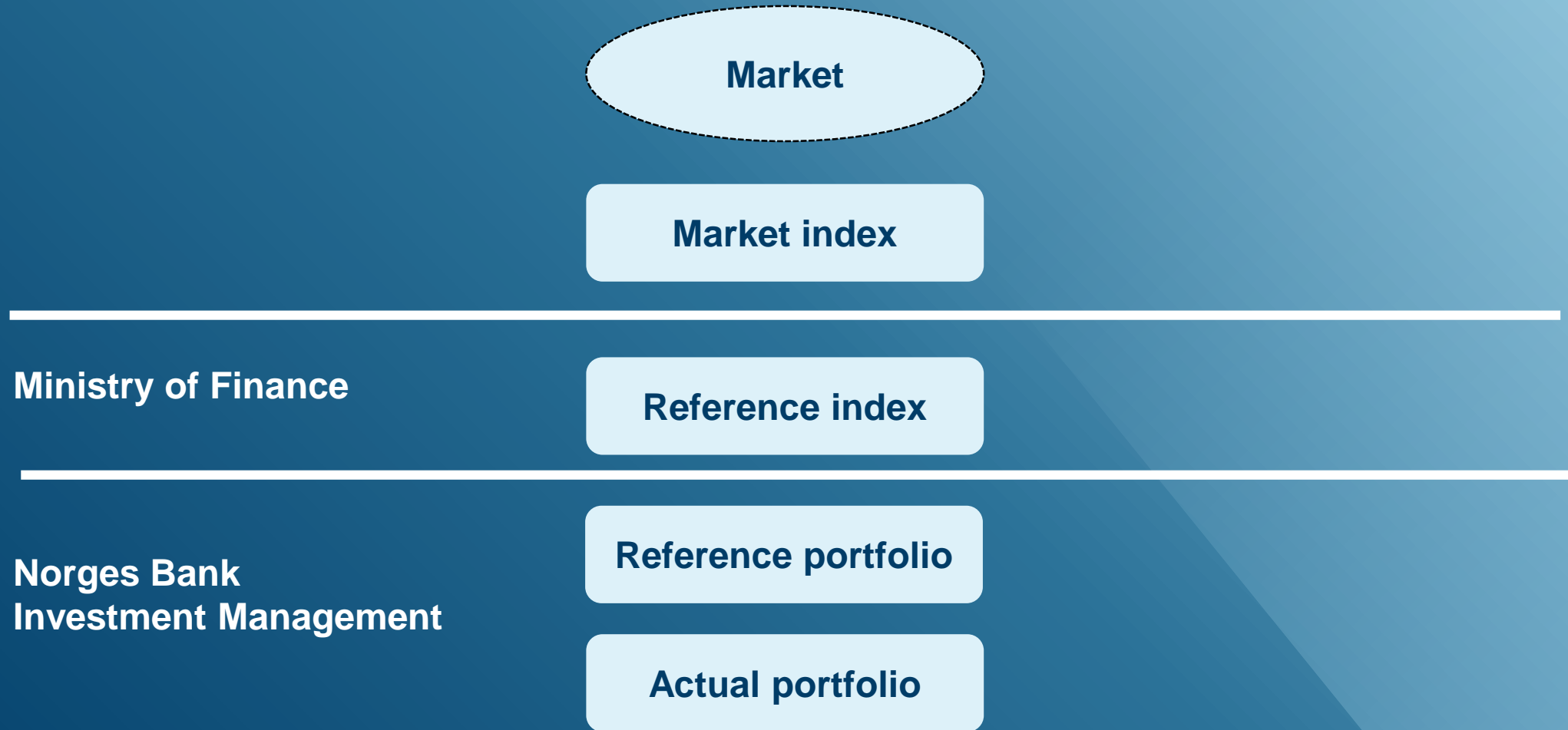


Investments



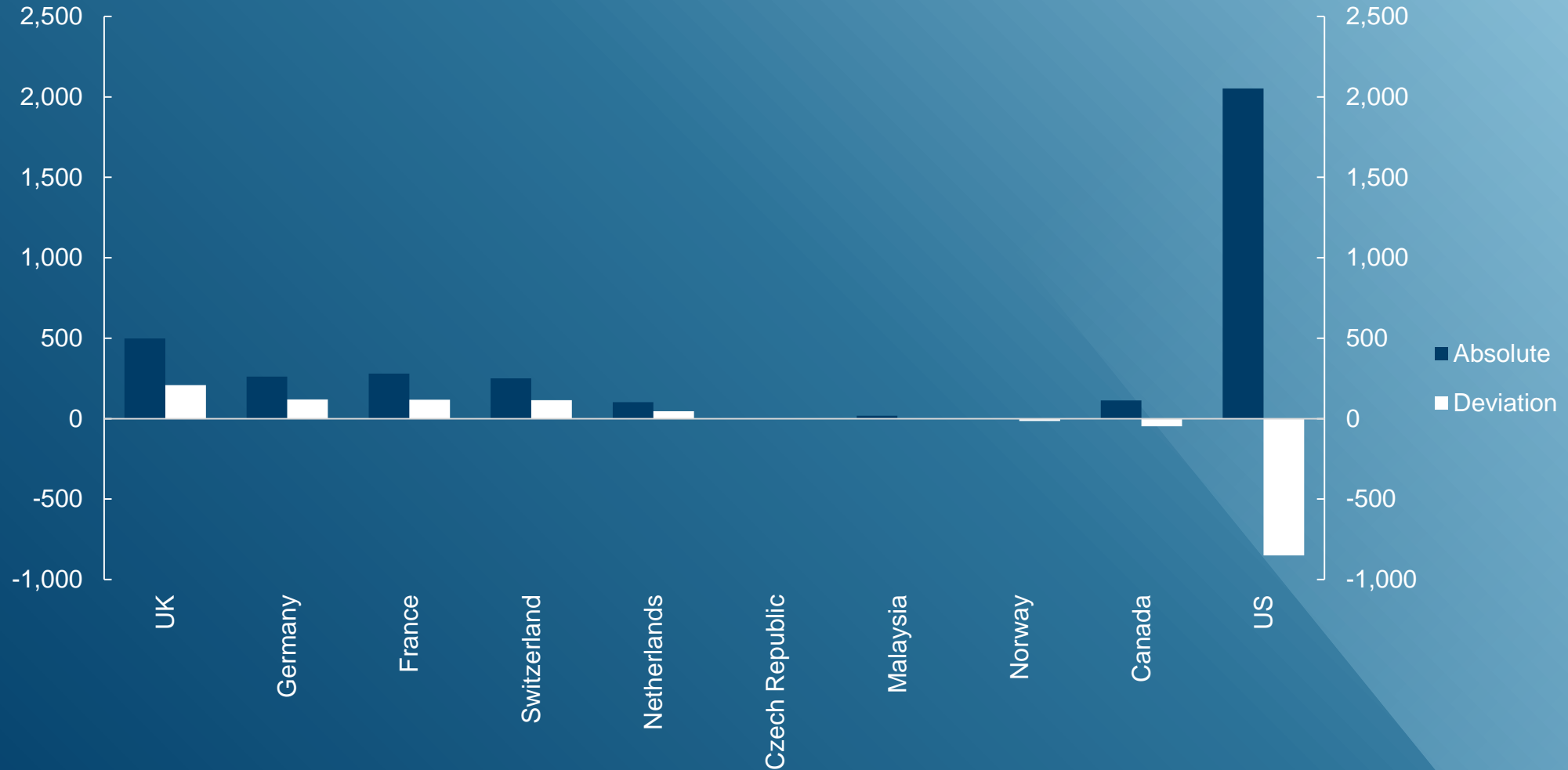
Management of the fund

