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1.0 Litteratormatrise

Tittel og forfatter	Fokus	Tilnærming	Resultater
The dark side of valuation, Damodaran	Verdsettelse teori	Notere ned hovedpunktene	Økt kjennskap til verdsettelse
Oversikt over ulike verdsettelsesmodeller, Dahl	Verdsettelse teori	Notere ned hovedpunktene	Verdsettelsesmodeller
Aktiv bruk av regnskapet, Eklund og Knutsen	Regnskapsteori	Få et overblikk over regnskapsteori	Oppfriskning av regnskapsregler
How competitive forces shape strategy, Porter	Strategiteori	Lage et sammendrag av de ulike strategi verktøyene	Ferdig med grundig sammendrag om Porter's fem krefter
Finansiell økonomi: teori og praksis, Bøhren og Michalsen	Finansteori	Notere ned hovedpunktene	Realopsjoner
Moderne Forretningsjus II, Dyrnes	Verdibegrepet	Få en oversikt over kapitlet til Dyrnes	Verdibegrepet
Valuation, Koller et al.	Verdsettelse, behandling av regnskap	Lese relevante kap.	Modeller, teori om lønnsomhet etc.
Financial statement analysis, Petersen et al.	Regnskapsanalyse og verdsettelsesmodeller	Se på analyseverktøy	Lønnsomhetsanalyser, verdsettelsesmodeller o.l.

3.0 Historisk selskapsdata

3.1 Resultatregnskapet presentert fra årsrapportene

XXL income statement (NOKm)							
	2013	2014	2015	2016	2017	2018	2019
Revenues	4.010	5.215	6.487	7.813	8.709	9.475	8.992
Direct cost of goods sold	-2.399	-3.083	-3.908	-4.694	-5.265	-5.938	-5.549
Gross profit	1.611	2.132	2.579	3.119	3.444	3.537	3.443
Personell expenses	-606	-799	-991	-1.240	-1.416	-1.615	-1.652
Other operating expenses	-544	-732	-863	-1.055	-1.201	-1.380	-1.448
Leasing and other cost of premises	269	325	405	491	572	663	
Marketing expenses	209	277	341	419	467	528	
Other operating expenses	67	131	118	145	162	188	
EBITDA	461	601	725	824	827	542	343
Depreciation	-53	-72	-82	-109	-134	-160	-199
Amortization	-5	-7	-10	-18	-24	-28	
Extraordinary writedown of inventory	0	0	0	0	0	0	-385
EBIT	403	522	633	697	669	354	-241
Total financial income	42	101					
Total financial expense	-267	-283					
Net financial income/expenses	-225	-182	-28	-55	-42	-57	-88
Income before tax	178	340	605	642	627	297	-329
Income tax expense	-51	-77	-179	-126	-114	-58	76
Net income	127	263	426	516	513	239	-253

3.2 Resultatregnskapet reorganisert og justert for leasing

XXL ASA income statement reformulated adjusted for leasing (NOKm)							
	2013	2014	2015	2016	2017	2018	2019
Revenues	4.010	5.215	6.487	7.813	8.709	9.475	8.992
Direct cost of goods sold	-2.399	-3.083	-3.908	-4.694	-5.265	-5.938	-5.549
Gross profit	1.611	2.132	2.579	3.119	3.444	3.537	3.443
Personell expenses	-606	-799	-991	-1.240	-1.416	-1.615	-1.652
Other operating expenses	-344	-493	-565	-691	-783	-908	-860
EBITDA	661	840	1.023	1.188	1.245	1.014	931
Depreciation and amortization	-223	-278	-335	-426	-502	-571	-1.077
EBIT	438	562	688	762	743	443	-146
Income tax expense	-51	-77	-179	-126	-114	-58	76
<i>Tax-shield from NFE</i>	<i>-75</i>	<i>-50</i>	<i>-25</i>	<i>-24</i>	<i>-21</i>	<i>-28</i>	<i>-42</i>
Operating tax expense	-126	-127	-204	-150	-135	-86	34
NOPAT	313	435	485	613	608	356	-112
Net financial income/expenses	-260	-222	-83	-120	-116	-146	-183
Tax-shield from NFE	75	50	25	24	21	28	42
Net income	127	263	426	516	513	239	-253

3.3 Balansregnskapet presentert fra årsrapportene

XXL balance sheet (NOKm)							
	2013	2014	2015	2016	2017	2018	2019
Trademarks	190	191	191	195	198	198	253
Proprietary software	15	20	24	47	43	41	
Software	9	10	10	10	12	12	
Deferred tax asset	0	0	0	0	6	0	130
Goodwill	2.734	2.734	2.734	2.734	2.734	2.734	2.744
Total Intangible Assets	2.948	2.955	2.959	2.986	2.993	2.985	3.127
Construction in progress	6	3	8	5	7	4	
Machinery and equipment	60	57	54	54	105	75	
Land and buildings	9	8	8	8	7	24	
Transport vehicles	1	1	1	1	1	1	
Fixtures and fittings	338	406	499	617	737	805	856
Total Property Plant and Equipment	414	475	570	685	857	909	856
Other investments	4	0	0	2	4	9	0
Total Financial Assets	4	0	0	2	4	9	0
Total Non-current Assets	3.366	3.430	3.529	3.673	3.854	3.903	3.983
Inventories	1.073	1.397	1.928	2.610	3.152	3.211	2.843
Trade receivables	152	93	78	186	180	258	260
Other receivables	74	192	217	91	195	96	
Cash and cash equivalents	170	222	87	115	314	194	433
Total Current Assets	1.469	1.904	2.310	3.002	3.841	3.759	3.536
Total Assets	4.835	5.334	5.839	6.675	7.695	7.662	7.519
Share capital	109	55	48	55	55	56	66
Share premium	986	2.834	2.834	2.817	2.806	2.697	3.264
Other paid in equity	0	0	4	14	23	37	29
Retained earnings	78	330	480	722	961	920	497
Total Shareholders' Equity	1.173	3.219	3.366	3.608	3.845	3.710	3.856
Deferred tax liability	41	52	61	51	42	41	42
Non-current interest bearing debt	2.707	1.097	1.116	1.051	1.089	1.081	767
Total Non-current Liabilities	2.748	1.149	1.177	1.102	1.131	1.122	809
Accounts payable	415	455	578	639	842	861	980
Current interest bearing debt	143	6	8	563	916	994	889
Tax payable	48	75	193	123	143	53	40
Public duties payable	120	185	228	255	326	385	385
Other current liabilities	188	245	289	383	491	538	405
Total Current Liabilities	914	966	1.296	1.963	2.718	2.831	2.699
Total liabilities	3.662	2.115	2.473	3.065	3.849	3.953	3.508
Total Equity and Liabilities	4.835	5.334	5.839	6.673	7.694	7.663	7.364

