Appendix: Tables and charts

Table 1 presents the real estate sector's share of the fund's benchmark index for equity investments, the FTSE All Cap and selected regions on 25 January 2013. When calculating the share of the fund's benchmark index, we have applied the country factors set out in the mandate for the management of the fund.

Table 1: Real estate stocks in the FTSE All Cap, selected regions and the fund's benchmark index for equity investments

	Referanseindeks SPU	FTSE All-Cap	Asia	Fremvoksende markeder	Europa, Midtøsten og Afrika	Nord-Amerika
Real Estate	**3.5 %**	**3.7 %**	**8.0 %**	**3.1 %**	**1.8 %**	**3.6 %**
Real Estate Investment & Services	**1.5 %**	**1.4 %**	**5.4 %**	**3.1 %**	**0.7 %**	**0.2 %**
Real Estate Holding & Development	1.4 %	1.3 %	5.3 %	3.0 %	0.7 %	0.1 %
Real Estate Services	0.1 %	0.1 %	0.2 %	0.1 %	0.0 %	0.1 %
Real Estate Investment Trusts	**2.0 %**	**2.4 %**	**2.6 %**	**0.1 %**	**1.0 %**	**3.4 %**
Diversified	0.1 %	0.1 %	0.3 %		0.0 %	0.1 %
Hotel & Lodging	0.1 %	0.1 %	0.0 %			0.2 %
Industrial & Office	0.5 %	0.5 %	0.5 %	0.0 %	0.4 %	0.7 %
Mortgage	0.1 %	0.1 %				0.3 %
Residential	0.2 %	0.3 %	0.3 %	0.0 %		0.5 %
Retail	0.7 %	0.8 %	1.4 %	0.0 %	0.6 %	0.8 %
Specialty	0.3 %	0.5 %	0.0 %		0.0 %	0.9 %

Source: FTSE

Table 2 presents the real estate sector's share of the benchmark index in selected countries. The table shows the composition of the country indices as calculated by FTSE without applying any special factors. As can be seen, Japanese REITs are not part of the FTSE All Cap. FTSE states that this is because trading restrictions prevent some tracker funds from holding these stocks.
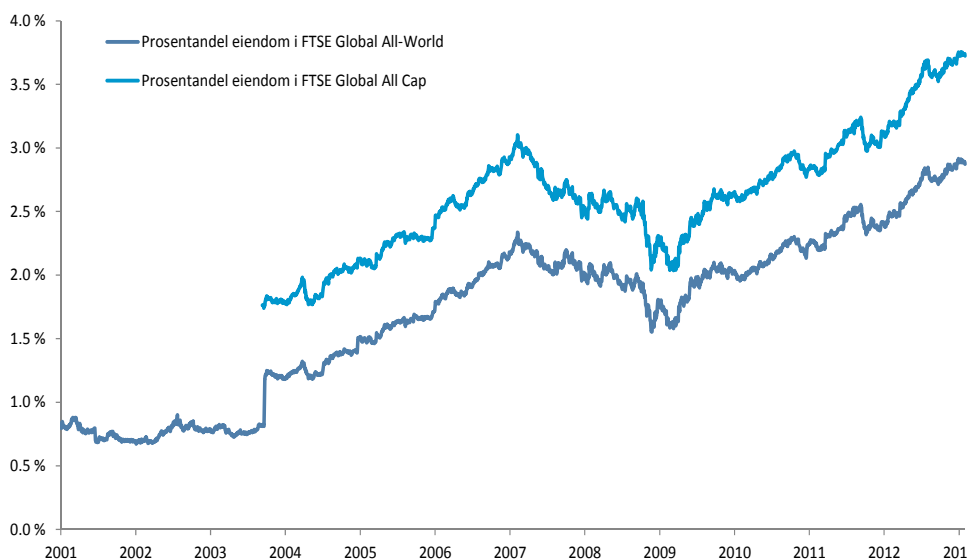
Table 2: Real estate stocks in selected country indices