Investments



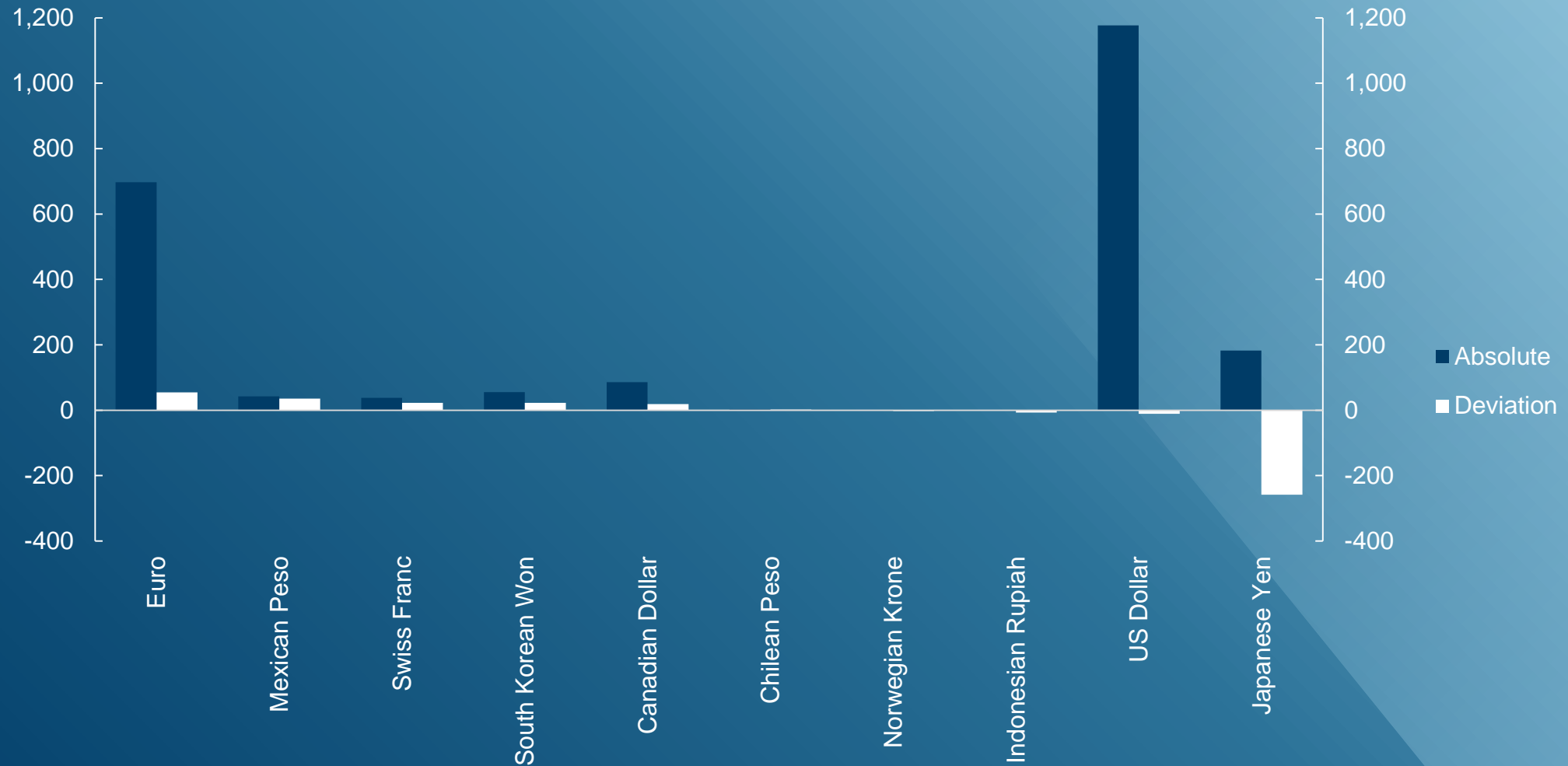
Equity benchmark vs FTSE Global All Cap index