3.4 Balanseregnskapet reorganisert og justert for leasing

XXL ASA balance sheet reformulated with leasing (NOKm)							
	2013	2014	2015	2016	2017	2018	2019
Intangible Assets	2.948	2.955	2.959	2.986	2.993	2.985	3.127
Property, Plant and Equipme	414	475	570	685	857	909	856
Right of Use Assets	1.299	1.619	1.978	2.271	2.564	3.195	2.828
Deferred tax liability	-41	-52	-61	-51	-42	-41	-42
<i>NONCA</i>	4.620	4.997	5.446	5.891	6.372	7.048	6.769
Inventories	1.073	1.397	1.928	2.610	3.152	3.211	2.843
Trade recievables	152	93	78	186	180	258	260
Other recievables	74	192	217	91	195	96	0
Accounts payable	-415	-455	-578	-639	-842	-861	-980
Tax payable	-48	-75	-193	-123	-143	-53	-40
Public duties payable	-120	-185	-228	-255	-326	-385	-385
Other current liabilities	-188	-245	-289	-383	-491	-538	-405
<i>NOWC</i>	528	722	935	1.487	1.725	1.728	1.293
NOA	5.148	5.719	6.381	7.378	8.097	8.776	8.062
Share capital	109	55	48	55	55	56	66
Share premium	986	2.834	2.834	2.817	2.806	2.697	3.264
Other paid in equity	0	0	4	14	23	37	29
Retained earnings	78	330	480	722	961	920	497
<i>Total Shareholders' Equity</i>	1.173	3.219	3.366	3.608	3.845	3.710	3.856
<i>Non-current Lease Liabilities</i>	1.058	1.319	1.611	1.850	2.089	2.603	2.428
<i>Current Lease Liabilities</i>	241	300	367	421	476	593	553
<i>Capitalized operating leases</i>	1.299	1.619	1.978	2.271	2.564	3.195	2.981
<i>Non-current interest bearing</i>	2.707	1.097	1.116	1.051	1.089	1.081	767
<i>Current interest bearing debt</i>	143	6	8	563	916	994	889
<i>Financial Assets</i>	-4	0	0	-2	-4	-9	0
<i>Cash and cash equivalents</i>	-170	-222	-87	-115	-314	-194	-433
<i>NIBD</i>	2.676	881	1.037	1.497	1.687	1.872	1.223
Total Equity + NIBD	5.148	5.719	6.381	7.376	8.096	8.777	8.060

3.5 Kontantstrøm justert for leasing

XXL Cash flow statement adjusted for leasing (NOKm)						
	2014	2015	2016	2017	2018	2019
NOPAT	435	485	613	608	356	-112
Depreciation	278	335	426	502	571	1.077
Change in NOWC	-194	-213	-552	-238	-3	435
Change in NONCA	-655	-783	-871	-983	-1.247	-798
FCFF	-137	-177	-385	-111	-323	602
Increase in NIBD less cash	-1.743	21	488	389	65	-410
NFE after tax	-172	-59	-97	-95	-117	-141
Increase in lease debt	321	359	293	293	631	-214
Free CF to Equity holders	-1.731	144	300	476	256	-163
Dividends	1.783	-279	-274	-276	-374	399
Cash surplus	52	-135	26	200	-118	236

3.6 Estimering av leasing

	2013	2014	2015	2016	2017	2018	2019
Asset life	6,5	6,5	6,5	6,5	6,5	6,5	6,5
Cost of debt	3,08%	3,08%	3,08%	3,08%	3,08%	3,08%	3,08%
Rental Expense	200	239	298	364	418	472	588
Value of operating leases	1.299	1.619	1.978	2.271	2.564	3.195	2.828
Estimated depreciation	165	199	243	299	344	383	493
Lease interest	35	40	55	65	74	89	95

3.7 Beregning av gjeldskostnaden til XXL

Gjeldskostnad	
2014	10,23%
2015	2,92%
2016	4,34%
2017	2,64%
2018	3,20%
2019	5,69%
Snitt	4,84%

3.8 Utbyttehistorikken til XXL

Nøkkeltall	2014	2015	2016	2017	2018	2019
Aksjepris i NOK (per 31.12)	72,09	101,42	97,44	84,51	25,95	16,75
Inntekt per aksje	0,96	3,05	3,71	3,66	1,73	-1,63
Utbytte per aksje	2,00	2,00	2,00	2,00	0,00	0,00
Payout ratio (PO)	208,07%	65,51%	53,93%	54,70%	0,00%	0,00%
Utbytte i % av aksjekurs	2,77%	1,97%	2,05%	2,37%	0,00%	0,00%