	Australia	Hong Kong	Japan	Frankrike	Tyskland	Storbritannia	Canada	US
Real Estate	**8.1 %**	**27.0 %**	**3.1 %**	**2.8 %**	**0.7 %**	**1.8 %**	**3.3 %**	**3.6 %**
Real Estate Investment & Services	**0.6 %**	**24.8 %**	**3.1 %**	**0.1 %**	**0.6 %**	**0.3 %**	**0.6 %**	**0.2 %**
Real Estate Holding & Development	0.1 %	24.8 %	3.0 %	0.1 %	0.6 %	0.3 %	0.6 %	0.1 %
Real Estate Services	0.6 %	0.0 %	0.0 %		0.1 %	0.0 %	0.1 %	0.1 %
Real Estate Investment Trusts	**7.4 %**	**2.1 %**		**2.7 %**	**0.1 %**	**1.4 %**	**2.7 %**	**3.5 %**
Diversified	1.2 %					0.0 %	0.4 %	0.1 %
Hotel & Lodging							0.0 %	0.2 %
Industrial & Office	0.4 %	0.3 %		0.6 %	0.1 %	0.7 %	0.8 %	0.7 %
Mortgage								0.3 %
Residential	1.2 %						0.5 %	0.5 %
Retail	4.5 %	1.9 %		2.1 %		0.7 %	1.0 %	0.8 %
Specialty	0.1 %					0.0 %		1.0 %

Source: FTSE

Chart 1 presents the percentage of real estate stocks in the benchmark index over time. The chart shows real estate stocks' share of both the FTSE All-World and FTSE All Cap. As can be seen, listed real estate stocks account for a larger share of the index that includes small- and mid-cap stocks (FTSE All Cap).

Chart 1: Real estate stocks in the benchmark index

Legend:
- Prosentandel eiendom i FTSE Global All-World
- Prosentandel eiendom i FTSE Global All Cap

Source: FTSE FactSet, NBIM

Table 3 presents the results of NBIM's factor analysis. Model 1 shows the relationship between the real estate index and the broad market, while model 2 also includes the size factor, and model 3 includes the value factor as well as the market and the size factor. The table has been calculated on the basis of NBIM's global factor model and uses daily return data for the period from mid-2002 to the end of 2012.

**Table 3:** Factor analysis of FTSE World Real Estate, June 2002-2012

	Modell 1		Modell 2		Modell 3	
Intercept	0.02 (0.02)		-0.07 (0.02)	***	-0.06 (0.02)	***
Marked	0.94 (0.01)	***	1.00 (0.01)	***	0.92 (0.02)	***
Størrelse			0.24 (0.02)	***	0.21 (0.02)	***
Verdi					0.08 (0.01)	***
R^2	0.6		0.64		0.64	
Adj. R^2	0.6		0.64		0.64	
Num. obs.	2644		2582		2563	

* Signifikant på 5%, ** signifikant på 1%, *** signifikant på 0.1%

Source: FTSE, NBIM

Chart 2 presents global real estate stocks' exposure to the market, the size factor and the value factor over time. The values on the X-axis are the beta loadings for the respective return series. A positive value is an indication of a positive relationship between the return and the factor in question. The shaded area represents the 95 percent confidence interval around the estimated beta loadings.