Investments. Table 8. By country. Billions of kroner



Fixed-income benchmark vs the BBGA index

Investments. Table 10. By currency. Billions of kroner



Reference portfolio adjustments - equities

Investments. Charts 5 and 7. Percent of fund

Adjustments due to universe expansion in the reference portfolio for equities.
Over-weighted stocks



Adjustments due to systematic factors in the reference portfolio for equities.
Over-weighted stocks



Reference portfolio adjustments - fixed income

Investments. Charts 6 and 8. Percent of fund

Adjustments due to universe expansion in the reference portfolio for fixed income. Over-weighted bonds



Adjustments due to the fiscal strength factor in the reference portfolio for fixed income. Under-weighted bonds



Contribution to relative return in 2018

Investments. Table 14. Percentage points

| | Equity | Fixed income | Total |
|-------------------------------------------------------|--------------|--------------|--------------|
| Universe expansion | -0.04 | -0.09 | -0.13 |
| Systematic factors | -0.05 | | -0.05 |
| Mandate requirements | | 0.01 | 0.01 |
| Universe adjustments | -0.02 | -0.02 | -0.04 |
| Reference portfolio versus the reference index | -0.12 | -0.10 | -0.22 |

Contribution to relative return 2013-2018

Investments. Table 15. Annualised. Percentage points

| | Equity | Fixed income | Total |
|-------------------------------------------------------|--------------|--------------|--------------|
| Universe expansion | -0.01 | -0.06 | -0.07 |
| Systematic factors | 0.01 | | 0.01 |
| Mandate requirements | 0.01 | -0.01 | 0.00 |
| Universe adjustments | -0.02 | -0.02 | -0.05 |
| Reference portfolio versus the reference index | -0.01 | -0.09 | -0.11 |

Return



Absolute return - key figures

Return. Table 18. Annualised. Percent

| | Since 01.01.1998 | Last 10 years | Last 5 years | 2018 |
|---------------------------------------------------------|---------------------|------------------|-----------------|-------|
| Return on equity investments ¹ | 5.31 | 10.54 | 5.66 | -9.49 |
| Return on fixed-income investments | 4.56 | 4.52 | 3.05 | 0.56 |
| Return on unlisted real estate investments ² | - | - | 7.19 | 7.53 |
| Return on fund | 5.47 | 8.33 | 4.75 | -6.12 |

¹ Since 01.01.1999.

² Includes listed real estate investments from 1 November 2014 to the end of 2016.

Absolute return - 5-year buckets

Return. Table 19. Annualised. Percent

| | 1998-2002 | 2003-2007 | 2008-2012 | 2013-2017 |
|---------------------------------------------------------|-----------|-----------|-----------|-----------|
| Return on equity investments ¹ | -4.85 | 16.28 | -0.59 | 12.94 |
| Return on fixed-income investments | 6.26 | 4.00 | 5.87 | 2.96 |
| Return on unlisted real estate investments ² | - | - | - | 8.03 |
| Return on fund | 3.19 | 8.92 | 3.14 | 9.26 |

¹ Since 01.01.1999.

² Includes listed real estate investments from 1 November 2014 to the end of 2016.

Contributions to relative return 2018

Return. Table 32. Percentage points

| | Equity management | Fixed-income management | Real estate management | Allocation | Total |
|-----------------------------|-------------------|-------------------------|------------------------|--------------|--------------|
| Fund allocation | -0.32 | -0.10 | 0.19 | -0.01 | -0.24 |
| Reference portfolio | -0.12 | -0.10 | | | -0.22 |
| of which systematic factors | -0.05 | | | | -0.05 |
| Allocations | -0.20 | -0.01 | 0.00 | -0.01 | -0.21 |
| Real estate | | | 0.19 | | 0.19 |
| Unlisted real estate | | | 0.24 | | 0.24 |
| Listed real estate | | | -0.05 | | -0.05 |
| Security selection | -0.10 | 0.06 | | | -0.04 |
| Internal security selection | -0.14 | 0.06 | | | -0.09 |
| External security selection | 0.05 | | | | 0.05 |
| Asset management | -0.06 | 0.04 | | | -0.01 |
| Asset positioning | -0.02 | 0.02 | | | 0.01 |
| Systematic factors | -0.09 | 0.01 | | | -0.08 |
| Securities lending | 0.04 | 0.02 | | | 0.06 |
| Total | -0.47 | 0.00 | 0.19 | -0.01 | -0.30 |



