

# Relative Performance Evaluation and Competitive Aggressiveness

## Setup

### Load required packages

```
rm(list = ls())

lapply(c("tidyverse", "fixest"), library, character.only = TRUE)

summarize <- dplyr::summarize
select <- dplyr::select
rename <- dplyr::rename
```

```
load("C:/Users/TIMMERMO/OneDrive - London School of Economics/Maastricht University/PhD/CEO RPE/
Papers/Paper 2 - RPE Duality (FMT)/Code/FMT-environment.RData")
```

```
Data <- Data %>%
  select(GVKEY, CIK, FYEAR, FF_INDUSTRY_12, FF_INDUSTRY_48, RPE_SELF_SELECTED, RPE_PRICE, RPE_AC
COUNTING, ACTION_VOLUME, ACTION_COMPLEXITY, ACTION_NEW_PRODUCTS, ACTION_PRICING, ACTION_MARKETIN
G, ACTION_ACQUISITIONS, ACTION_JOINT_VENTURE, ACTION_ALLIANCE, ACTION_MARKET_EXPANSION, PG_OVERL
AP, N_NEW_EXOGENOUS_OVERLAP, PG_SYNCHRONICITY, MVE_RANK, BTM_RANK, LEVERAGE_RANK, GROWTH_RANK, R
ET_RANK, HP.COMPETITION_RANK, HP.SIMILARITY_RANK, HP.COMPETITION)
```

## Table 2

### Panel A

```
Descriptives <- Data %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  select(RPE_SELF_SELECTED, ACTION_VOLUME, ACTION_COMPLEXITY, PG_OVERLAP, N_NEW_EXOGENOUS_OVERLA
P, PG_SYNCHRONICITY, MVE_RANK, BTM_RANK, LEVERAGE_RANK, GROWTH_RANK, RET_RANK, HP.COMPETITION_RA
NK, HP.SIMILARITY_RANK, HP.COMPETITION)

## FULL SAMPLE (PANEL A) ##
psych::describe(Descriptives %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  select(-RPE_SELF_SELECTED), quant = c(.10, .90)) %>%
  as.data.frame %>%
  rownames_to_column() %>%
  select(rowname, mean, sd, Q0.1, median, Q0.9) %>%
  print(., digits = 3)
```

##	rowname	mean	sd	Q0.1	median	Q0.9
## 1	ACTION_VOLUME	33.107	45.698	3.000	17.000	79.800
## 2	ACTION_COMPLEXITY	0.438	0.233	0.000	0.500	0.690
## 3	PG_OVERLAP	0.150	0.181	0.000	0.087	0.400
## 4	N_NEW_EXOGENOUS_OVERLAP	0.266	0.597	0.000	0.000	1.000
## 5	PG_SYNCHRONICITY	0.480	0.208	0.192	0.497	0.741
## 6	MVE_RANK	0.510	0.212	0.222	0.500	0.800
## 7	BTM_RANK	0.512	0.263	0.150	0.500	0.875
## 8	LEVERAGE_RANK	0.517	0.261	0.154	0.500	0.869
## 9	GROWTH_RANK	0.492	0.270	0.143	0.500	0.875
## 10	RET_RANK	0.519	0.260	0.160	0.526	0.867
## 11	HP.COMPETITION_RANK	0.501	0.248	0.167	0.500	0.833
## 12	HP.SIMILARITY_RANK	0.499	0.265	0.143	0.500	0.857
## 13	HP.COMPETITION	63.087	81.822	4.000	25.000	199.800

## Panel B

```
## SUBSAMPLES (PANEL B) ##
# RPE WITHOUT OVERLAP #
psych::describe(Descriptives %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  filter(RPE_SELF_SELECTED == 1 & PG_OVERLAP == 0) %>%
  select(-RPE_SELF_SELECTED), quant = c(.10, .90)) %>%
  as.data.frame %>%
  rownames_to_column() %>%
  select(rowname, mean, sd, median) %>%
  print(., digits = 3)
```

##	rowname	mean	sd	median
## 1	ACTION_VOLUME	27.867	36.570	13.000
## 2	ACTION_COMPLEXITY	0.443	0.227	0.500
## 3	PG_OVERLAP	0.000	0.000	0.000
## 4	N_NEW_EXOGENOUS_OVERLAP	0.000	0.000	0.000
## 5	PG_SYNCHRONICITY	0.420	0.195	0.429
## 6	MVE_RANK	0.483	0.218	0.484
## 7	BTM_RANK	0.505	0.261	0.500
## 8	LEVERAGE_RANK	0.539	0.258	0.548
## 9	GROWTH_RANK	0.486	0.272	0.476
## 10	RET_RANK	0.511	0.251	0.500
## 11	HP.COMPETITION_RANK	0.489	0.246	0.500
## 12	HP.SIMILARITY_RANK	0.487	0.270	0.500
## 13	HP.COMPETITION	56.425	79.146	22.000

```
# RPE WITH OVERLAP #
psych::describe(Descriptives %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  filter(RPE_SELF_SELECTED == 1 & PG_OVERLAP > 0) %>%
  select(-RPE_SELF_SELECTED), quant = c(.10, .90)) %>%
  as.data.frame %>%
  rownames_to_column() %>%
  select(rowname, mean, sd, median) %>%
  print(., digits = 3)
```

##	rowname	mean	sd	median
## 1	ACTION_VOLUME	35.726	49.444	18.000
## 2	ACTION_COMPLEXITY	0.436	0.235	0.498
## 3	PG_OVERLAP	0.225	0.180	0.179
## 4	N_NEW_EXOGENOUS_OVERLAP	0.398	0.694	0.000
## 5	PG_SYNCHRONICITY	0.509	0.208	0.537
## 6	MVE_RANK	0.523	0.208	0.500
## 7	BTM_RANK	0.515	0.264	0.500
## 8	LEVERAGE_RANK	0.506	0.262	0.500
## 9	GROWTH_RANK	0.495	0.269	0.500
## 10	RET_RANK	0.524	0.264	0.533
## 11	HP.COMPETITION_RANK	0.507	0.250	0.500
## 12	HP.SIMILARITY_RANK	0.505	0.262	0.500
## 13	HP.COMPETITION	66.418	82.964	26.000

### Table 3

```
# ACROSS TIME AND INDUSTRY #
Data %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  select(FYEAR, FF_INDUSTRY_12, PG_OVERLAP) %>%
  group_by(FYEAR, FF_INDUSTRY_12) %>%
  summarise_all(funs(mean)) %>%
  spread(FYEAR, PG_OVERLAP)
```

```
## # A tibble: 10 x 13
##   FF_INDUSTRY_12 `2006` `2007` `2008` `2009` `2010` `2011` `2012` `2013`
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
## 1      1 0.101 0.227 0.198 0.270 0.200 0.192 0.162 0.167
## 2      2 0.0833 0.0556 0.0359 0.0643 0.119 0.0866 0.0450 0.0111
## 3      3 0.0498 0.132 0.118 0.145 0.117 0.124 0.150 0.141
## 4      4 0.102 0.228 0.145 0.122 0.243 0.224 0.242 0.315
## 5      5 0.104 0.0612 0      0.0287 0.0486 0.0229 0.0238 0.0437
## 6      6 0.0390 0.0651 0.0497 0.0745 0.106 0.0419 0.102 0.0850
## 7      7 0      0.0667 0.195 0.111 0.0556 0.0333 0      0.0346
## 8      9 0.0222 0      0      0.0320 0.0297 0.0508 0.107 0.0919
## 9     10 0.231 0.209 0.180 0.00795 0.0970 0.0983 0.116 0.0729
## 10    12 0.0364 0.129 0.0872 0.0537 0.0751 0.0903 0.168 0.0888
## # ... with 4 more variables: 2014 <dbl>, 2015 <dbl>, 2016 <dbl>, 2017 <dbl>
```

```
# TOTAL ACROSS TIME #
```

```
Data %>%
```

```
  filter(RPE_SELF_SELECTED == 1) %>%
```

```
  filter(PG_SYNCHRONICITY != 0) %>%
```

```
  select(FYEAR, PG_OVERLAP) %>%
```

```
  group_by(FYEAR) %>%
```

```
  summarise_all(funs(mean))
```

```
## # A tibble: 12 x 2
```

```
##   FYEAR PG_OVERLAP
```

```
##   <dbl> <dbl>
```

```
## 1  2006    0.0809
```

```
## 2  2007    0.141
```

```
## 3  2008    0.111
```

```
## 4  2009    0.104
```

```
## 5  2010    0.133
```

```
## 6  2011    0.123
```

```
## 7  2012    0.150
```

```
## 8  2013    0.154
```

```
## 9  2014    0.157
```

```
## 10 2015    0.170
```

```
## 11 2016    0.191
```

```
## 12 2017    0.209
```

```
# TOTAL ACROSS INDUSTRY #
```

```
Data %>%
```

```
  filter(RPE_SELF_SELECTED == 1) %>%
```

```
  filter(PG_SYNCHRONICITY != 0) %>%
```

```
  select(FF_INDUSTRY_12, PG_OVERLAP) %>%
```

```
  group_by(FF_INDUSTRY_12) %>%
```

```
  summarise_all(funs(mean))
```

```
## # A tibble: 10 x 2
##   FF_INDUSTRY_12 PG_OVERLAP
##   <dbl>         <dbl>
## 1           1      0.182
## 2           2      0.0708
## 3           3      0.139
## 4           4      0.273
## 5           5      0.0651
## 6           6      0.0783
## 7           7      0.0905
## 8           9      0.0595
## 9          10      0.116
## 10         12      0.130
```

```
# TOTAL ACROSS SAMPLE #
Data %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  select(PG_OVERLAP) %>%
  mean()
```

```
## [1] NA
```