4.0 Kode fra R Studio

```
# Laste inn pakker brukt til kodene
library(ggplot2)
library(quantmod)
library(PerformanceAnalytics)
library(scales)
library(tseries)

# Laste ned aksjekurser
getSymbols('XXL.OL', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"),
src='yahoo', periodicity = 'monthly')
getSymbols('^OSEAX', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"),
src='yahoo', periodicity = 'monthly')
getSymbols('XXL.OL', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"),
src='yahoo', periodicity = 'daily')
getSymbols('DKS', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"), src='yahoo',
periodicity = 'daily')
getSymbols('HM-B.ST', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"),
src='yahoo', periodicity = 'daily')
getSymbols('HIBB', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"), src='yahoo',
periodicity = 'daily')
getSymbols('SPOR.ST', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"),
src='yahoo', periodicity = 'daily')
getSymbols('SPWH', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"), src='yahoo',
periodicity = 'daily')

# Sammenligne XXL og konkurrenter
A <- merge(XXL.OL$XXL.OL.Adjusted,
           DKS$DKS.Adjusted,
           HIBB$HIBB.Adjusted,
           `HM-B.ST`[,6],
           SPOR.ST$SPOR.ST.Adjusted,
           SPWH$SPWH.Adjusted)
```

```

A <- na.omit(A)
RA <- Return.calculate(A)
RA <- RA[(-1),]
names(RA) <- c("XXL", "DKS", "HIBB", "HM", "SPOR", "SPWH")
charts.PerformanceSummary(RA, main = "XXL vs konkurrenter", geometric = TRUE,
wealth.index = TRUE)
Korrelasjon <- cor(RA)
cor(RA)

```

```

E <- merge(XXL.OL$XXL.OL.Adjusted,
           OSEAX$OSEAX.Adjusted)
E <- na.omit(E)
RE <- Return.calculate(E, method = "log")
RE <- RE[(-1),]
names(RE) <- c("XXL", "OSEAX")
charts.PerformanceSummary(RE, main = "XXL vs OSEAX", geometric = TRUE,
wealth.index = TRUE)

```

```
# Betaer
```

```
# Daglig
```

```
getSymbols('XXL.OL', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"),
src='yahoo', periodicity = 'daily')
```

```
getSymbols('^OSEAX', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"),
src='yahoo', periodicity = 'daily')
```

```
BD <- merge(XXL.OL$XXL.OL.Adjusted,
           OSEAX$OSEAX.Adjusted)
```

```
BD <- na.omit(BD)
```

```
BDR <- Return.calculate(BD)
```

```
BDR <- BDR[(-1),]
```

```
names(BDR) <- c("XXL", "OSEAX")
```

```
# Siste 3M
```

```
n <- nrow(BDR)
```

```
s <- n - 3*30
```

```
B3M <- BDR[(s:n),]
Beta_daglig3M <- lm(B3M$XXL ~ B3M$OSEAX + 1)
summary(Beta_daglig3M)
```

```
# Siste 6M
n <- nrow(BDR)
s <- n - 6*30
B6M <- BDR[(s:n),]
Beta_daglig6M <- lm(B6M$XXL ~ B6M$OSEAX + 1)
summary(Beta_daglig6M)
```

```
# Siste år
n <- nrow(BDR)
s <- n - 249
B1 <- BDR[(s:n),]
Beta_daglig <- lm(B1$XXL ~ B1$OSEAX + 1)
summary(Beta_daglig)
```

```
# Ukentlig
getSymbols('XXL.OL', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"),
src='yahoo', periodicity = 'weekly')
getSymbols('^OSEAX', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"),
src='yahoo', periodicity = 'weekly')
BD <- merge(XXL.OL$XXL.OL.Adjusted,
           OSEAX$OSEAX.Adjusted)
BD <- na.omit(BD)
BDR <- Return.calculate(BD)
BDR <- BDR[(-1),]
names(BDR) <- c("XXL", "OSEAX")
# Siste år
n <- nrow(BDR)
s <- n - 52
Bu1Y <- BDR[(s:n),]
Beta_ukentlig1Y <- lm(Bu1Y$XXL ~ Bu1Y$OSEAX + 1)
```

```
summary(Beta_ukentlig1Y)
```

```
# Siste 2år
```

```
n <- nrow(BDR)
```

```
s <- n - 2*52
```

```
Bu2Y <- BDR[(s:n),]
```

```
Beta_ukentlig2Y <- lm(Bu2Y$XXL ~ Bu2Y$OSEAX + 1)
```

```
summary(Beta_ukentlig2Y)
```

```
# Siste 4år
```

```
n <- nrow(BDR)
```

```
s <- n - 4*52
```

```
Bu4Y <- BDR[(s:n),]
```

```
Beta_ukentlig4Y <- lm(Bu4Y$XXL ~ Bu4Y$OSEAX + 1)
```

```
summary(Beta_ukentlig4Y)
```

```
# Beta alle uker
```

```
Beta_u <- lm(BDR$XXL ~ BDR$OSEAX + 1)
```

```
summary(Beta_u)
```

```
# Månedlig
```

```
getSymbols('XXL.OL', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"),  
src='yahoo', periodicity = 'monthly')
```

```
getSymbols('^OSEAX', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"),  
src='yahoo', periodicity = 'monthly')
```

```
BD <- merge(XXL.OL$XXL.OL.Adjusted,  
          OSEAX$OSEAX.Adjusted)
```

```
BD <- na.omit(BD)
```

```
BDR <- Return.calculate(BD)
```

```
BDR <- BDR[(-1),]
```

```
names(BDR) <- c("XXL", "OSEAX")
```

```
# Siste 3år
```

```
n <- nrow(BDR)
```

```
s <- n - 3*12
```

```

Bm3Y <- BDR[(s:n),]
Beta_m3Y <- lm(Bm3Y$XXL ~ Bm3Y$OSEAX + 1)
summary(Beta_m3Y)

# Beta alle mnd
Beta_m <- lm(BDR$XXL ~ BDR$OSEAX + 1)
summary(Beta_m)

# Plot av avkastninger for XXL og OSEAX
ggplot() +
  geom_point(aes(x = Bu2Y$OSEAX, y = Bu2Y$XXL)) +
  geom_smooth(aes(x = Bu2Y$OSEAX, y = Bu2Y$XXL), method = lm, se = FALSE) +
  xlab("Return OSEAX") +
  ylab("Return XXL")

# Plot av XXL og OSEAX indekstert etter børsnoteringen til XXL
getSymbols('XXL.OL', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"),
src='yahoo', periodicity = 'daily')
getSymbols('^OSEAX', from = as.Date("2014-10-01"), to = as.Date("2019-12-31"),
src='yahoo', periodicity = 'daily')
BD <- merge(XXL.OL$XXL.OL.Adjusted,
           OSEAX$OSEAX.Adjusted)
BD <- na.omit(BD)
names(BD) <- c("XXL", "OSEAX")
BD$OSE <- CalculateReturns(BD$OSEAX, method = "log")
BD[1,3] <- 0
Ret <- as.vector(BD$OSE)
P <- 55.64993
Prices <- c(P, P*exp(cumsum(Ret)))
Prices <- Prices[(-1)]
BD$IND <- Prices
BD <- BD[,-2]
BD <- BD[,-2]
names(BD) <- c("XXL ASA", "OSEAX")