Contributions to relative return 2013 - 2018

Return. Table 33. Annualised. Percentage points

| | Equity management | Fixed-income management | Real estate management | Allocation | Total |
|-----------------------------|-------------------|-------------------------|------------------------|-------------|-------------|
| Fund allocation | -0.07 | -0.10 | 0.04 | 0.02 | -0.10 |
| Reference portfolio | -0.01 | -0.09 | | 0.00 | -0.11 |
| of which systematic factors | 0.01 | | | | 0.01 |
| Allocations | -0.05 | 0.00 | 0.00 | 0.02 | -0.03 |
| Real estate | | | 0.04 | | 0.04 |
| Unlisted real estate | | | 0.05 | | 0.05 |
| Listed real estate | | | -0.01 | | -0.01 |
| Security selection | 0.10 | 0.01 | | | 0.10 |
| Internal security selection | 0.00 | 0.01 | | | 0.00 |
| External security selection | 0.10 | | | | 0.10 |
| Asset management | 0.10 | 0.08 | | 0.01 | 0.18 |
| Asset positioning | 0.06 | 0.07 | | 0.01 | 0.14 |
| Systematic factors | -0.02 | 0.00 | | | -0.02 |
| Securities lending | 0.05 | 0.01 | | | 0.06 |
| Total | 0.13 | -0.01 | 0.04 | 0.03 | 0.18 |



Relative return after management costs

Return. Table 36. Annualised. Basis points

| | 5 years | Since inception |
|----------------------------------------------------------|-----------|-----------------|
| The fund's relative return before management costs | 3 | 25 |
| The fund's management costs ¹ | -5 | -8 |
| The fund's relative return after management costs | -2 | 16 |

¹ The fund's management costs is excluding costs related to unlisted real estate prior to 2017.

Estimated relative return of a passive strategy

Return. Table 37. Annualised. Basis points

| | 5 years | Since inception |
|--------------------------------------------------------------------------|----------|-----------------|
| Management costs of a passive strategy | -3 | -5 |
| Revenues from securities lending | 6 | 6 |
| Transaction costs related to replication of the benchmark index | -2 | -4 |
| Transaction costs related to inflows and extraordinary benchmark changes | -1 | -5 |
| Estimated relative return of a passive strategy | 0 | -7 |

Estimated relative return difference

Return. Table 38. Annualised. Basis points

| | 5 years | Since inception |
|---------------------------------------------------|-----------|-----------------|
| The fund's relative return after management costs | -2 | 16 |
| Estimated relative return of a passive strategy | 0 | -7 |
| Estimated relative return difference | -2 | 23 |