## Table 4

### Panels A through C

```

Data %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  left_join(RPE_Targets %>%
    select(CIK, FYEAR, RPE_TARGET_USD),
    by = c("CIK", "FYEAR")) %>%
  mutate(RPE_TARGET_USD = winsorize(RPE_TARGET_USD, 5, 95)) %>%
  left_join(Peers_desc %>%
    group_by(CIK, FYEAR) %>%
    summarize(PG_SIZE = n()),
    by = c("CIK", "FYEAR")) %>%
  left_join(RPE_duration,
    by = "CIK") %>%
  select(PG_OVERLAP, RPE_TARGET_USD, RPE_PRICE, RPE_ACCOUNTING, PG_SIZE, PERC_TIME_RPE_PEER) %>%
  mutate(D_PG_OVERLAP = as.numeric(PG_OVERLAP > 0)) %>%
  select(-PG_OVERLAP) %>%
  gather(VAR, VALUE, -D_PG_OVERLAP) %>%
  group_by(D_PG_OVERLAP, VAR) %>%
  summarize(VALUE = list(VALUE)) %>%
  spread(D_PG_OVERLAP, VALUE) %>%
  group_by(VAR) %>%
  mutate(MEAN_FULL = mean(c(unlist(`0`), unlist(`1`)), na.rm = T),
    MEDIAN_FULL = median(c(unlist(`0`), unlist(`1`)), na.rm = T),
    MEAN_0 = mean(unlist(`0`), na.rm = T),
    MEDIAN_0 = median(unlist(`0`), na.rm = T),
    MEAN_1 = mean(unlist(`1`), na.rm = T),
    MEDIAN_1 = median(unlist(`1`), na.rm = T),
    MEAN_DIFF = mean(unlist(`0`), na.rm = T) - mean(unlist(`1`), na.rm = T),
    P = t.test(unlist(`0`), unlist(`1`))$p.value) %>%
  select(-c(`0`, `1`))

```

```

## # A tibble: 5 x 9
## # Groups:   VAR [5]
##   VAR      MEAN_FULL MEDIAN_FULL MEAN_0 MEDIAN_0 MEAN_1 MEDIAN_1 MEAN_DIFF      P
##   <chr>      <dbl>      <dbl> <dbl>    <dbl> <dbl>    <dbl>    <dbl>    <dbl>
## 1 PERC_~      0.573        0.543  0.593    0.558  0.562    0.53     0.0307 0.00569
## 2 PG_SI~     14.7         12     15.6    12     14.2    12      1.46   0.0442
## 3 RPE_A~      0.328         0     0.338    0     0.323    0      0.0157 0.527
## 4 RPE_P~      0.804         1     0.763    1     0.824    1     -0.0610 0.00492
## 5 RPE_T~      0.785        0.603  0.793    0.579  0.782    0.616    0.0119 0.751

```

## Panel D

## ## DESCRIPTIVES ##

Endogenous\_match %&gt;%

```
select(NEW_EXOGENOUS_OVERLAP, NEW_ENDOGENOUS_OVERLAP, NEW_SIMULTANEOUS_OVERLAP) %>%
summarize(RATIO_EXOGENOUS = mean(NEW_EXOGENOUS_OVERLAP, na.rm = T) / mean(NEW_EXOGENOUS_OVERLA
P + NEW_EXOGENOUS_OVERLAP + NEW_SIMULTANEOUS_OVERLAP, na.rm = T),
          RATIO_ENDOGENOUS = mean(NEW_ENDOGENOUS_OVERLAP, na.rm = T) / mean(NEW_EXOGENOUS_OVER
LAP + NEW_EXOGENOUS_OVERLAP + NEW_SIMULTANEOUS_OVERLAP, na.rm = T),
          RATIO_SIMULTANEOUS = mean(NEW_SIMULTANEOUS_OVERLAP, na.rm = T) / mean(NEW_EXOGENOUS_
OVERLAP + NEW_EXOGENOUS_OVERLAP + NEW_SIMULTANEOUS_OVERLAP, na.rm = T))
```

## # A tibble: 1 x 3

## RATIO\_EXOGENOUS RATIO\_ENDOGENOUS RATIO\_SIMULTANEOUS

## &lt;dbl&gt; &lt;dbl&gt; &lt;dbl&gt;

## 1 0.416 0.416 0.169

## ## MODELS ##

```
MODEL <- feglm(OVERLAP ~ DIFF_MVE + DIFF_BTМ + DIFF_LEVERAGE + DIFF_GROWTH + DIFF_RET + DIFF_SD_
RET + DIFF_HP + DIFF_GICS6 | FF_INDUSTRY_48 + FYEAR, data = Endogenous_match, family = binomial
(link = "probit")); summary(MODEL, cluster = c("GVKEY", "FYEAR"))
```

## GLM estimation, family = binomial(link = "probit"), Dep. Var.: OVERLAP

## Observations: 32,804

## Fixed-effects: FF\_INDUSTRY\_48: 41, FYEAR: 12

## Standard-errors: Clustered (GVKEY &amp; FYEAR)

	Estimate	Std. Error	t value	Pr(> t )	
## DIFF_MVE	-0.270746	0.031323	-8.643661	< 2.2e-16	***
## DIFF_BTМ	-0.155249	0.114313	-1.358105	1.7443e-01	
## DIFF_LEVERAGE	0.008402	0.215694	0.038951	9.6893e-01	
## DIFF_GROWTH	-0.507060	0.122304	-4.145908	3.3847e-05	***
## DIFF_RET	-0.404983	0.067488	-6.000783	1.9637e-09	***
## DIFF_SD_RET	-0.336903	0.083201	-4.049261	5.1380e-05	***
## DIFF_HP	-0.213520	0.049090	-4.349575	1.3640e-05	***
## DIFF_GICS6	-0.610090	0.072554	-8.408733	< 2.2e-16	***

## ---

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

## Log-Likelihood: -11,966.3 Adj. Pseudo R2: 0.141688

## BIC: 24,556.5 Squared Cor.: 0.130838

```
MODEL <- feglm(OVERLAP ~ DIFF_MVE + DIFF_BTМ + DIFF_LEVERAGE + DIFF_GROWTH + DIFF_RET + DIFF_SD_
RET + DIFF_HP + DIFF_GICS6 | GVKEY + FYEAR, data = Endogenous_match, family = binomial(link = "p
robit")); summary(MODEL, cluster = c("GVKEY", "FYEAR"))
```

```
## GLM estimation, family = binomial(link = "probit"), Dep. Var.: OVERLAP
## Observations: 29,328
## Fixed-effects: GVKEY: 373, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##           Estimate Std. Error t value Pr(>|t|)
## DIFF_MVE      -0.298371   0.034006 -8.77402 < 2.2e-16 ***
## DIFF_BTMT      -0.293789   0.132461 -2.21792 2.6560e-02 *
## DIFF_LEVERAGE -0.211420   0.186853 -1.13148 2.5785e-01
## DIFF_GROWTH    -0.202846   0.080654 -2.51502 1.1902e-02 *
## DIFF_RET       -0.335851   0.073984 -4.53950 5.6388e-06 ***
## DIFF_SD_RET    -0.214370   0.097008 -2.20983 2.7117e-02 *
## DIFF_HP        -0.187145   0.051186 -3.65620 2.5598e-04 ***
## DIFF_GICS6     -0.622074   0.084622 -7.35119 1.9644e-13 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## Log-Likelihood: -10,501.1 Adj. Pseudo R2: 0.186716
##           BIC: 25,034.5 Squared Cor.: 0.20434
```

## Table 5

```
# LOW COMPETITION #
MODEL <- feols(c(log1p(ACTION_VOLUME),
                  ACTION_COMPLEXITY)
              ~ PG_OVERLAP + PG_SYNCHRONICITY + MVE_RANK + BTM_RANK + LEVERAGE_RANK + GROWTH_RAN
NK + RET_RANK + HP.COMPETITION_RANK + HP.SIMILARITY_RANK | FF_INDUSTRY_48 + FYEAR,
              data = Data %>%
                na.omit() %>%
                filter(HP.COMPETITION <= median(HP.COMPETITION, na.rm = T)) %>%
                filter(RPE_SELF_SELECTED == 1) %>%
                filter(PG_SYNCHRONICITY != 0)); lapply(MODEL, summary, cluster = c("GVKEY", "FY
EAR"))
```



```
## [[1]]
## OLS estimation, Dep. Var.: log1p(ACTION_VOLUME)
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
```

	Estimate	Std. Error	t value	Pr(> t )	
PG_OVERLAP	0.816417	0.275821	2.959952	0.0129764	*
PG_SYNCHRONICITY	-0.009311	0.215289	-0.043251	0.9662765	
MVE_RANK	0.940176	0.240566	3.908184	0.0024419	**
BTM_RANK	0.231118	0.229932	1.005158	0.3364198	
LEVERAGE_RANK	0.021734	0.214238	0.101447	0.9210212	
GROWTH_RANK	-0.341079	0.130810	-2.607439	0.0243686	*
RET_RANK	-0.128667	0.136665	-0.941473	0.3666792	
HP.COMPETITION_RANK	-0.338031	0.186191	-1.815503	0.0967767	.
HP.SIMILARITY_RANK	0.172730	0.108011	1.599189	0.1380840	