```

```

BD <- as.data.frame(BD)
BD$Dato <- row.names(BD)
BD$Dato <- as.Date(as.character(BD$Dato))
ggplot(BD, aes(Dato, Aksjekurs)) +
  geom_line(aes(x = BD$Dato, y = BD$`XXL ASA`, color = "XXL ASA")) +
  geom_line(aes(x = BD$Dato, y = BD$OSEAX, color = "OSEAX")) +
  labs(color = "Legend") +
  scale_colour_manual("", breaks = c("XXL ASA", "OSEAX"),
    values = c("red", "black")) +
  ggtitle("Historisk prisutvikling: XXL ASA og OSEAX") +
  theme(plot.title = element_text(lineheight = 0.7, face = "bold"))

```

5.0 Regresjoner

5.1 Daglige avkastninger siste tre måneder

```

Call:
lm(formula = B3M$XXL ~ B3M$OSEAX + 1)

Residuals:
    Min       1Q   Median       3Q      Max
-0.216565 -0.011613  0.000284  0.011939  0.070960

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -0.004397  0.003397  -1.295  0.1988
B3M$OSEAX    0.973669  0.405425   2.402  0.0184 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.03207 on 89 degrees of freedom
Multiple R-squared:  0.06086, Adjusted R-squared:  0.05031
F-statistic: 5.768 on 1 and 89 DF, p-value: 0.0184

```

5.2 Daglige avkastninger siste seks måneder

```

Call:
lm(formula = B6M$XXL ~ B6M$OSEAX + 1)

Residuals:
    Min       1Q   Median       3Q      Max
-0.218218 -0.013839  0.000489  0.012757  0.208221

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -0.002609  0.002578  -1.012  0.31297
B6M$OSEAX    0.941341  0.299868   3.139  0.00198 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.03467 on 179 degrees of freedom
Multiple R-squared:  0.05218, Adjusted R-squared:  0.04689
F-statistic: 9.854 on 1 and 179 DF, p-value: 0.001982

```

5.3 Daglige avkastninger siste året

```
Call:
lm(formula = B1$XXL ~ B1$OSEAX + 1)

Residuals:
    Min       1Q   Median       3Q      Max
-0.219289 -0.013234  0.000651  0.012720  0.207398

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -0.001707   0.002023  -0.844   0.399
B1$OSEAX     0.981904   0.239185   4.105 5.49e-05 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.03189 on 248 degrees of freedom
Multiple R-squared:  0.06363, Adjusted R-squared:  0.05985
F-statistic: 16.85 on 1 and 248 DF, p-value: 5.486e-05
```

5.4 Ukentlige avkastninger siste året

```
Call:
lm(formula = Bu1Y$XXL ~ Bu1Y$OSEAX + 1)

Residuals:
    Min       1Q   Median       3Q      Max
-0.144529 -0.029400  0.001892  0.025611  0.255983

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -0.011679   0.008003  -1.459   0.151
Bu1Y$OSEAX   2.142076   0.487433   4.395 5.63e-05 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.05748 on 51 degrees of freedom
Multiple R-squared:  0.2747, Adjusted R-squared:  0.2604
F-statistic: 19.31 on 1 and 51 DF, p-value: 5.634e-05
```