Chart 2: Factor analysis of FTSE Real Estate (NBIM factor return), 250-day rolling
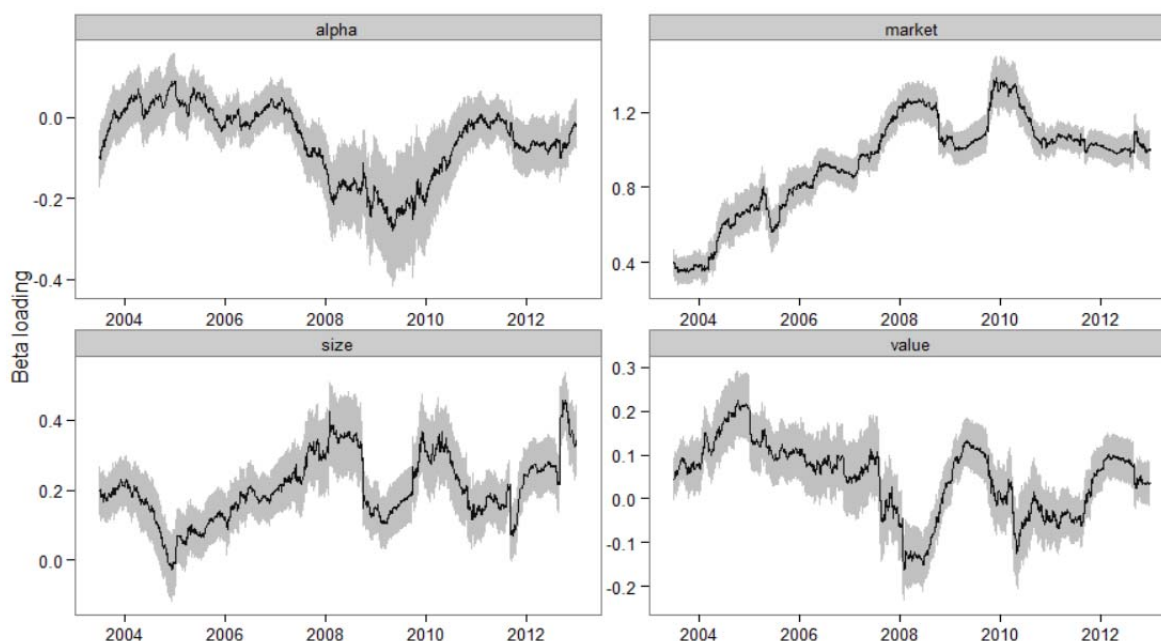
Source: FTSE, NBIM

Table 4 presents the results of a factor analysis similar to that in Table 3 for US REITs. Model 1 shows the relationship between REITs and the broad market, while model 2 also includes the size factor, and model 3 includes the market, the size factor and the value factor. The table has been calculated on the basis of data from FTSE and Kenneth French's website and uses daily return data for the period from mid-2002 to the end of 2012.[i]

Table 4: Factor analysis of NAREIT (2002-2012)

|	Modell 1	Modell 2	Modell 3
Intercept	0.04 (0.03)	0.03 (0.02)	0.01 (0.02)
Marked	1.15 (0.02) ***	1.12 (0.02) ***	1.05 (0.02) ***
Størrelse		0.49 (0.04) ***	0.58 (0.04) ***
Verdi			1.14 (0.04) ***
R^2	0.55	0.57	0.68
Adj. R^2	0.55	0.57	0.68
Num. obs.	3017	3017	3017

* Signifikant på 5%, ** signifikant på 1%, *** signifikant på 0.1%

Source: FTSE, Kenneth French's website

Chart 3 presents US REITs' exposure to the market, the size factor and the value factor over time. The values on the X-axis are the beta loadings for the respective return series.

A positive value is an indication of a positive relationship between the return and the factor in question. The shaded area represents the 95 percent confidence interval around the estimated beta loadings.