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.731567      Adj. R2: 0.535049
##                      Within R2: 0.085155
##
## [[2]]
## OLS estimation, Dep. Var.: ACTION_COMPLEXITY
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
```

	Estimate	Std. Error	t value	Pr(> t )	
PG_OVERLAP	0.218974	0.061705	3.548719	0.0045623	**
PG_SYNCHRONICITY	-0.028956	0.049731	-0.582257	0.5721342	
MVE_RANK	0.176237	0.048645	3.622942	0.0040058	**
BTM_RANK	0.104370	0.037441	2.787560	0.0176635	*
LEVERAGE_RANK	0.047952	0.054163	0.885327	0.3949215	
GROWTH_RANK	-0.100204	0.031884	-3.142790	0.0093617	**
RET_RANK	-0.017039	0.029658	-0.574503	0.5771876	
HP.COMPETITION_RANK	-0.051122	0.038345	-1.333202	0.2094178	
HP.SIMILARITY_RANK	0.035539	0.020896	1.700715	0.1170589	

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.19634      Adj. R2: 0.247308
##                      Within R2: 0.073204
```

```
# HIGH COMPETITION #
MODEL <- feols(c(log1p(ACTION_VOLUME),
  ACTION_COMPLEXITY)
  ~ PG_OVERLAP + PG_SYNCHRONICITY + MVE_RANK + BTM_RANK + LEVERAGE_RANK + GROWTH_RAN
NK + RET_RANK + HP.COMPETITION_RANK + HP.SIMILARITY_RANK | FF_INDUSTRY_48 + FYEAR,
  data = Data %>%
  na.omit() %>%
  filter(HP.COMPETITION > median(HP.COMPETITION, na.rm = T)) %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0)); lapply(MODEL, summary, cluster = c("GVKEY", "FY
EAR"))
```

```
## [[1]]
## OLS estimation, Dep. Var.: log1p(ACTION_VOLUME)
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
##           Estimate Std. Error   t value Pr(>|t|)
## PG_OVERLAP      0.504170   0.232178   2.171476 0.0526416 .
## PG_SYNCHRONICITY 0.100340   0.201684   0.497512 0.6286229
## MVE_RANK         1.023859   0.235836   4.341405 0.0011720 **
## BTM_RANK         0.333088   0.203806   1.634340 0.1304542
## LEVERAGE_RANK    0.509243   0.150524   3.383144 0.0061085 **
## GROWTH_RANK      -0.009808   0.094148  -0.104181 0.9189013
## RET_RANK         -0.055130   0.151382  -0.364178 0.7226284
## HP.COMPETITION_RANK -0.018386   0.153738  -0.119595 0.9069603
## HP.SIMILARITY_RANK -0.206683   0.195214  -1.058751 0.3124091
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.735442      Adj. R2: 0.548187
##
##           Within R2: 0.110944
##
## [[2]]
## OLS estimation, Dep. Var.: ACTION_COMPLEXITY
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
##           Estimate Std. Error   t value Pr(>|t|)
## PG_OVERLAP      -0.006927   0.058341  -0.118735 0.907626
## PG_SYNCHRONICITY -0.005455   0.045156  -0.120803 0.906026
## MVE_RANK         0.103428   0.061291   1.687481 0.119627
## BTM_RANK         0.092244   0.040502   2.277518 0.043726 *
## LEVERAGE_RANK    0.077641   0.035362   2.195642 0.050469 .
## GROWTH_RANK      -0.058510   0.034399  -1.700929 0.117018
## RET_RANK         -0.030237   0.023590  -1.281776 0.226279
## HP.COMPETITION_RANK 0.045262   0.047951   0.943927 0.365478
## HP.SIMILARITY_RANK -0.022555   0.041986  -0.537198 0.601828
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.192795      Adj. R2: 0.253599
##
##           Within R2: 0.037612
```

**Table 6**

```

DID <- Data %>%
  mutate(TREATMENT_VAR = N_NEW_EXOGENOUS_OVERLAP) %>%
  transform(POST = ave(TREATMENT_VAR > 0, GVKEY, FUN = cumsum)) %>%
  mutate(TREATED = as.numeric(GVKEY %in% GVKEY[TREATMENT_VAR > 0]),
    POST = replace(POST, POST > 1, 1)) %>%
  select(-c(ACTION_VOLUME, ACTION_COMPLEXITY)) %>%
  left_join(Ravenpack %>%
    ungroup() %>%
    mutate(FYEAR = YEAR %>% as.numeric() - 1), # future aggressiveness
    by = c("GVKEY", "FYEAR"))

# LOW COMPETITION #
MODEL <- feols(c(log1p(ACTION_VOLUME),
  ACTION_COMPLEXITY)
  ~ POST*TREATMENT_VAR + PG_SYNCHRONICITY + MVE_RANK + BTM_RANK + LEVERAGE_RANK + G
ROWTH_RANK + RET_RANK + HP.COMPETITION_RANK + HP.SIMILARITY_RANK | FF_INDUSTRY_48 + FYEAR,
  data = DID %>%
  filter(HP.COMPETITION <= median(HP.COMPETITION, na.rm = T)) %>%
  filter(TREATED == 1) %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0)); lapply(MODEL, summary, cluster = "GVKEY")

```

```
## [[1]]
## OLS estimation, Dep. Var.: log1p(ACTION_VOLUME)
## Observations: 519
## Fixed-effects: FF_INDUSTRY_48: 30, FYEAR: 12
## Standard-errors: Clustered (GVKEY)
##
##          Estimate Std. Error   t value   Pr(>|t|)
## POST          0.006762   0.120408   0.056157 0.95532908
## TREATMENT_VAR    0.105862   0.052414   2.019719 0.04608779 *
## PG_SYNCHRONICITY -0.249521   0.252132  -0.989645 0.32473601
## MVE_RANK         0.505179   0.300163   1.683015 0.09549190 .
## BTM_RANK         0.292079   0.274941   1.062332 0.29064394
## LEVERAGE_RANK   -0.031600   0.189241  -0.166982 0.86772141
## GROWTH_RANK      -0.478622   0.135756  -3.525608 0.00063923 ***
## RET_RANK         -0.188803   0.112381  -1.680028 0.09607336 .
## HP.COMPETITION_RANK -0.254368   0.203328  -1.251021 0.21384568
## HP.SIMILARITY_RANK  0.152251   0.150650   1.010627 0.31463405
## ... 1 variable was removed because of collinearity (POST:TREATMENT_VAR)
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.616321      Adj. R2: 0.670863
##                      Within R2: 0.073542
##
## [[2]]
## OLS estimation, Dep. Var.: ACTION_COMPLEXITY
## Observations: 519
## Fixed-effects: FF_INDUSTRY_48: 30, FYEAR: 12
## Standard-errors: Clustered (GVKEY)
##
##          Estimate Std. Error   t value   Pr(>|t|)
## POST          -0.001646   0.032730  -0.050288 0.959993
## TREATMENT_VAR    0.028188   0.016635   1.694494 0.093284 .
## PG_SYNCHRONICITY -0.096238   0.063480  -1.516047 0.132662
## MVE_RANK         0.045049   0.062328   0.722768 0.471509
## BTM_RANK         0.083788   0.052626   1.592151 0.114507
## LEVERAGE_RANK    0.069216   0.047001   1.472653 0.143985
## GROWTH_RANK      -0.089794   0.037165  -2.416075 0.017503 *
## RET_RANK         -0.038383   0.034316  -1.118510 0.266029
## HP.COMPETITION_RANK -0.098102   0.043190  -2.271394 0.025266 *
## HP.SIMILARITY_RANK  0.042329   0.035918   1.178477 0.241403
## ... 1 variable was removed because of collinearity (POST:TREATMENT_VAR)
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.184513      Adj. R2: 0.335354
##                      Within R2: 0.059668
```

```
# HIGH COMPETITION #  
MODEL <- feols(c(log1p(ACTION_VOLUME),  
  ACTION_COMPLEXITY  
  ~ POST*TREATMENT_VAR + PG_SYNCHRONICITY + MVE_RANK + BTM_RANK + LEVERAGE_RANK + G  
ROWTH_RANK + RET_RANK + HP.COMPETITION_RANK + HP.SIMILARITY_RANK | FF_INDUSTRY_48 + FYEAR,  
  data = DID %>%  
    filter(HP.COMPETITION > median(HP.COMPETITION, na.rm = T)) %>%  
    filter(TREATED == 1) %>%  
    filter(RPE_SELF_SELECTED == 1) %>%  
    filter(PG_SYNCHRONICITY != 0)); lapply(MODEL, summary, cluster = "GVKEY")
```

```
## [[1]]
## OLS estimation, Dep. Var.: log1p(ACTION_VOLUME)
## Observations: 545
## Fixed-effects: FF_INDUSTRY_48: 25, FYEAR: 12
## Standard-errors: Clustered (GVKEY)
##
##          Estimate Std. Error   t value   Pr(>|t|)
## POST          -0.090649   0.159825  -0.567179 5.7184e-01
## TREATMENT_VAR  -0.019999   0.047321  -0.422618 6.7346e-01
## PG_SYNCHRONICITY -0.024443   0.267505  -0.091375 9.2737e-01
## MVE_RANK        1.220723   0.265983   4.589484 1.2694e-05 ***
## BTM_RANK         0.505975   0.242285   2.088343 3.9257e-02 *
## LEVERAGE_RANK    0.368813   0.221409   1.665751 9.8831e-02 .
## GROWTH_RANK      -0.009335   0.137287  -0.067994 9.4592e-01
## RET_RANK         0.099636   0.135148   0.737236 4.6267e-01
## HP.COMPETITION_RANK -0.144103   0.242493  -0.594255 5.5366e-01
## HP.SIMILARITY_RANK  0.011401   0.203539   0.056014 9.5544e-01
## ... 1 variable was removed because of collinearity (POST:TREATMENT_VAR)
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.694627      Adj. R2: 0.625574
##                      Within R2: 0.104684
##
## [[2]]
## OLS estimation, Dep. Var.: ACTION_COMPLEXITY
## Observations: 545
## Fixed-effects: FF_INDUSTRY_48: 25, FYEAR: 12
## Standard-errors: Clustered (GVKEY)
##
##          Estimate Std. Error   t value   Pr(>|t|)
## POST          -0.019118   0.038195  -0.500540 0.61777343
## TREATMENT_VAR   0.001036   0.016995   0.060942 0.95152473
## PG_SYNCHRONICITY -0.011030   0.070551  -0.156336 0.87607720
## MVE_RANK        0.199362   0.069547   2.866567 0.00504124 **
## BTM_RANK         0.182937   0.049473   3.697715 0.00035241 ***
## LEVERAGE_RANK    0.081019   0.052593   1.540484 0.12653904
## GROWTH_RANK      0.002014   0.037264   0.054057 0.95699587
## RET_RANK         0.038075   0.036836   1.033647 0.30374587
## HP.COMPETITION_RANK 0.059165   0.052013   1.137515 0.25798810
## HP.SIMILARITY_RANK -0.079751   0.047405  -1.682335 0.09556280 .
## ... 1 variable was removed because of collinearity (POST:TREATMENT_VAR)
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.182725      Adj. R2: 0.380855
##                      Within R2: 0.074004
```