5.5 Ukentlige avkastninger siste to år

```
Call:
lm(formula = Bu2Y$XXL ~ Bu2Y$OSEAX + 1)

Residuals:
    Min       1Q   Median       3Q      Max
-0.240536 -0.023375  0.003348  0.031611  0.269382

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -0.01458   0.00606  -2.406   0.0179 *
Bu2Y$OSEAX   1.38909   0.32822   4.232 5.03e-05 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.06192 on 103 degrees of freedom
Multiple R-squared:  0.1481, Adjusted R-squared:  0.1399
F-statistic: 17.91 on 1 and 103 DF, p-value: 5.034e-05
```

5.6 Ukentlige avkastninger siste fire år

```
Call:
lm(formula = Bu4Y$XXL ~ Bu4Y$OSEAX + 1)

Residuals:
    Min       1Q   Median       3Q      Max
-0.260233 -0.020938  0.001877  0.026710  0.269384

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -0.009095  0.003506  -2.594  0.0102 *
Bu4Y$OSEAX  0.995414  0.184131   5.406 1.77e-07 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.05028 on 207 degrees of freedom
Multiple R-squared:  0.1237,    Adjusted R-squared:  0.1195
F-statistic: 29.22 on 1 and 207 DF,  p-value: 1.767e-07
```

5.7 Ukentlige avkastninger siden børsnotering

```
Call:
lm(formula = BDR$XXL ~ BDR$OSEAX + 1)

Residuals:
    Min       1Q   Median       3Q      Max
-0.276427 -0.021714  0.000095  0.024775  0.269038

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -0.004334  0.002950  -1.469  0.143
BDR$OSEAX   0.678715  0.144562   4.695 4.23e-06 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.04862 on 272 degrees of freedom
Multiple R-squared:  0.07497,    Adjusted R-squared:  0.07156
F-statistic: 22.04 on 1 and 272 DF,  p-value: 4.232e-06
```

5.8 Månedlige avkastninger siste tre år

```
Call:
lm(formula = Bm3Y$XXL ~ Bm3Y$OSEAX + 1)

Residuals:
    Min       1Q   Median       3Q      Max
-0.23881 -0.07016  0.01147  0.05737  0.40214

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -0.05253  0.02094  -2.508  0.0169 *
Bm3Y$OSEAX  1.53567  0.65482   2.345  0.0248 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.1211 on 35 degrees of freedom
Multiple R-squared:  0.1358,    Adjusted R-squared:  0.1111
F-statistic:  5.5 on 1 and 35 DF,  p-value: 0.02482
```


5.9 Månedlige avkastninger siden børsnotering

Call:

$\ln(\text{Formula} = \text{BDR}\$XXL \sim \text{BDR}\$OSEAX + 1)$

Residuals:

	Min	1Q	Median	3Q	Max
	-0.31638	-0.05801	-0.00188	0.06610	0.37874

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-0.02075	0.01438	-1.443	0.1543
BDR\$OSEAX	0.88847	0.43444	2.045	0.0452 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.1097 on 60 degrees of freedom
Multiple R-squared: 0.06517, Adjusted R-squared: 0.04958
F-statistic: 4.182 on 1 and 60 DF, p-value: 0.04524

6.0 Fremtidsprognose

6.1 Modellens inputverdier

Aksjekurs 23,12	Explicit period									Terminal period	
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
Assumptions											
Revenue growth	-15,00%	7,50%	4,00%	5,00%	6,00%	5,00%	4,00%	3,00%	2,50%	2,00%	
Sales growth reversion rate	-9,90%	22,50%	-3,50%	1,00%	1,00%	-1,00%	-1,00%	-1,00%	-0,50%	-0,50%	
Cost drivers											
Cost of sales as a % of revenue	72,50%	67,50%	65,00%	61,50%	59,50%	60,00%	59,70%	61,00%	60,50%	60,00%	
Operating expenses as % of revenue	25,00%	24,50%	24,00%	24,00%	24,00%	24,00%	24,50%	24,00%	24,00%	24,00%	
EBITDA-margin	2,50%	8,00%	11,00%	14,50%	16,50%	16,00%	15,80%	15,00%	15,50%	16,00%	
Depreciation / tangible assets	16,50%	16,50%	16,00%	16,00%	16,00%	16,50%	16,00%	16,00%	16,00%	16,00%	
EBIT-margin	-5,45%	0,74%	3,96%	7,62%	9,62%	8,99%	9,08%	8,28%	8,78%	9,04%	
Operating tax expense/EBIT	22,00%	22,00%	22,00%	22,00%	22,00%	22,00%	22,00%	22,00%	22,00%	22,00%	
NOPAT-margin	-4,25%	0,58%	3,09%	5,94%	7,50%	7,01%	7,08%	6,46%	6,85%	7,05%	
Investment drivers											
Intangible assets growth	0,25%	0,25%	0,25%	0,25%	0,25%	0,25%	1,00%	0,25%	0,25%	0,25%	
PP&E as a % of revenue	11,00%	10,00%	10,00%	10,00%	10,00%	9,50%	10,00%	10,00%	10,00%	10,50%	
Right of Use Assets as a % of revenue	35,50%	34,00%	34,00%	33,00%	33,00%	33,00%	32,00%	32,00%	32,00%	33,00%	
Deferred taxes / operating taxes	36,00%	36,00%	36,00%	36,00%	36,00%	36,00%	36,00%	36,00%	36,00%	36,00%	
NONCA as a % of revenue	87,76%	81,32%	79,57%	77,16%	74,37%	72,75%	71,45%	70,72%	70,17%	70,48%	
Net working capital decomposed into:											
Lagertid	150	140	145	150	150	155	155	155	155	160	
Kredittid kunder	11	11	11	11	11	11	11	11	11	11	
Operating current assets as a % of revenue	32,81%	28,90%	28,84%	28,29%	27,47%	28,49%	28,37%	28,92%	28,71%	29,32%	
Kredittid leverandører	110	100	100	100	100	100	100	100	100	100	
Operating current liabilities as a % of revenue	21,85%	18,49%	17,81%	16,85%	16,30%	16,44%	16,36%	16,71%	16,58%	16,44%	
NOWC as a % of revenue	10,96%	10,41%	11,03%	11,44%	11,16%	12,05%	12,01%	12,21%	12,13%	12,88%	
Financing drivers											
NIBD as a % of invested capital excl. Intangibles and cash	40,00%	37,50%	35,00%	32,50%	28,00%	26,00%	25,00%	23,00%	22,00%	20,00%	
Net financial expenses as a % of NIBD	4,50%	4,25%	4,00%	3,75%	3,50%	3,50%	3,50%	3,50%	3,50%	3,50%	
Pay-out	0,00%	0,00%	0,00%	50,00%	100,00%	80,00%	65,00%	75,00%	70,00%	85,00%	