Chart 3: Factor analysis of US REITs (Fama-French factors), 250-day rolling
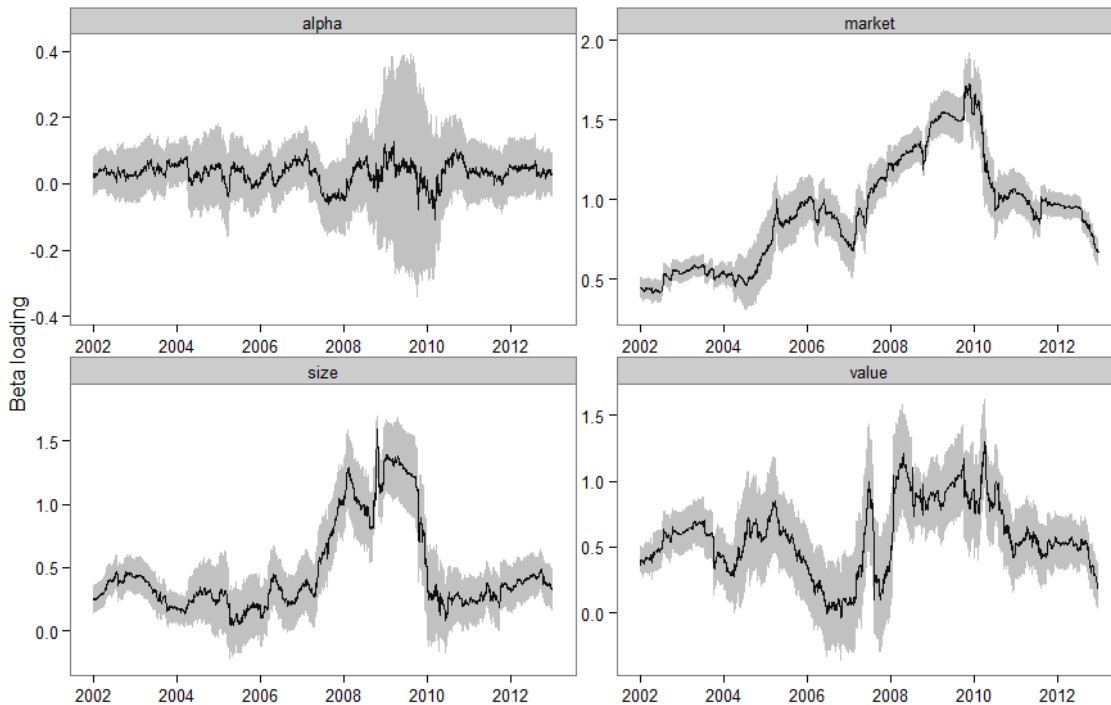
Source: FTSE, Kenneth French's website

Tables 5 and 6 present various measures of risk and average annual return. For the first part of the period in Table 6, we have used data from the FTSE All-World in the same way as in the other calculations. The real estate sector does not differ from the broad market in a way that is systematically different to other sectors.

Table 5: Risk and return characteristics of FTSE sectors, 1994-2013

|	Gjennomsnittlig avkastning	Standardavvik	Avkastning / standardavvik	Korrelasjon m/ marked	Markedsbeta	Maksimalt tap
Marked	8.0 %	15.7 %	0.5	1.0	1.0	-58.4 %
Eiendom	6.2 %	19.3 %	0.3	0.7	0.8	-71.0 %
Materialer	9.1 %	19.9 %	0.5	0.9	1.1	-69.1 %
Konsumvarer	8.0 %	15.5 %	0.5	0.8	0.8	-49.2 %
Konsumtjenester	6.8 %	15.4 %	0.4	0.9	0.9	-53.7 %
Finans	7.1 %	19.7 %	0.4	0.9	1.2	-73.8 %
Helse	9.9 %	13.4 %	0.7	0.8	0.7	-38.7 %
Industri	9.0 %	17.1 %	0.5	0.9	1.0	-63.2 %
Olje og gass	12.0 %	20.8 %	0.6	0.8	1.0	-58.3 %
Teknologi	10.6 %	24.6 %	0.4	0.8	1.2	-83.2 %
Telekom.	7.4 %	16.3 %	0.5	0.9	0.9	-73.0 %
Forsyning	6.9 %	13.6 %	0.5	0.8	0.7	-48.5 %