## Table 7

### Panel A

```
# LOW COMPETITION #
Data2 <- Data %>%
  na.omit() %>%
  filter(HP.COMPETITION <= median(HP.COMPETITION, na.rm = T)) %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  left_join(RPE_Incentives %>%
    select(CIK, FYEAR, ABN_RPE_TARGET_USD),
    by = c("CIK", "FYEAR")) %>%
  mutate(RPE_BONUS_DISSIMILARITY = ABN_RPE_TARGET_USD %>% replace_na(., 0)) %>%
  mutate(RPE_BONUS_DISSIMILARITY = winsorize(RPE_BONUS_DISSIMILARITY, 0.5, 99.5))

Data2$RPE_BONUS_DISSIMILARITY[is.infinite(Data2$RPE_BONUS_DISSIMILARITY)] <- 0
```

```
MODEL <- feols(c(log1p(ACTION_VOLUME),
  ACTION_COMPLEXITY)
  ~ PG_OVERLAP*RPE_BONUS_DISSIMILARITY + PG_SYNCHRONICITY + MVE_RANK + BTM_RANK + L
  EVERAGE_RANK + GROWTH_RANK + RET_RANK + HP.COMPETITION_RANK + HP.SIMILARITY_RANK | FF_INDUSTY_4
  8 + FYEAR,
  data = Data2); lapply(MODEL, summary, cluster = c("GVKEY", "FYEAR"))
```



```
## [[1]]
## OLS estimation, Dep. Var.: log1p(ACTION_VOLUME)
## Observations: 786
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
```

	Estimate	Std. Error	t value	Pr(> t )	
## PG_OVERLAP	0.970119	0.236526	4.101528	0.0017548	**
## RPE_BONUS_DISSIMILARITY	0.014008	0.006404	2.187176	0.0512200	.
## PG_SYNCHRONICITY	-0.102551	0.206386	-0.496888	0.6290492	
## MVE_RANK	0.904736	0.223992	4.039143	0.0019513	**
## BTM_RANK	0.180654	0.210959	0.856343	0.4100754	
## LEVERAGE_RANK	-0.047001	0.204829	-0.229466	0.8227177	
## GROWTH_RANK	-0.383000	0.111837	-3.424630	0.0056766	**
## RET_RANK	-0.182286	0.145202	-1.255399	0.2353474	
## HP.COMPETITION_RANK	-0.257085	0.161084	-1.595966	0.1388028	
## HP.SIMILARITY_RANK	0.106337	0.116094	0.915961	0.3793301	
## PG_OVERLAP:RPE_BONUS_DISSIMILARITY	-0.048606	0.013147	-3.697159	0.0035190	**

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.693793      Adj. R2: 0.591816
##                      Within R2: 0.100727
##
```

```
## [[2]]
## OLS estimation, Dep. Var.: ACTION_COMPLEXITY
## Observations: 786
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
```

	Estimate	Std. Error	t value	Pr(> t )	
## PG_OVERLAP	0.157580	0.070075	2.248728	0.0459923	*
## RPE_BONUS_DISSIMILARITY	-0.002986	0.002478	-1.204786	0.2535669	
## PG_SYNCHRONICITY	0.003295	0.055416	0.059466	0.9536478	
## MVE_RANK	0.118426	0.063401	1.867903	0.0886266	.
## BTM_RANK	0.089571	0.039519	2.266528	0.0445784	*
## LEVERAGE_RANK	0.051444	0.045345	1.134504	0.2807013	
## GROWTH_RANK	-0.106755	0.027497	-3.882379	0.0025529	**
## RET_RANK	-0.033796	0.039219	-0.861712	0.4072389	
## HP.COMPETITION_RANK	-0.072017	0.016984	-4.240399	0.0013879	**
## HP.SIMILARITY_RANK	0.028604	0.028077	1.018758	0.3302017	
## PG_OVERLAP:RPE_BONUS_DISSIMILARITY	0.010434	0.004728	2.207026	0.0494751	*

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.188707      Adj. R2: 0.289658
##                      Within R2: 0.074883
##
```

```
# HIGH COMPETITION #
Data2 <- Data %>%
  na.omit() %>%
  filter(HP.COMPETITION > median(HP.COMPETITION, na.rm = T)) %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  left_join(RPE_Incentives %>%
    select(CIK, FYEAR, ABN_RPE_TARGET_USD),
    by = c("CIK", "FYEAR")) %>%
  mutate(RPE_BONUS_DISSIMILARITY = ABN_RPE_TARGET_USD %>% replace_na(., 0)) %>%
  mutate(RPE_BONUS_DISSIMILARITY = winsorize(RPE_BONUS_DISSIMILARITY, 0.5, 99.5))

Data2$RPE_BONUS_DISSIMILARITY[is.infinite(Data2$RPE_BONUS_DISSIMILARITY)] <- 0
```

```
MODEL <- feols(c(log1p(ACTION_VOLUME),
  ACTION_COMPLEXITY)
  ~ PG_OVERLAP*RPE_BONUS_DISSIMILARITY + PG_SYNCHRONICITY + MVE_RANK + BTM_RANK + L
EVERAGE_RANK + GROWTH_RANK + RET_RANK + HP.COMPETITION_RANK + HP.SIMILARITY_RANK | FF_INDUSTY_4
8 + FYEAR,
  data = Data2); lapply(MODEL, summary, cluster = c("GVKEY", "FYEAR"))
```

```
## [[1]]
## OLS estimation, Dep. Var.: log1p(ACTION_VOLUME)
## Observations: 810
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
##               Estimate Std. Error   t value Pr(>|t|)
## PG_OVERLAP      0.675777   0.224245   3.013564 0.0117905 *
## RPE_BONUS_DISSIMILARITY 0.009259   0.013276   0.697410 0.5000212
## PG_SYNCHRONICITY -0.016413   0.194063  -0.084578 0.9341168
## MVE_RANK         0.967349   0.233687   4.139497 0.0016454 **
## BTM_RANK         0.294097   0.201372   1.460466 0.1721275
## LEVERAGE_RANK    0.340972   0.151192   2.255217 0.0454720 *
## GROWTH_RANK      -0.025981   0.121504  -0.213831 0.8345904
## RET_RANK         0.041142   0.134608   0.305643 0.7655827
## HP.COMPETITION_RANK -0.135435   0.198662  -0.681736 0.5095050
## HP.SIMILARITY_RANK -0.179262   0.218908  -0.818890 0.4302331
## PG_OVERLAP:RPE_BONUS_DISSIMILARITY -0.009361   0.029086  -0.321833 0.7536124
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.721054      Adj. R2: 0.565475
##                      Within R2: 0.110695
##
## [[2]]
## OLS estimation, Dep. Var.: ACTION_COMPLEXITY
## Observations: 810
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
##               Estimate Std. Error   t value Pr(>|t|)
## PG_OVERLAP      -0.044778   0.064401  -0.695298 0.501293
## RPE_BONUS_DISSIMILARITY 0.000800   0.002973   0.269069 0.792857
## PG_SYNCHRONICITY -0.012566   0.055823  -0.225112 0.826019
## MVE_RANK         0.127353   0.072497   1.756674 0.106736
## BTM_RANK         0.111600   0.048032   2.323427 0.040334 *
## LEVERAGE_RANK    0.077818   0.036846   2.111967 0.058377 .
## GROWTH_RANK      -0.010160   0.026819  -0.378838 0.712018
## RET_RANK         0.004149   0.025572   0.162258 0.874045
## HP.COMPETITION_RANK 0.031024   0.048012   0.646179 0.531413
## HP.SIMILARITY_RANK -0.087952   0.045541  -1.931290 0.079612 .
## PG_OVERLAP:RPE_BONUS_DISSIMILARITY 0.002519   0.009701   0.259634 0.799942
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.183781      Adj. R2: 0.326273
##                      Within R2: 0.044244
```