Risk



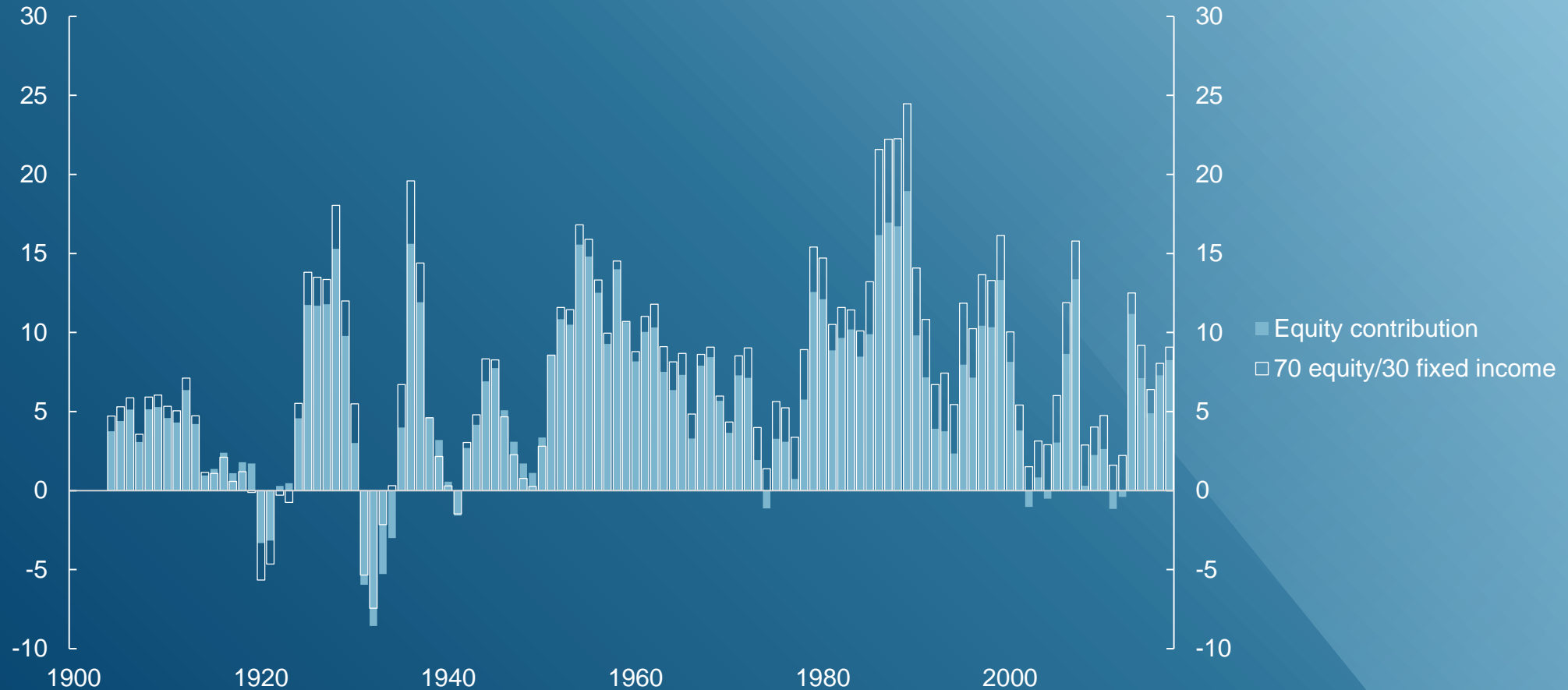
Equity exposure

Risk. Chart 21. Percent



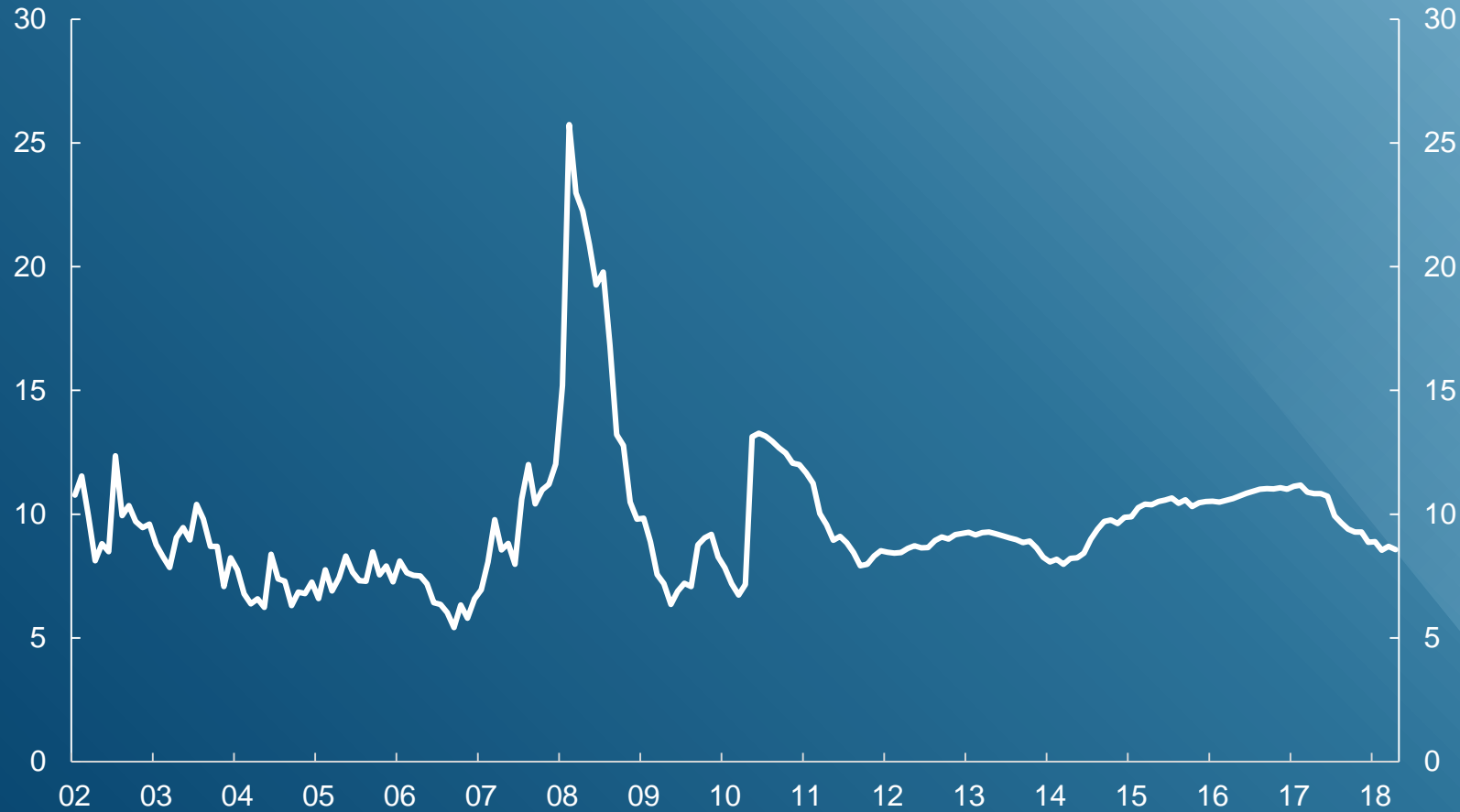
Rolling return of 70 equity/30 fixed income