Source: FTSE, NBIM

Table 6: Risk and return characteristics of FTSE sectors, 2003-2013

	Gjennomsnittlig avkastning	Standardavvik	Avkastning / standardavvik	Korrelasjon m/ marked	Markedsbeta	Maksimalt tap
Marked	9.0 %	17.5 %	0.5	1.0	1.0	-58.4 %
Eiendom	11.7 %	20.3 %	0.6	0.9	1.0	-71.0 %
Materialer	14.1 %	24.5 %	0.6	0.9	1.3	-69.1 %
Konsumvarer	10.9 %	14.5 %	0.7	0.9	0.8	-49.2 %
Konsumtjenester	8.8 %	15.9 %	0.6	0.9	0.9	-53.7 %
Finans	6.7 %	22.4 %	0.3	0.9	1.2	-73.8 %
Helse	8.9 %	13.7 %	0.6	0.9	0.7	-38.7 %
Industri	10.1 %	18.8 %	0.5	1.0	1.0	-63.2 %
Olje og gass	14.4 %	24.8 %	0.6	0.9	1.3	-58.3 %
Teknologi	7.3 %	19.4 %	0.4	0.9	1.0	-56.5 %
Telekom.	9.5 %	16.1 %	0.6	0.9	0.8	-51.1 %
Forsyning	10.0 %	15.6 %	0.6	0.9	0.8	-48.5 %

Source: FTSE, NBIM

Chart 4 compares the risk and return profile of all FTSE sectors in the period 1993-2003 with that for 2003-2013. Had the profiles been stable over time, the observations would have been concentrated around the 45 degree diagonal. The chart shows that the relationship between return and risk is not stable over time and is critically dependent on the period covered by the analysis.
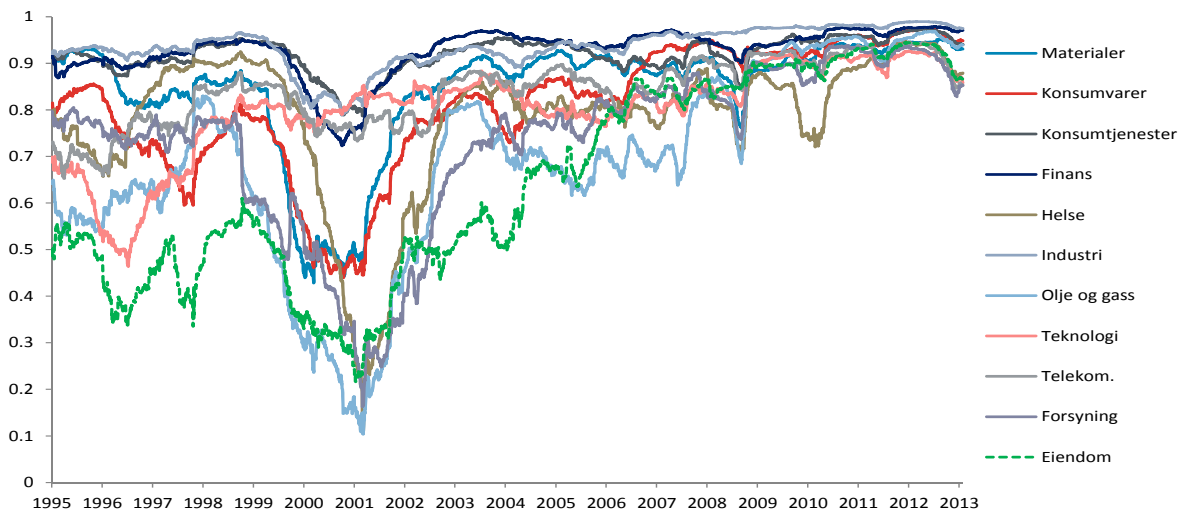
Chart 4: Return/risk for FTSE sectors over time
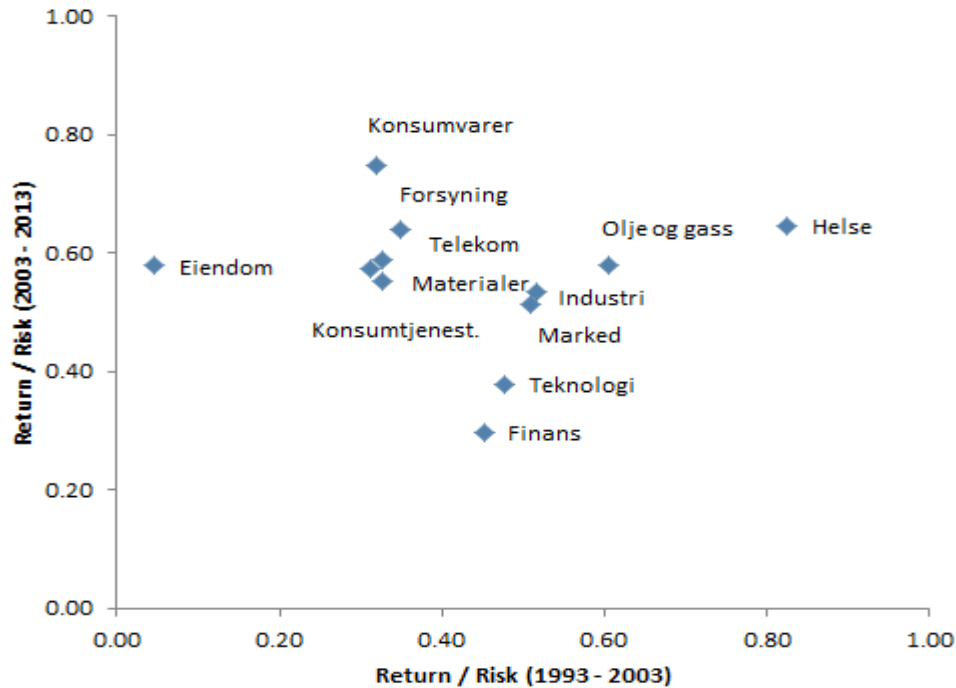
Source: FTSE, NBIM