**Table 7****Panel B**

```
# LOW COMPETITION #
Data2 <- Data %>%
  na.omit() %>%
  filter(HP.COMPETITION <= median(HP.COMPETITION, na.rm = T)) %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  left_join(RPE_criteria,
            by = c("CIK", "FYEAR")) %>%
  mutate(ABN_RPE_PRICE = ABN_RPE_PRICE %>% replace_na(., 0))

MODEL <- feols(c(log1p(ACTION_VOLUME),
                  ACTION_COMPLEXITY)
              ~ PG_OVERLAP*ABN_RPE_PRICE + PG_SYNCHRONICITY + MVE_RANK + BTM_RANK + LEVERAGE_RA
              NK + GROWTH_RANK + RET_RANK + HP.COMPETITION_RANK + HP.SIMILARITY_RANK | FF_INDUSTRY_48 + FYEAR,
              data = Data2); lapply(MODEL, summary, cluster = c("GVKEY", "FYEAR"))
```

```
## [[1]]
## OLS estimation, Dep. Var.: log1p(ACTION_VOLUME)
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
```

	Estimate	Std. Error	t value	Pr(> t )
PG_OVERLAP	1.142350	0.280228	4.076506	0.0018310 **
ABN_RPE_PRICE	0.212670	0.135065	1.574570	0.1436586
PG_SYNCHRONICITY	-0.031537	0.219653	-0.143576	0.8884319
MVE_RANK	0.981413	0.237335	4.135135	0.0016576 **
BTM_RANK	0.241633	0.227758	1.060921	0.3114645
LEVERAGE_RANK	0.043567	0.218848	0.199073	0.8458372
GROWTH_RANK	-0.336674	0.133139	-2.528747	0.0280359 *
RET_RANK	-0.139075	0.137573	-1.010922	0.3337742
HP.COMPETITION_RANK	-0.339873	0.189536	-1.793186	0.1004510
HP.SIMILARITY_RANK	0.168159	0.108010	1.556893	0.1477817
PG_OVERLAP:ABN_RPE_PRICE	-0.983587	0.366385	-2.684576	0.0212339 *

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.727103      Adj. R2: 0.539455
##                      Within R2: 0.096285
##
## [[2]]
## OLS estimation, Dep. Var.: ACTION_COMPLEXITY
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
```

	Estimate	Std. Error	t value	Pr(> t )
PG_OVERLAP	0.307656	0.063370	4.854933	0.00050675 ***
ABN_RPE_PRICE	0.016487	0.039285	0.419685	0.68279503
PG_SYNCHRONICITY	-0.030910	0.046241	-0.668450	0.51762778
MVE_RANK	0.188585	0.050977	3.699404	0.00350525 **
BTM_RANK	0.107687	0.036510	2.949536	0.01322036 *
LEVERAGE_RANK	0.055171	0.054664	1.009285	0.33452417
GROWTH_RANK	-0.101902	0.033425	-3.048690	0.01107337 *
RET_RANK	-0.019249	0.029714	-0.647799	0.53040312
HP.COMPETITION_RANK	-0.053154	0.037637	-1.412288	0.18552554
HP.SIMILARITY_RANK	0.033772	0.020766	1.626305	0.13216471
PG_OVERLAP:ABN_RPE_PRICE	-0.183644	0.112273	-1.635697	0.13016723

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.195445      Adj. R2: 0.252119
##                      Within R2: 0.081626
##
```

```
# HIGH COMPETITION #
Data2 <- Data %>%
  na.omit() %>%
  filter(HP.COMPETITION > median(HP.COMPETITION, na.rm = T)) %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  left_join(RPE_criteria,
            by = c("CIK", "FYEAR")) %>%
  mutate(ABN_RPE_PRICE = ABN_RPE_PRICE %>% replace_na(., 0))

MODEL <- feols(c(log1p(ACTION_VOLUME),
                  ACTION_COMPLEXITY)
              ~ PG_OVERLAP*ABN_RPE_PRICE + PG_SYNCHRONICITY + MVE_RANK + BTM_RANK + LEVERAGE_RA
              NK + GROWTH_RANK + RET_RANK + HP.COMPETITION_RANK + HP.SIMILARITY_RANK | FF_INDUSTRY_48 + FYEAR,
              data = Data2); lapply(MODEL, summary, cluster = c("GVKEY", "FYEAR"))
```

```
## [[1]]
## OLS estimation, Dep. Var.: log1p(ACTION_VOLUME)
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
```

	Estimate	Std. Error	t value	Pr(> t )
PG_OVERLAP	0.631024	0.271844	2.321275	0.0404868 *
ABN_RPE_PRICE	-0.053429	0.179523	-0.297614	0.7715432
PG_SYNCHRONICITY	0.086095	0.205415	0.419127	0.6831910
MVE_RANK	1.026598	0.238521	4.304024	0.0012475 **
BTM_RANK	0.335903	0.202804	1.656295	0.1258801
LEVERAGE_RANK	0.505150	0.149147	3.386921	0.0060678 **
GROWTH_RANK	-0.004404	0.096456	-0.045658	0.9644016
RET_RANK	-0.058851	0.150461	-0.391137	0.7031659
HP.COMPETITION_RANK	-0.018172	0.149461	-0.121585	0.9054203
HP.SIMILARITY_RANK	-0.204028	0.189780	-1.075073	0.3053575
PG_OVERLAP:ABN_RPE_PRICE	-0.352513	0.495784	-0.711022	0.4918725

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.733381      Adj. R2: 0.549556
##                      Within R2: 0.115921
##
```

```
## [[2]]
## OLS estimation, Dep. Var.: ACTION_COMPLEXITY
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
```

	Estimate	Std. Error	t value	Pr(> t )
PG_OVERLAP	0.005285	0.068744	0.076885	0.940096
ABN_RPE_PRICE	-0.018790	0.040140	-0.468105	0.648848
PG_SYNCHRONICITY	-0.006963	0.045833	-0.151923	0.881998
MVE_RANK	0.104638	0.061797	1.693266	0.118498
BTM_RANK	0.092079	0.040327	2.283282	0.043286 *
LEVERAGE_RANK	0.077735	0.034932	2.225311	0.047918 *
GROWTH_RANK	-0.058129	0.034735	-1.673496	0.122396
RET_RANK	-0.030946	0.022632	-1.367328	0.198812
HP.COMPETITION_RANK	0.044940	0.047642	0.943279	0.365795
HP.SIMILARITY_RANK	-0.021837	0.041305	-0.528687	0.607525
PG_OVERLAP:ABN_RPE_PRICE	-0.015623	0.088864	-0.175812	0.863636

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.192636      Adj. R2: 0.252904
##                      Within R2: 0.039198
##
```

**Table 7****Panel C**

```

# LOW COMPETITION #
Data2 <- Data %>%
  na.omit() %>%
  filter(HP.COMPETITION <= median(HP.COMPETITION, na.rm = T)) %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  left_join(Peers_desc %>%
    group_by(CIK, FYEAR) %>%
    summarize(PG_SIZE = n()) %>%
    ungroup(),
    by = c("CIK", "FYEAR")) %>%
  mutate(N_PG_OVERLAP = PG_OVERLAP * PG_SIZE, # number of overlapping relationships
    PG_SIZE = PG_SIZE - mean(PG_SIZE)) # mean-centered

MODEL <- feols(c(log1p(ACTION_VOLUME),
  ACTION_COMPLEXITY)
  ~ N_PG_OVERLAP*PG_SIZE + PG_SYNCHRONICITY + MVE_RANK + BTM_RANK + LEVERAGE_RANK +
  GROWTH_RANK + RET_RANK + HP.COMPETITION_RANK + HP.SIMILARITY_RANK | FF_INDUSTY_48 + FYEAR,
  data = Data2); lapply(MODEL, summary, cluster = c("GVKEY", "FYEAR"))

```



```
## [[1]]
## OLS estimation, Dep. Var.: log1p(ACTION_VOLUME)
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
```

	Estimate	Std. Error	t value	Pr(> t )
## N_PG_OVERLAP	0.082957	0.028339	2.927364	0.0137551 *
## PG_SIZE	-0.015209	0.009726	-1.563637	0.1461966
## PG_SYNCHRONICITY	0.014668	0.217178	0.067540	0.9473641
## MVE_RANK	0.962025	0.242805	3.962135	0.0022259 **
## BTM_RANK	0.287583	0.232236	1.238323	0.2413728
## LEVERAGE_RANK	0.089337	0.223664	0.399422	0.6972281
## GROWTH_RANK	-0.357665	0.136986	-2.610959	0.0242161 *
## RET_RANK	-0.128136	0.143743	-0.891428	0.3917817
## HP.COMPETITION_RANK	-0.332797	0.192871	-1.725491	0.1123827
## HP.SIMILARITY_RANK	0.196359	0.109214	1.797936	0.0996584 .
## N_PG_OVERLAP:PG_SIZE	0.004162	0.004632	0.898565	0.3881302