6.2 Resultatregnskap

<i>Forecast</i>	<i>Explicit period</i>									<i>Terminal period</i>	
Income statement	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
Revenues	7.643	8.216	8.545	8.972	9.511	9.986	10.386	10.697	10.965	11.184	
Direct cost of goods sold	-5.541	-5.546	-5.554	-5.518	-5.659	-5.992	-6.200	-6.525	-6.634	-6.710	
Gross profit	2.102	2.670	2.991	3.454	3.852	3.994	4.185	4.172	4.331	4.474	
Operating expenses	-1.911	-2.013	-2.051	-2.153	-2.283	-2.397	-2.544	-2.567	-2.632	-2.684	
EBITDA	191	657	940	1.301	1.569	1.598	1.641	1.605	1.700	1.789	
Depreciation and amortization	-608	-597	-602	-617	-654	-700	-698	-719	-737	-778	
EBIT	-417	61	338	684	915	898	943	886	963	1.011	
Operating tax expense	92	-13	-74	-150	-201	-197	-207	-195	-212	-222	
NOPAT	-325	47	264	533	714	700	736	691	751	789	
Net financial income/expenses	-205	-189	-180	-170	-159	-162	-165	-165	-167	-170	
Tax-shield from NFE	45	42	40	37	35	36	36	36	37	37	
Net income	-485	-100	124	401	590	574	607	562	621	656	

6.3 Balansregnskap

<i>Forecast</i>	<i>Explicit period</i>									<i>Terminal period</i>	
Balance sheet	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
Intangible Assets	3.135	3.143	3.151	3.158	3.166	3.174	3.206	3.214	3.222	3.230	
Property, Plant and Equipment	841	822	855	897	951	949	1.039	1.070	1.096	1.174	
Right of Use Assets	2.713	2.794	2.905	2.961	3.139	3.295	3.323	3.423	3.509	3.691	
Deferred tax liability	-42	-42	-27	-54	-72	-71	-75	-70	-76	-80	
NONCA	6.647	6.716	6.884	6.962	7.183	7.347	7.493	7.637	7.751	8.015	
Inventories	2.277	2.127	2.207	2.268	2.326	2.544	2.633	2.771	2.817	2.942	
Receivables	230	248	258	270	287	301	313	322	330	337	
Accounts payable	-1.670	-1.519	-1.522	-1.512	-1.550	-1.642	-1.699	-1.788	-1.817	-1.838	
NOWC	838	855	942	1.026	1.062	1.204	1.247	1.306	1.330	1.440	
NOA	7.485	7.571	7.826	7.989	8.245	8.551	8.741	8.942	9.081	9.455	
Equity, beginning of year	3.856	3.771	3.671	3.795	3.995	3.995	4.110	4.322	4.463	4.649	
Net income	-485	-100	124	401	590	574	607	562	621	656	
-Dividends	0	0	0	200	590	459	395	421	434	557	
+Paid in equity	400	0	0	0	0	0	0	0	0	0	
Total Shareholders' Equity	3.771	3.671	3.795	3.995	3.995	4.110	4.322	4.463	4.649	4.747	
Capitalized operating leases	2.713	2.794	2.905	2.961	3.139	3.295	3.323	3.423	3.509	3.691	
NIBD (without cash)	1.740	1.661	1.636	1.570	1.422	1.398	1.384	1.318	1.289	1.245	
Cash and cash equivalents	-742	-556	-513	-539	-312	-254	-291	-263	-368	-230	
NIBD	998	1.105	1.124	1.031	1.110	1.144	1.093	1.054	921	1.015	
Total Equity + NIBD	7.483	7.569	7.824	7.987	8.243	8.549	8.739	8.940	9.079	9.453	

7.6 Relativ verdsettelse

7.6.1 Dick's Sporting Goods

Share information Dick's Sporting Goods	2019
Share price in USD	44,23
Number of shares	89
MVE	3.936
NIBD	2.742
EV	6.678
EPS (USD)	3,34
BVPS (USD)	20,73
EBIT	376
Tax rate	27,04%
NOPAT	274
P/E	13,24
P/B	2,13
EV/NOPAT	24,37

7.6.2 H&M

Share information H&M	2019
Share price in SEK	184,84
Number of shares outstanding (million)	1.655
EK (SEKm)	57.069
EPS (SEK)	8,12
BVPS (SEK)	34,48
P/E	22,8
P/B	5,4

7.6.3 HIBB

Share information HIBB	2019
Share price in USD	24,78
EPS (USD)	
BVPS (USD)	19,51
P/E	
P/B	1,27