Chart 5 presents the degree of covariance between the return on different sectors and the broad stock market over time. The chart shows that the differences between sectors have decreased over time.

Chart 5: Correlation between FTSE and sector indices, one-year rolling
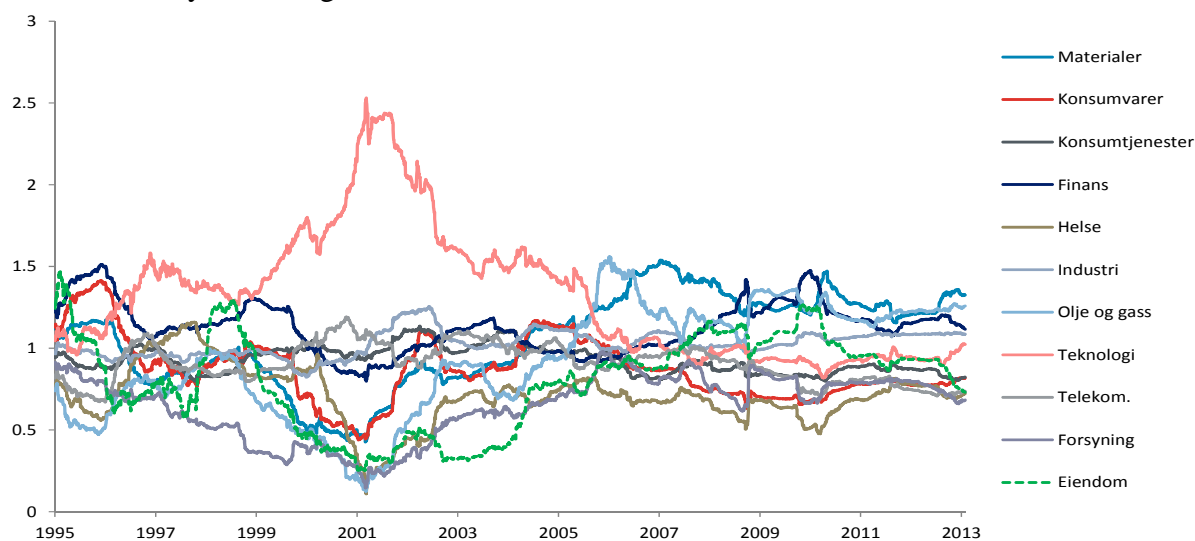

Source: FTSE, NBIM

Chart 6 presents the market beta at sector level over time. The sector betas have been calculated using a regression between the sector return and the return on a broad stock

index. The broad stock index was constructed from daily return data for the FTSE All-World from 1994 to 2003 and then daily return data for the FTSE All Cap.