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.727507      Adj. R2: 0.538943
##                      Within R2: 0.09528
##
## [[2]]
## OLS estimation, Dep. Var.: ACTION_COMPLEXITY
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
```

	Estimate	Std. Error	t value	Pr(> t )
## N_PG_OVERLAP	0.022012	0.007007	3.141373	0.0093854 **
## PG_SIZE	0.002168	0.001797	1.206654	0.2528750
## PG_SYNCHRONICITY	-0.034781	0.049139	-0.707807	0.4937898
## MVE_RANK	0.193168	0.048576	3.976657	0.0021712 **
## BTM_RANK	0.110303	0.037211	2.964242	0.0128773 *
## LEVERAGE_RANK	0.052548	0.053151	0.988668	0.3440743
## GROWTH_RANK	-0.095780	0.029496	-3.247253	0.0077731 **
## RET_RANK	-0.015692	0.029582	-0.530447	0.6063444
## HP.COMPETITION_RANK	-0.056344	0.038653	-1.457675	0.1728806
## HP.SIMILARITY_RANK	0.048788	0.022430	2.175135	0.0523070 .
## N_PG_OVERLAP:PG_SIZE	-0.001291	0.000841	-1.534417	0.1531727

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.196137      Adj. R2: 0.246817
##                      Within R2: 0.075115
```

```

# HIGH COMPETITION #
Data2 <- Data %>%
  na.omit() %>%
  filter(HP.COMPETITION > median(HP.COMPETITION, na.rm = T)) %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  left_join(Peers_desc %>%
    group_by(CIK, FYEAR) %>%
    summarize(PG_SIZE = n()) %>%
    ungroup(),
    by = c("CIK", "FYEAR")) %>%
  mutate(N_PG_OVERLAP = PG_OVERLAP * PG_SIZE,
    PG_SIZE = PG_SIZE - mean(PG_SIZE))

MODEL <- feols(c(log1p(ACTION_VOLUME),
  ACTION_COMPLEXITY)
  ~ N_PG_OVERLAP*PG_SIZE + PG_SYNCHRONICITY + MVE_RANK + BTM_RANK + LEVERAGE_RANK +
  GROWTH_RANK + RET_RANK + HP.COMPETITION_RANK + HP.SIMILARITY_RANK | FF_INDUSTY_48 + FYEAR,
  data = Data2); lapply(MODEL, summary, cluster = c("GVKEY", "FYEAR"))

```

```
## [[1]]
## OLS estimation, Dep. Var.: log1p(ACTION_VOLUME)
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
##           Estimate Std. Error   t value Pr(>|t|)
## N_PG_OVERLAP      0.032986   0.032145   1.026193 0.3268382
## PG_SIZE           -0.000952   0.003966  -0.240113 0.8146582
## PG_SYNCHRONICITY    0.127576   0.215470   0.592081 0.5657671
## MVE_RANK           1.025673   0.226463   4.529102 0.0008591 ***
## BTM_RANK           0.348126   0.203298   1.712395 0.1148332
## LEVERAGE_RANK      0.518565   0.150567   3.444088 0.0054850 **
## GROWTH_RANK        -0.009237   0.092337  -0.100041 0.9221120
## RET_RANK           -0.049097   0.151677  -0.323695 0.7522401
## HP.COMPETITION_RANK -0.016888   0.154522  -0.109291 0.9149396
## HP.SIMILARITY_RANK -0.200781   0.185769  -1.080810 0.3029079
## N_PG_OVERLAP:PG_SIZE -0.001494   0.003038  -0.491710 0.6325894
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.736705      Adj. R2: 0.545463
##
##           Within R2: 0.107889
##
## [[2]]
## OLS estimation, Dep. Var.: ACTION_COMPLEXITY
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
##           Estimate Std. Error   t value Pr(>|t|)
## N_PG_OVERLAP      -0.001843   0.004992  -0.369147 0.719025
## PG_SIZE           -0.000713   0.000817  -0.872545 0.401556
## PG_SYNCHRONICITY  -0.003806   0.047046  -0.080908 0.936969
## MVE_RANK           0.099293   0.061589   1.612167 0.135222
## BTM_RANK           0.089484   0.039914   2.241937 0.046543 *
## LEVERAGE_RANK      0.076461   0.036009   2.123372 0.057234 .
## GROWTH_RANK        -0.058841   0.034603  -1.700473 0.117105
## RET_RANK           -0.033846   0.023582  -1.435243 0.179036
## HP.COMPETITION_RANK  0.043461   0.048308   0.899652 0.387576
## HP.SIMILARITY_RANK -0.024247   0.042395  -0.571926 0.578872
## N_PG_OVERLAP:PG_SIZE  0.000059   0.000582   0.101286 0.921146
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.192607      Adj. R2: 0.253128
##
##           Within R2: 0.039486
```

## Table 7

### Panel D

```
# LOW COMPETITION #
Data2 <- Data %>%
  na.omit() %>%
  filter(HP.COMPETITION <= median(HP.COMPETITION, na.rm = T)) %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  left_join(Overlap_match %>%
    select(GVKEY, FYEAR, OVERLAP_IN_GICS, OVERLAP_NOT_IN_GICS),
    by = c("GVKEY", "FYEAR"))

MODEL <- feols(c(log1p(ACTION_VOLUME),
  ACTION_COMPLEXITY)
  ~ OVERLAP_IN_GICS + OVERLAP_NOT_IN_GICS + PG_SYNCHRONICITY + MVE_RANK + BTM_RANK
  + LEVERAGE_RANK + GROWTH_RANK + RET_RANK + HP.COMPETITION_RANK + HP.SIMILARITY_RANK | FF_INDUST
RY_48 + FYEAR,
  data = Data2); lapply(MODEL, summary, cluster = c("GVKEY", "FYEAR"))
```

```
## [[1]]
## OLS estimation, Dep. Var.: log1p(ACTION_VOLUME)
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
```

	Estimate	Std. Error	t value	Pr(> t )	
OVERLAP_IN_GICS	0.733875	0.285017	2.574848	0.0258263	*
OVERLAP_NOT_IN_GICS	1.321299	0.832441	1.587260	0.1407611	
PG_SYNCHRONICITY	0.001359	0.215508	0.006305	0.9950820	
MVE_RANK	0.925874	0.237480	3.898753	0.0024819	**
BTM_RANK	0.218153	0.225969	0.965408	0.3550856	
LEVERAGE_RANK	0.025124	0.210067	0.119601	0.9069554	
GROWTH_RANK	-0.345550	0.131567	-2.626424	0.0235571	*
RET_RANK	-0.127460	0.137113	-0.929596	0.3725310	
HP.COMPETITION_RANK	-0.334753	0.184657	-1.812833	0.0972097	.
HP.SIMILARITY_RANK	0.183379	0.105947	1.730856	0.1113925	

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.731692      Adj. R2: 0.534257
##                      Within R2: 0.084842
##
## [[2]]
## OLS estimation, Dep. Var.: ACTION_COMPLEXITY
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
```

	Estimate	Std. Error	t value	Pr(> t )	
OVERLAP_IN_GICS	0.219517	0.069861	3.142197	0.0093716	**
OVERLAP_NOT_IN_GICS	0.160877	0.132754	1.211843	0.2509610	
PG_SYNCHRONICITY	-0.028335	0.050495	-0.561145	0.5859484	
MVE_RANK	0.177801	0.049066	3.623695	0.0040005	**
BTM_RANK	0.105764	0.036946	2.862670	0.0154427	*
LEVERAGE_RANK	0.047221	0.054244	0.870535	0.4026066	
GROWTH_RANK	-0.100624	0.031849	-3.159431	0.0090882	**
RET_RANK	-0.017131	0.029516	-0.580401	0.5733420	
HP.COMPETITION_RANK	-0.051371	0.038331	-1.340200	0.2072056	
HP.SIMILARITY_RANK	0.034222	0.021329	1.604461	0.1369152	

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.196468      Adj. R2: 0.2453
##                      Within R2: 0.071992
```

```
# HIGH COMPETITION #
Data2 <- Data %>%
  na.omit() %>%
  filter(HP.COMPETITION > median(HP.COMPETITION, na.rm = T)) %>%
  filter(RPE_SELF_SELECTED == 1) %>%
  filter(PG_SYNCHRONICITY != 0) %>%
  left_join(Overlap_match %>%
    select(GVKEY, FYEAR, OVERLAP_IN_GICS, OVERLAP_NOT_IN_GICS),
    by = c("GVKEY", "FYEAR"))

MODEL <- feols(c(log1p(ACTION_VOLUME),
  ACTION_COMPLEXITY)
  ~ OVERLAP_IN_GICS + OVERLAP_NOT_IN_GICS + PG_SYNCHRONICITY + MVE_RANK + BTM_RANK
  + LEVERAGE_RANK + GROWTH_RANK + RET_RANK + HP.COMPETITION_RANK + HP.SIMILARITY_RANK | FF_INDUST
  RY_48 + FYEAR,
  data = Data2); lapply(MODEL, summary, cluster = c("GVKEY", "FYEAR"))
```

```
## [[1]]
## OLS estimation, Dep. Var.: log1p(ACTION_VOLUME)
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
##          Estimate Std. Error   t value Pr(>|t|)
## OVERLAP_IN_GICS    0.460068   0.256464   1.793889 0.1003334
## OVERLAP_NOT_IN_GICS 1.304029   1.292087   1.009243 0.3345433
## PG_SYNCHRONICITY    0.113649   0.204964   0.554485 0.5903424
## MVE_RANK            1.030102   0.234211   4.398180 0.0010664 **
## BTM_RANK            0.334510   0.204067   1.639214 0.1294261
## LEVERAGE_RANK       0.509881   0.150175   3.395236 0.0059793 **
## GROWTH_RANK         -0.007657   0.092591  -0.082695 0.9355795
## RET_RANK            -0.061163   0.150204  -0.407196 0.6916754
## HP.COMPETITION_RANK -0.027589   0.151014  -0.182694 0.8583615
## HP.SIMILARITY_RANK  -0.202947   0.193184  -1.050538 0.3160031
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.735089      Adj. R2: 0.548038
##                      Within R2: 0.111796
##
## [[2]]
## OLS estimation, Dep. Var.: ACTION_COMPLEXITY
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
##          Estimate Std. Error   t value Pr(>|t|)
## OVERLAP_IN_GICS    -0.014124   0.059612  -0.236931 0.817065
## OVERLAP_NOT_IN_GICS 0.141215   0.196216   0.719695 0.486723
## PG_SYNCHRONICITY    -0.003078   0.044666  -0.068917 0.946293
## MVE_RANK            0.104523   0.061233   1.706979 0.115860
## BTM_RANK            0.092421   0.040303   2.293155 0.042541 *
## LEVERAGE_RANK       0.077710   0.035242   2.205011 0.049650 *
## GROWTH_RANK         -0.058056   0.034417  -1.686851 0.119751
## RET_RANK            -0.031418   0.024614  -1.276421 0.228097
## HP.COMPETITION_RANK 0.043716   0.048147   0.907976 0.383352
## HP.SIMILARITY_RANK  -0.022064   0.042231  -0.522456 0.611713
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.192742      Adj. R2: 0.253048
##                      Within R2: 0.038143
```