7.6.4 Sportamor

Share information Sportamor	2019
Share price in SEK	44,10
Number of shares outstanding (million)	21,565
EK (SEKm)	220
EPS (SEK)	-1,49
BVPS (SEK)	10,19
P/E	-29,60
P/B	4,33

7.6.5 Sportsman's Warehouse

Share information Sportsman's Warehouse	2019
Share price in USD	6,48
BVPS (NOK)	2,55
P/B	2,54

7.6.6 Korrelasjonsmatrise

	XXL	DKS	HIBB	HM	SPOR	SPWH
XXL	1.00000000	0.07091608	0.062316383	0.14058232	0.098114873	0.064482594
DKS	0.07091608	1.00000000	0.494970822	0.08058271	-0.011140517	0.310275315
HIBB	0.06231638	0.49497082	1.00000000	0.08222382	-0.008986315	0.298689027
HM	0.14058232	0.08058271	0.082223824	1.00000000	0.095879058	0.080662585
SPOR	0.09811487	-0.01114052	-0.008986315	0.09587906	1.00000000	0.008538068
SPWH	0.06448259	0.31027532	0.298689027	0.08066259	0.008538068	1.00000000

8.0 Scenarioanalyse

8.1 Bull case inputverdier

Assumptions	Explicit period									Terminal period	
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
Revenue growth	-15,00%	15,00%	10,00%	8,00%	6,00%	5,00%	3,00%	2,00%	2,00%	1,50%	
Sales growth reversion rate	-4,90%	25,00%	-5,00%	-2,00%	-2,00%	-1,00%	-2,00%	-1,00%	0,00%	-0,50%	
Cost drivers											
Cost of sales as a % of revenue	72,50%	65,00%	60,25%	60,19%	62,21%	58,49%	61,28%	62,45%	61,12%	60,40%	
Operating expenses as a % of revenue	23,32%	25,28%	25,28%	25,28%	25,28%	25,28%	25,28%	25,28%	25,28%	25,28%	
EBITDA-margin	6,68%	15,82%	14,47%	14,53%	12,51%	16,23%	13,44%	12,27%	13,60%	14,32%	
Depreciation / tangible assets	16,39%	16,47%	15,89%	16,92%	16,78%	16,28%	16,44%	16,16%	16,64%	16,63%	
EBIT-margin	-0,78%	9,15%	8,03%	7,68%	5,72%	9,64%	6,78%	5,72%	6,86%	7,58%	
Operating tax expense/EBIT	22,00%	22,00%	22,00%	22,00%	22,00%	22,00%	22,00%	22,00%	22,00%	22,00%	
NOPAT-margin	-0,61%	7,14%	6,26%	5,99%	4,46%	7,52%	5,29%	4,46%	5,35%	5,92%	
Investment drivers											
Intangible assets growth	-0,13%	-0,07%	-0,18%	0,15%	0,43%	0,04%	0,78%	0,40%	0,34%	-1,00%	
PP&E as a % of revenue	9,42%	9,42%	9,42%	9,42%	9,42%	9,42%	9,42%	9,42%	9,42%	9,42%	
Right of Use Assets as a % of revenue	31,09%	31,09%	31,09%	31,09%	31,09%	31,09%	31,09%	31,09%	31,09%	31,09%	
Deferred taxes / operating taxes	36,00%	36,00%	36,00%	36,00%	36,00%	36,00%	36,00%	36,00%	36,00%	36,00%	
NONCA as a % of revenue	81,11%	70,96%	68,60%	66,61%	65,53%	64,41%	64,11%	64,11%	63,71%	63,30%	
Net working capital decomposed into:											
Inventories / COGS	140	140	140	140	140	140	140	140	140	140	
Trade receivable / Revenue	11	11	11	11	11	11	11	11	11	11	
Operating current assets as a % of revenue	29,86%	25,60%	26,12%	26,10%	26,87%	25,45%	26,52%	26,97%	26,46%	26,18%	
Accounts payable / COGS	119	119	119	119	119	119	119	119	119	119	
Operating current liabilities as a % of revenue	22,82%	19,20%	19,64%	19,62%	20,28%	19,07%	19,98%	20,36%	19,93%	19,69%	
NOWC as a % of revenue	7,04%	6,40%	6,48%	6,48%	6,59%	6,38%	6,54%	6,61%	6,53%	6,49%	
Financing drivers											
NIBD as a % of invested capital excl. Intangibles and cash	47,50%	40,00%	36,31%	33,00%	31,00%	30,00%	28,00%	27,00%	26,00%	25,00%	
Net financial expenses as a % of NIBD	3,21%	3,21%	3,21%	3,21%	3,21%	3,21%	3,21%	3,21%	3,21%	3,21%	
Pay-out	0,00%	0,00%	150,00%	100,00%	50,00%	100,00%	100,00%	100,00%	80,00%	90,00%	