Chart 6: One-year rolling market beta for various FTSE sectors

Source: FTSE, NBIM

Table 7 presents various key financial ratios for companies in the FTSE All Cap. The calculations are based on the latest available accounting data. The ratios at sector level have been calculated for both an equally weighted portfolio (EW) and a market-weighted

portfolio (MW). Invested capital has been calculated as the sum of the market value of equity and the book value of liabilities adjusted for cash and intangible assets.

Equity accounts for a small share of the balance sheet in the banking sector compared to other sectors. This high level of debt reflects the role of banks as an intermediary between savers and borrowers. We have therefore chosen to exclude the financial sector from this table.

Table 7: Key financial ratios for companies in the FTSE All Cap

	Price to book		Dividend yield		Debt / equity		Debt / invested capital	
	EW	MW	EW	MW	EW	MW	EW	MW
Materialer	1,7	2,2	2,5 %	2,5 %	71,1 %	30,0 %	28,1 %	18,1 %
Konsumvarer	2,5	3,0	2,3 %	2,2 %	55,6 %	28,3 %	24,0 %	17,4 %
Konsumtjenester	2,9	4,0	2,4 %	1,9 %	58,6 %	30,5 %	25,2 %	17,8 %
Eiendom	1,9	2,9	4,0 %	3,5 %	113,7 %	82,7 %	40,4 %	35,6 %
Eiendom (Investment & Services)	1,8	2,0	2,7 %	2,1 %	116,5 %	75,5 %	40,2 %	35,0 %
REITs	2,1	3,4	5,3 %	4,4 %	110,6 %	87,0 %	40,7 %	36,0 %
Helse	4,3	3,2	1,7 %	2,2 %	24,2 %	12,6 %	14,7 %	8,8 %
Industri	1,9	2,2	2,6 %	2,3 %	72,1 %	35,9 %	28,4 %	19,0 %
Olje og gass	2,0	1,7	2,2 %	2,8 %	71,0 %	25,1 %	29,3 %	16,4 %
Teknologi	2,7	3,1	2,1 %	1,3 %	31,5 %	9,1 %	15,4 %	6,3 %
Telekom.	5,2	3,0	7,2 %	5,3 %	88,5 %	50,8 %	35,2 %	25,9 %
Forsyning	1,6	1,6	4,2 %	4,7 %	138,5 %	96,0 %	47,0 %	40,8 %
FTSE Global All Cap (ex. finans)	**2,4**	**2,7**	**2,6 %**	**2,5 %**	**67,6 %**	**32,3 %**	**27,2 %**	**17,8 %**

Source: FactSet

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[i] French forms his factor portfolios by ranking all NYSE, AMEX and Nasdaq stocks by size and book-to-market ratio (B/M). The value factor is then constructed as the average return on a portfolio that buys (sells) value stocks (growth stocks) from among small companies, and a corresponding portfolio of large companies. Similarly, the size factor is constructed as the average return on three portfolios that buy (sell) small (large) companies from among stocks classified as underpriced, neutral and overpriced respectively. This double-sorting is used to control for small companies in the value factor and value stocks in the size factor. This method still results in a higher representation of small companies in the value factor compared to our internal factor model.

References

Chiang, K. and M. Lee (2002). "REITs in the decentralized investment industry", *Journal of Property Investment and Finance*, 20, 496-512.

Clayton, J. and G. MacKinnon (2001). "The time-varying nature of the link between REIT, real estate, and financial asset returns", Journal of Real Estate Portfolio Management, 7(1), 43-54.

Liu, C. and J. Mei (1992). "The predictability of returns on equity REITs and their co-movement with other assets", *Journal of Real Estate Finance and Economics,* 5, 401-418.