## Table 8

### Panel A

```

# LOW COMPETITION #
MODEL <- feols(c(log1p(ACTION_NEW_PRODUCTS),
                  log1p(ACTION_PRICING),
                  log1p(ACTION_MARKETING),
                  log1p(ACTION_ACQUISITIONS),
                  log1p(ACTION_JOINT_VENTURE),
                  log1p(ACTION_ALLIANCE),
                  log1p(ACTION_MARKET_EXPANSION))
              ~ PG_OVERLAP + PG_SYNCHRONICITY + MVE_RANK + BTM_RANK + LEVERAGE_RANK + GROWTH_RAN
NK + RET_RANK + HP.COMPETITION_RANK + HP.SIMILARITY_RANK | FF_INDUSTRY_48 + FYEAR,
              data = Data %>%
                na.omit() %>%
                filter(HP.COMPETITION <= median(HP.COMPETITION, na.rm = T)) %>%
                filter(RPE_SELF_SELECTED == 1) %>%
                filter(PG_SYNCHRONICITY != 0)); lapply(MODEL, summary, cluster = c("GVKEY", "FY
EAR"))

```



```
## [[1]]
## OLS estimation, Dep. Var.: log1p(ACTION_NEW_PRODUCTS)
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
##      Estimate Std. Error   t value   Pr(>|t|)
## PG_OVERLAP      0.910947   0.266067   3.423753 0.00568543 **
## PG_SYNCHRONICITY 0.064051   0.245724   0.260661 0.79916904
## MVE_RANK        1.064268   0.234498   4.538504 0.00084594 ***
## BTM_RANK        0.328973   0.238934   1.376836 0.19593758
## LEVERAGE_RANK   -0.135706   0.253244  -0.535870 0.60271518
## GROWTH_RANK     -0.424864   0.088729  -4.788346 0.00056380 ***
## RET_RANK        -0.230963   0.148465  -1.555675 0.14806951
## HP.COMPETITION_RANK -0.514551   0.181576  -2.833808 0.01626102 *
## HP.SIMILARITY_RANK 0.248689   0.118763   2.093985 0.06022400 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.798895      Adj. R2: 0.540558
##
##      Within R2: 0.103129
##
## [[2]]
## OLS estimation, Dep. Var.: log1p(ACTION_PRICING)
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
##      Estimate Std. Error   t value   Pr(>|t|)
## PG_OVERLAP      0.026223   0.141471   0.185361 0.8563194
## PG_SYNCHRONICITY -0.196625   0.140809  -1.396399 0.1901331
## MVE_RANK        0.341441   0.122151   2.795235 0.0174226 *
## BTM_RANK        0.082147   0.109005   0.753603 0.4669122
## LEVERAGE_RANK   0.212174   0.081793   2.594055 0.0249572 *
## GROWTH_RANK     -0.248879   0.056681  -4.390847 0.0010795 **
## RET_RANK        -0.006983   0.060188  -0.116018 0.9097295
## HP.COMPETITION_RANK -0.052454   0.106115  -0.494315 0.6308071
## HP.SIMILARITY_RANK 0.138663   0.062617   2.214470 0.0488355 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.42203      Adj. R2: 0.202025
##
##      Within R2: 0.05514
##
## [[3]]
## OLS estimation, Dep. Var.: log1p(ACTION_MARKETING)
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
##      Estimate Std. Error   t value   Pr(>|t|)
## PG_OVERLAP      0.387722   0.317543   1.221007 0.247609
## PG_SYNCHRONICITY -0.259230   0.204469  -1.267823 0.231040
## MVE_RANK        0.122337   0.314510   0.388976 0.704718
## BTM_RANK        0.292625   0.267079   1.095649 0.296641
## LEVERAGE_RANK   0.015054   0.192961   0.078015 0.939217
## GROWTH_RANK     -0.243555   0.110130  -2.211524 0.049088 *
```

```

## RET_RANK          0.189284    0.144865    1.306621 0.218000
## HP.COMPETITION_RANK -0.063614    0.211365   -0.300969 0.769051
## HP.SIMILARITY_RANK    0.222914    0.162162    1.374643 0.196597
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.735435      Adj. R2: 0.234633
##                      Within R2: 0.028376
##
## [[4]]
## OLS estimation, Dep. Var.: log1p(ACTION_ACQUISITIONS)
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##              Estimate Std. Error   t value   Pr(>|t|)
## PG_OVERLAP      0.612919    0.201850    3.036511 0.01131691 *
## PG_SYNCHRONICITY 0.102921    0.235588    0.436869 0.67065859
## MVE_RANK         1.095932    0.239483    4.576234 0.00079522 ***
## BTM_RANK         0.167463    0.216525    0.773413 0.45557726
## LEVERAGE_RANK    0.200136    0.179315    1.116117 0.28815980
## GROWTH_RANK      -0.222413    0.121645   -1.828386 0.09471190 .
## RET_RANK         -0.060368    0.136842   -0.441154 0.66764709
## HP.COMPETITION_RANK -0.201907    0.178092   -1.133724 0.28101466
## HP.SIMILARITY_RANK -0.105903    0.116608   -0.908202 0.38323755
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.823173      Adj. R2: 0.593824
##                      Within R2: 0.067602
##
## [[5]]
## OLS estimation, Dep. Var.: log1p(ACTION_JOINT_VENTURE)
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##              Estimate Std. Error   t value   Pr(>|t|)
## PG_OVERLAP      0.194372    0.098574    1.971836 0.074298 .
## PG_SYNCHRONICITY -0.041693    0.112739   -0.369818 0.718539
## MVE_RANK         0.171969    0.129184    1.331201 0.210054
## BTM_RANK         0.058610    0.107417    0.545630 0.596211
## LEVERAGE_RANK    0.044100    0.069327    0.636111 0.537715
## GROWTH_RANK      0.058012    0.062654    0.925907 0.374362
## RET_RANK        -0.102996    0.060894   -1.691418 0.118858
## HP.COMPETITION_RANK -0.112731    0.107820   -1.045543 0.318204
## HP.SIMILARITY_RANK 0.018203    0.058076    0.313440 0.759810
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.390892      Adj. R2: 0.04326
##                      Within R2: 0.017207
##
## [[6]]
## OLS estimation, Dep. Var.: log1p(ACTION_ALLIANCE)
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12

```

```
## Standard-errors: Clustered (GVKEY & FYEAR)
##               Estimate Std. Error   t value Pr(>|t|)
## PG_OVERLAP      0.917697   0.251939   3.642543 0.0038708 **
## PG_SYNCHRONICITY -0.045306   0.233427  -0.194089 0.8496441
## MVE_RANK         0.765320   0.261817   2.923113 0.0138601 *
## BTM_RANK         0.168975   0.180559   0.935846 0.3694436
## LEVERAGE_RANK   -0.147263   0.169395  -0.869345 0.4032292
## GROWTH_RANK      -0.310234   0.111330  -2.786626 0.0176930 *
## RET_RANK         -0.309744   0.119083  -2.601084 0.0246463 *
## HP.COMPETITION_RANK -0.149527   0.183504  -0.814841 0.4324512
## HP.SIMILARITY_RANK 0.275688   0.130521   2.112216 0.0583523 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.725482      Adj. R2: 0.435165
##               Within R2: 0.085769
##
## [[7]]
## OLS estimation, Dep. Var.: log1p(ACTION_MARKET_EXPANSION)
## Observations: 795
## Fixed-effects: FF_INDUSTRY_48: 38, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##               Estimate Std. Error   t value Pr(>|t|)
## PG_OVERLAP      0.210127   0.137264   1.530818 0.154052
## PG_SYNCHRONICITY -0.082256   0.113360  -0.725616 0.483227
## MVE_RANK         0.151142   0.081949   1.844354 0.092208 .
## BTM_RANK         0.124050   0.057055   2.174199 0.052392 .
## LEVERAGE_RANK    0.025459   0.039704   0.641224 0.534509
## GROWTH_RANK      -0.013024   0.057331  -0.227168 0.824460
## RET_RANK         -0.003201   0.038026  -0.084183 0.934424
## HP.COMPETITION_RANK -0.106833   0.067248  -1.588655 0.140446
## HP.SIMILARITY_RANK 0.017831   0.034635   0.514821 0.616864
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.268797      Adj. R2: 0.199917
##               Within R2: 0.032415
```