8.2 Bear case inputverdier

Assumptions	Explicit period									Terminal period	
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
Revenue growth	-10.00%	7.41%	2.13%	-0.34%	-2.09%	-2.65%	5.15%	7.68%	2.50%	2.00%	
Sales growth reversion rate	-4.90%	17.41%	-5.28%	-2.48%	-1.74%	-0.56%	7.80%	2.53%	-5.18%	-0.50%	
Cost drivers											
Cost of sales as a % of revenue	72.50%	70.00%	67.50%	65.00%	62.50%	62.50%	62.50%	62.50%	60.00%	60.00%	
Operating expenses as a % of revenue	24.54%	24.68%	26.11%	25.30%	26.40%	24.20%	27.33%	24.73%	26.58%	27.75%	
EBITDA-margin	5.46%	15.98%	13.60%	14.90%	13.47%	18.00%	11.99%	14.27%	13.27%	12.69%	
Depreciation / tangible assets	16.59%	16.71%	16.08%	16.39%	16.58%	16.84%	16.50%	16.14%	16.47%	16.84%	
EBIT-margin	-2.09%	8.63%	6.52%	7.65%	6.34%	10.85%	5.06%	7.50%	6.36%	5.37%	
Operating tax expense/EBIT	23.00%	23.00%	23.00%	23.00%	23.00%	23.00%	23.00%	23.00%	23.00%	23.00%	
NOPAT-margin	-1.61%	6.65%	5.02%	6.05%	4.88%	8.35%	3.90%	5.77%	4.89%	4.13%	
Investment drivers											
Intangible assets growth	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
PP&E as a % of revenue	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.00%	8.75%	9.00%	9.00%	
Right of Use Assets as a % of revenue	31.00%	31.00%	31.00%	31.00%	31.00%	31.00%	30.00%	29.50%	30.00%	30.00%	
Deferred taxes / operating taxes	36.00%	36.00%	36.00%	36.00%	36.00%	36.00%	36.00%	36.00%	36.00%	36.00%	
NONCA as a % of revenue	84.18%	81.70%	80.74%	78.92%	80.54%	77.27%	77.32%	76.54%	75.61%	75.95%	
Net working capital decomposed into:											
Inventories / COGS	150	145	145	150	150	155	155	155	160	160	
Trade receivable / Revenue	11	11	11	11	11	11	11	11	11	11	
Operating current assets as a % of revenue	31.70%	26.59%	26.96%	27.59%	27.73%	27.56%	28.70%	28.92%	29.30%	28.80%	
Accounts payable / COGS	110	100	100	100	100	100	100	100	100	100	
Operating current liabilities as a % of revenue	21.10%	16.28%	16.52%	16.38%	16.47%	15.83%	16.62%	16.71%	16.48%	16.11%	
NOWC as a % of revenue	10.68%	10.33%	10.45%	11.21%	11.25%	11.72%	12.16%	12.21%	12.90%	12.68%	
Financing drivers											
NIBD as a % of invested capital excl. Intangibles and cash	40.00%	37.50%	35.00%	35.00%	35.00%	35.00%	35.00%	32.50%	32.50%	30.00%	
Net financial expenses as a % of NIBD	4.50%	4.25%	4.00%	3.75%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	
Pay-out	0.00%	0.00%	0.00%	50.00%	100.00%	80.00%	65.00%	75.00%	70.00%	85.00%	

9.0 Monte Carlo-simulering

9.1 Input

Input	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Inntektsvekst	-15.49%	11.16%	6.86%	-2.28%	10.77%	4.53%	12.32%	5.88%	1.93%	2.00%
NOPAT-margin	-4.75%	8.93%	7.33%	1.13%	10.70%	6.27%	11.24%	8.96%	5.28%	3.20%
Random variabel	0.45	0.79	0.60	0.05	0.93	0.46	0.96	0.79	0.35	0.17
Snitt	-15.00%	7.50%	6.00%	5.00%	4.00%	5.00%	3.50%	3.00%	2.50%	
Standardavvik	4.00%	4.50%	3.50%	4.50%	4.50%	5.00%	5.00%	3.50%	1.50%	
WACC	6.46%									
q-terminal	2.00%									
NIBD	1,223									
VOL	2,981									
Antall aksjer	166									

Parametere for NOPAT	Verdi	Parametere for NOA	Verdi
Minimumsverdi	-1.50%	Minimumsverdi	-3.00%
Mest sannsynlige verdi	7.50%	Mest sannsynlige verdi	2.75%
Maksimumsverdi	13.00%	Maksimumsverdi	9.00%
Fordelingsvariabel	0.62	Fordelingsvariabel	0.48

9.2 Modell

Modell	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
FCFF	286	343	353	345	379	417	358	255	10,270	443
Aksjekurs	22.48									

9.3 Hjelpemodell

Hjelpemodell	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Inntekt	8,992	7,469	8,141	8,638	8,993	9,334	9,830	9,970	9,866	10,015	10,215
NOPAT	-112	-463	616	577	532	600	666	514	248	428	750
Investert kapital	8,062	7,314	7,587	7,811	7,998	8,219	8,468	8,624	8,617	8,720	9,027

9.4 De 37 første simuleringene

MC-simulering	Aksjekurs
1	22.48
2	18.01
3	14.63
4	18.89
5	25.43
6	34.20
7	21.08
8	5.81
9	22.27
10	17.58
11	23.07
12	10.80
13	9.63
14	10.55
15	1.39
16	17.61
17	37.17
18	45.36
19	19.63
20	31.91
21	38.58
22	20.54
23	38.30
24	14.07
25	42.11
26	36.77
27	26.45
28	29.98
29	18.94
30	29.54
31	22.92
32	37.88
33	34.77
34	47.55
35	8.87
36	13.57
37	41.71

9.5 Frekvenstabell

<i>Aksjekurs</i>	<i>Frequency</i>
-5.0	0
-2.5	3
0.0	17
2.5	43
5.0	67
7.5	83
10.0	119
12.5	140
15.0	199
17.5	210
20.0	224
22.5	219
25.0	244
27.5	190
30.0	179
32.5	147
35.0	121
37.5	94
40.0	65
42.5	45
45.0	26
47.5	30
50.0	13
52.5	10
55.0	6
57.5	1
60.0	1
62.5	3
65.0	1
More	0