Risk. Chart 19. 5-year rolling return. Annualised. Measured in dollars. Percent



The fund's expected absolute volatility

Risk. Chart 29. Percent



Source: Norges Bank Investment Management

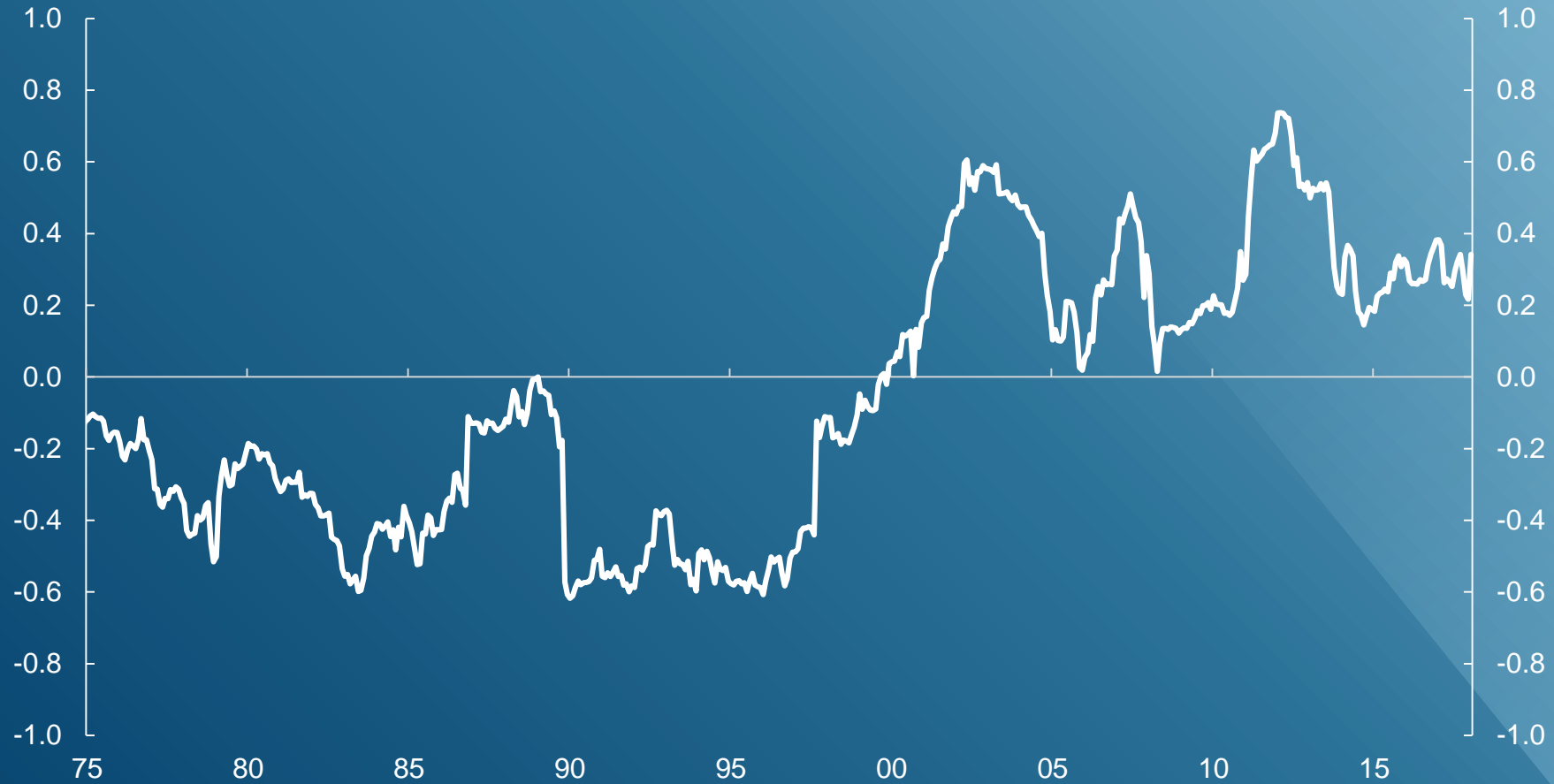
Expected relative volatility

Risk. Table 41. All numbers measured at fund level. Basis points

| | Equity management | Fixed-income management | Real estate management | Allocation | Total |
|-----------------------------|-------------------|-------------------------|------------------------|------------|-----------|
| Fund allocation | 11 | 9 | 26 | 5 | 30 |
| Reference portfolio | 9 | 9 | | | 12 |
| of which systematic factors | 7 | | | | 7 |
| Allocations | 5 | 3 | 0 | 5 | 8 |
| Real estate | | | 26 | | 26 |
| Unlisted real estate | | | 19 | | 19 |
| Listed real estate | | | 9 | | 9 |
| Security selection | 12 | 2 | | | 12 |
| Internal security selection | 10 | 2 | | | 10 |
| External security selection | 5 | | | | 5 |
| Asset management | 6 | 2 | | | 7 |
| Asset positioning | 5 | 2 | | | 7 |
| Systematic factors | 3 | | | | 3 |
| Total | 20 | 9 | 26 | 5 | 33 |