## Table 8

### Panel B

```

# HIGH COMPETITION #
MODEL <- feols(c(log1p(ACTION_NEW_PRODUCTS),
                  log1p(ACTION_PRICING),
                  log1p(ACTION_MARKETING),
                  log1p(ACTION_ACQUISITIONS),
                  log1p(ACTION_JOINT_VENTURE),
                  log1p(ACTION_ALLIANCE),
                  log1p(ACTION_MARKET_EXPANSION))
              ~ PG_OVERLAP + PG_SYNCHRONICITY + MVE_RANK + BTM_RANK + LEVERAGE_RANK + GROWTH_RAN
NK + RET_RANK + HP.COMPETITION_RANK + HP.SIMILARITY_RANK | FF_INDUSTRY_48 + FYEAR,
              data = Data %>%
                na.omit() %>%
                filter(HP.COMPETITION > median(HP.COMPETITION, na.rm = T)) %>%
                filter(RPE_SELF_SELECTED == 1) %>%
                filter(PG_SYNCHRONICITY != 0)); lapply(MODEL, summary, cluster = c("GVKEY", "FY
EAR"))

```

```
## [[1]]
## OLS estimation, Dep. Var.: log1p(ACTION_NEW_PRODUCTS)
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
##           Estimate Std. Error   t value Pr(>|t|)
## PG_OVERLAP      -0.093865   0.197619  -0.474981 0.6440914
## PG_SYNCHRONICITY -0.048787   0.212345  -0.229753 0.8225001
## MVE_RANK         0.855244   0.218589   3.912560 0.0024236 **
## BTM_RANK         0.307961   0.189216   1.627566 0.1318950
## LEVERAGE_RANK    0.332310   0.150855   2.202848 0.0498376 *
## GROWTH_RANK      -0.222496   0.129822  -1.713855 0.1145576
## RET_RANK         -0.045146   0.128018  -0.352652 0.7310136
## HP.COMPETITION_RANK -0.119535   0.210939  -0.566683 0.5823078
## HP.SIMILARITY_RANK -0.084605   0.221009  -0.382812 0.7091531
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.752628   Adj. R2: 0.674607
##
##           Within R2: 0.054711
##
## [[2]]
## OLS estimation, Dep. Var.: log1p(ACTION_PRICING)
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
##           Estimate Std. Error   t value Pr(>|t|)
## PG_OVERLAP         0.139794   0.121310   1.152365 0.273600
## PG_SYNCHRONICITY   -0.005481   0.132175  -0.041470 0.967664
## MVE_RANK           0.111568   0.084032   1.327690 0.211174
## BTM_RANK           -0.096981   0.065450  -1.481749 0.166476
## LEVERAGE_RANK      0.192772   0.091519   2.106362 0.058947 .
## GROWTH_RANK        -0.047774   0.039337  -1.214485 0.249991
## RET_RANK           -0.079903   0.072079  -1.108554 0.291272
## HP.COMPETITION_RANK 0.119348   0.111651   1.068936 0.307995
## HP.SIMILARITY_RANK -0.131070   0.091461  -1.433081 0.179639
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.38138   Adj. R2: 0.258476
##
##           Within R2: 0.030547
##
## [[3]]
## OLS estimation, Dep. Var.: log1p(ACTION_MARKETING)
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##
##           Estimate Std. Error   t value Pr(>|t|)
## PG_OVERLAP         0.048969   0.233098   0.210077 0.837448
## PG_SYNCHRONICITY    0.151270   0.282815   0.534875 0.603381
## MVE_RANK           0.162919   0.209285   0.778455 0.452721
## BTM_RANK           0.086650   0.197605   0.438503 0.669510
## LEVERAGE_RANK      0.295374   0.191324   1.543840 0.150892
## GROWTH_RANK         0.032846   0.088238   0.372241 0.716785
```

```

## RET_RANK          -0.085406   0.130101 -0.656458 0.525025
## HP.COMPETITION_RANK 0.396952   0.215085  1.845556 0.092022 .
## HP.SIMILARITY_RANK -0.330028   0.230236 -1.433431 0.179541
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.782311      Adj. R2: 0.21602
##                      Within R2: 0.023919
##
## [[4]]
## OLS estimation, Dep. Var.: log1p(ACTION_ACQUISITIONS)
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##              Estimate Std. Error   t value  Pr(>|t|)
## PG_OVERLAP      0.643109   0.249396   2.578668 0.0256511 *
## PG_SYNCHRONICITY 0.139557   0.275649   0.506285 0.6226499
## MVE_RANK         0.894508   0.257118   3.478974 0.0051578 **
## BTM_RANK         0.321892   0.188228   1.710118 0.1152640
## LEVERAGE_RANK    0.380829   0.174980   2.176413 0.0521905 .
## GROWTH_RANK      -0.023084   0.126168  -0.182960 0.8581580
## RET_RANK         -0.035783   0.174395  -0.205185 0.8411752
## HP.COMPETITION_RANK -0.215594   0.202245  -1.066001 0.3092620
## HP.SIMILARITY_RANK -0.305596   0.187145  -1.632940 0.1307509
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.853331      Adj. R2: 0.513767
##                      Within R2: 0.081338
##
## [[5]]
## OLS estimation, Dep. Var.: log1p(ACTION_JOINT_VENTURE)
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##              Estimate Std. Error   t value  Pr(>|t|)
## PG_OVERLAP      0.046791   0.113264   0.413119 0.6874582
## PG_SYNCHRONICITY 0.036215   0.119020   0.304278 0.7665954
## MVE_RANK         0.198694   0.061104   3.251754 0.0077112 **
## BTM_RANK         0.081474   0.067671   1.203969 0.2538698
## LEVERAGE_RANK    0.117601   0.081647   1.440368 0.1776134
## GROWTH_RANK      -0.017599   0.042785  -0.411336 0.6887267
## RET_RANK         -0.031218   0.068506  -0.455690 0.6574768
## HP.COMPETITION_RANK -0.153782   0.073165  -2.101856 0.0594091 .
## HP.SIMILARITY_RANK  0.059078   0.075451   0.783000 0.4501560
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.378524      Adj. R2: 0.042178
##                      Within R2: 0.02267
##
## [[6]]
## OLS estimation, Dep. Var.: log1p(ACTION_ALLIANCE)
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12

```

```
## Standard-errors: Clustered (GVKEY & FYEAR)
##               Estimate Std. Error   t value Pr(>|t|)
## PG_OVERLAP      0.231688   0.251477   0.921310 0.3766524
## PG_SYNCHRONICITY -0.068375   0.243503  -0.280800 0.7840753
## MVE_RANK         0.850858   0.263779   3.225644 0.0080776 **
## BTM_RANK         0.051105   0.182377   0.280218 0.7845097
## LEVERAGE_RANK    0.341711   0.157118   2.174870 0.0523311 .
## GROWTH_RANK      -0.163489   0.109868  -1.488052 0.1648338
## RET_RANK         -0.210665   0.140733  -1.496910 0.1625488
## HP.COMPETITION_RANK 0.100754   0.196729   0.512143 0.6186763
## HP.SIMILARITY_RANK 0.015054   0.200195   0.075199 0.9414065
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.796083      Adj. R2: 0.45234
##                   Within R2: 0.052907
##
## [[7]]
## OLS estimation, Dep. Var.: log1p(ACTION_MARKET_EXPANSION)
## Observations: 828
## Fixed-effects: FF_INDUSTRY_48: 32, FYEAR: 12
## Standard-errors: Clustered (GVKEY & FYEAR)
##               Estimate Std. Error   t value Pr(>|t|)
## PG_OVERLAP      0.057184   0.085583   0.668170 0.51780
## PG_SYNCHRONICITY -0.062472   0.038925  -1.604909 0.13682
## MVE_RANK         0.006919   0.042810   0.161614 0.87454
## BTM_RANK         -0.036962   0.044314  -0.834088 0.42198
## LEVERAGE_RANK    0.051317   0.039268   1.306838 0.21793
## GROWTH_RANK      0.025794   0.034959   0.737849 0.47605
## RET_RANK         -0.001876   0.031162  -0.060205 0.95307
## HP.COMPETITION_RANK 0.113478   0.070515   1.609277 0.13586
## HP.SIMILARITY_RANK -0.056363   0.057435  -0.981337 0.34752
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.238029      Adj. R2: 0.103748
##                   Within R2: 0.016078
```