36-month correlation

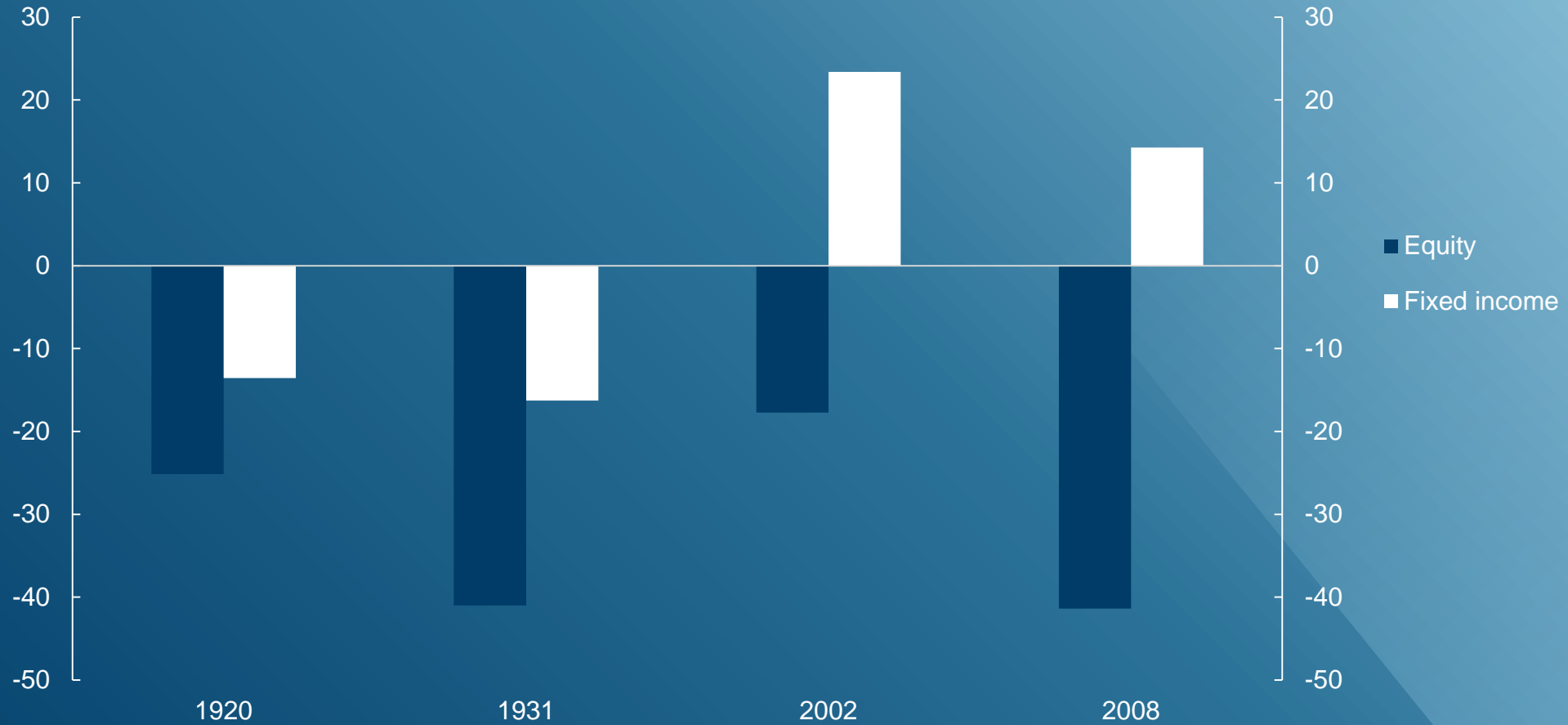
Risk. Chart 25. 10-year US yield changes vs. S&P 500 price returns



Source: Bloomberg

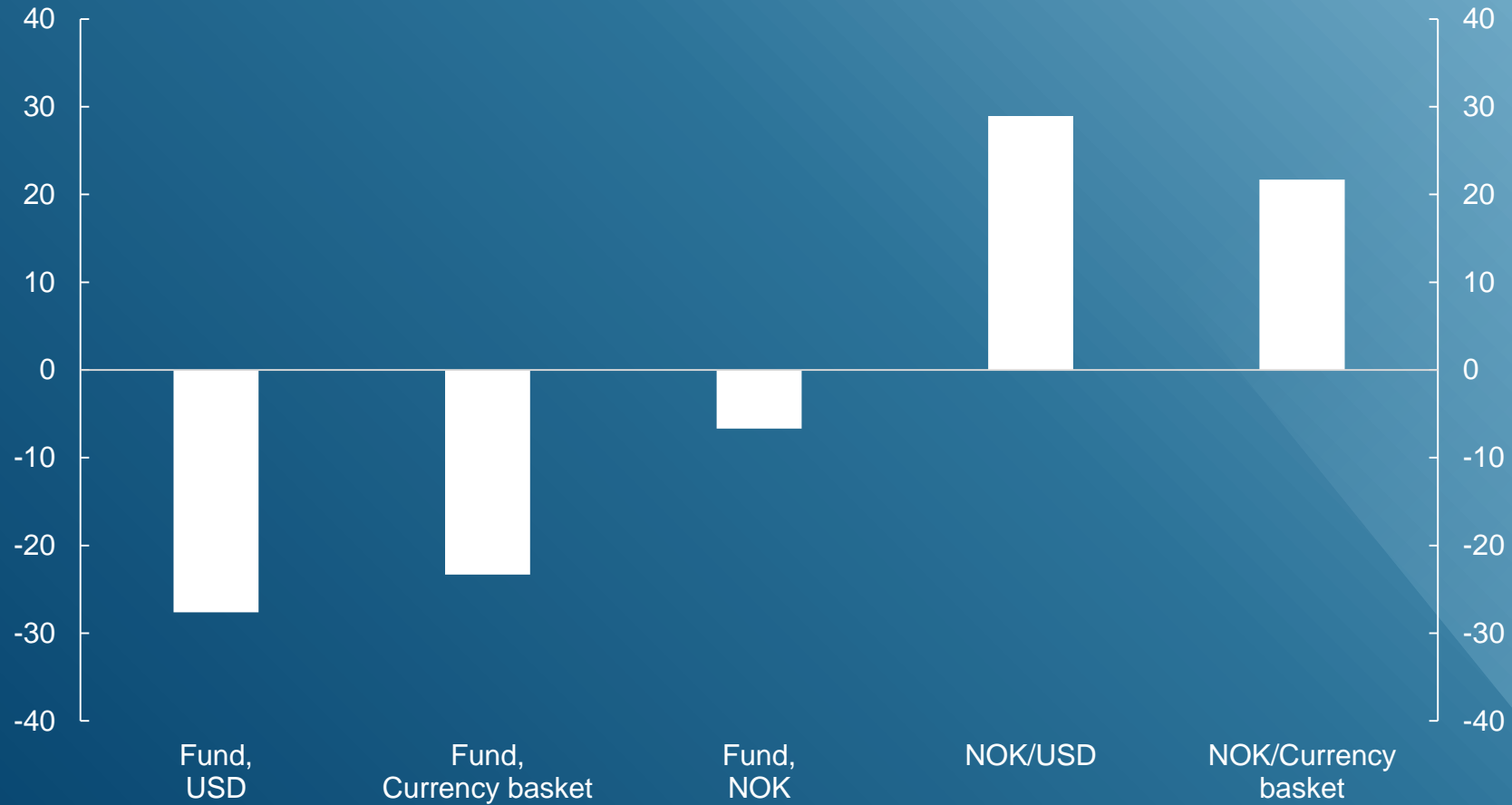
Recent and past stressed years

Risk. Chart 22. Asset class returns. Measured in dollars. Percent



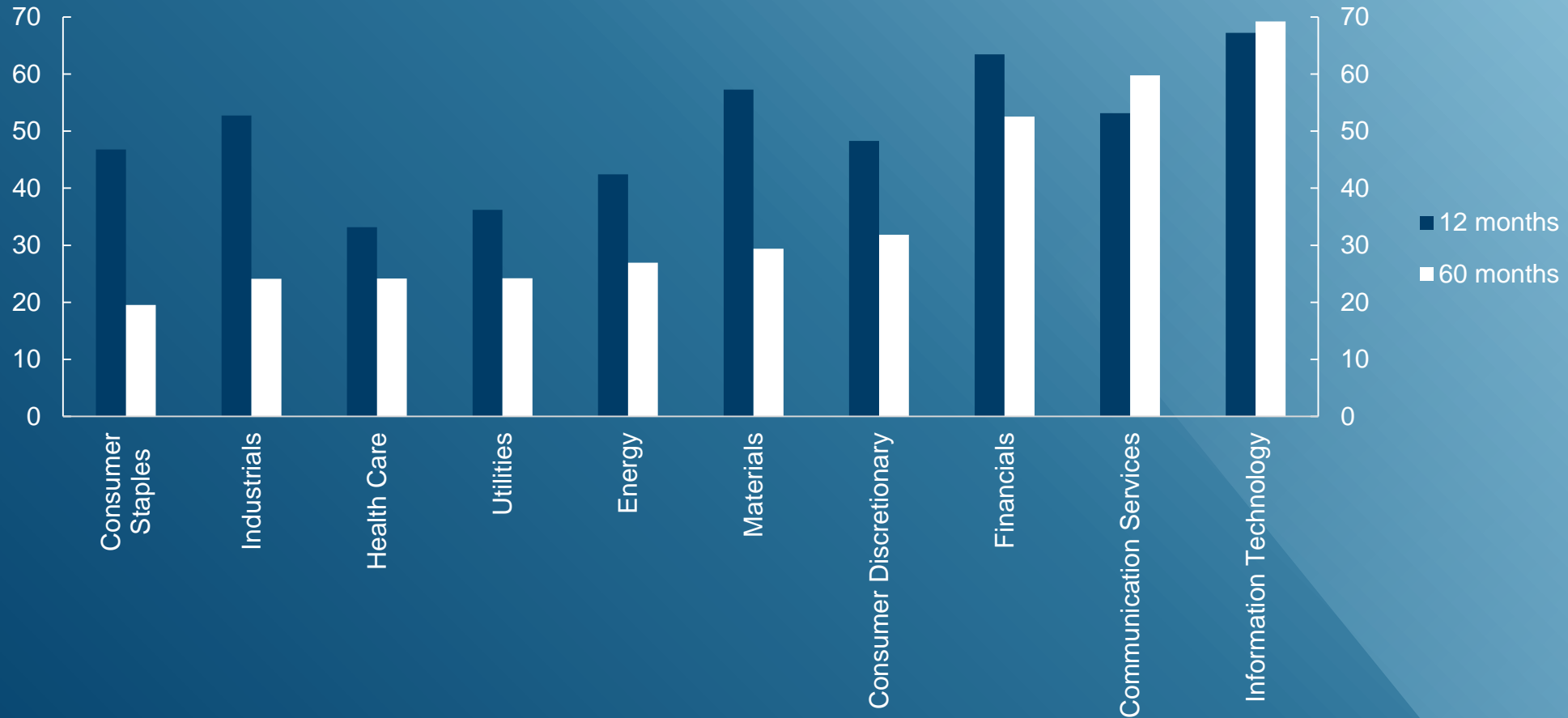
Fund performance in 2008

Risk. Chart 23. Percent



MSCI World industry worst losses

Risk. Chart 28. 12-month and 60-month rolling basis.1970:1 – 2018:12. Percent



Source: MSCI

Regression analysis of relative return

Risk. Table 53. Equity mgt. Measured in dollars. Before management costs

| Sample period | Intercept, bps annualised | Regression coefficients | | | | | Variance explained in percent (R squared) |
|------------------|---------------------------|-------------------------|----------------------|--------------------------|----------------------------------|---------------------------------------------|-------------------------------------------|
| | | Market (MKT) | Small vs Large (SMB) | Cheap vs Expensive (HML) | Profitable vs unprofitable (RMW) | Conservative vs Aggressive Investment (CMA) | |
| Since 01.01.1999 | 32 | 0.02 | 0.05 | -0.01 | 0.01 | -0.02 | 45 |
| Last 10 years | 24 | 0.01 | 0.03 | 0.00 | -0.02 | -0.02 | 39 |
| Last 5 years | -1 | 0.01 | 0.03 | 0.02 | 0.00 | -0.04 | 36 |



Source: Norges Bank Investment Management, Kenneth French. Bold indicates significance at 5 percent confidence level.

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