CHAPTER V

CONCLUSION

A. Conclusion

This research is focused to examine and discuss the influence of companies' R&D intensity on companies' performance. Through the statistics and analysis of the listed companies' R&D intensity and companies' performance, it can be concluded that:

First, the R&D proportion of the listed companies is somewhat low and the disclosure is less comprehensive. R&D intensity urgently needs to be strengthened and needs to be disclose clearly.

Second, in overall, the R&D intensity calculated by dividing R&D expenditure by total assets could explain more about operating profit margin changes. The results point out the importance of company's R&D in creation of positive future benefits for the company and it needs longer time to identify the influence of R&D on company performance.

- On the measurement of one-year, none of independent variable affecting significantly the probability of the company and the results of regression testing shows that the regression model is not acceptable. It can not shows the impact of R&D on the performance of the company at one year after the implementation of R&D is considered. The presented result is not supportive of Hypothesis.

- Three-years-lagged R&D indicates, that the independent variable together significantly affected to profitability. The result shows the highest effect on operating profit margin according to R&D intensity measures used. It is the best period for R&D affect on company's' performance. The presented result is supportive of hypotheses; R&D activities affects on companies' profitability, measured by the operating profit margin.
- The measurement level of a five-year lag from the implementation of R&D in 2006 to 2010 shows the R&D has a relationship positive but insignificantly affect on companies' profitability. Although, this time is not too long to see how the benefits of R&D intensity influence on company's profitability, the presented result is not supportive of hypotheses even five-year period have quite high of R^2 value.

Out of the three years analyses, it can be concluded that effects of R&D intensity on the operating profit margin is the most significant approximately three years after the investment. This difference is due to R&D is an activity that requires a process and time to be able to see the results and impact on corporate performance, more than one year, two years or even longer, depending on availability of data from the company.

B. Implication

Based on the research findings, there are some managerial implications that could be drawn:

It is important for management to realize that Research and Development (R&D) is one of the most important activities of a company. Motivated by creating good quality of goods and service to its customer, a company invests resources in R&D in order to create new ideas, and the process of their exploitation. R&D activities are essential for companies in order to maintain the current competitive position and to reach for new competitive advantages in the fast changing environment. For mining industries R&D is essential for their operation and sustainable. R&D is essential for mining industry in order to find the qualified of mines proven reserves. Finally, the listed companies are suggested to intensify the R&D and make investment decisions more scientific.

C. Research Limitations

The following are the limitations experienced in this study:

1. The measurement period from 2006 until 2010 is classified as short period. It is lack to determine overall effects of independent variable for longer time measurement.

2. The data needed in this study are less available from data sources. Moreover, not all Indonesia companies clearly disclose their Research and Development activity and comprehensive interpretation about the expenditures.

D. Recommendation for Future Research

Based on the findings, it could be recommended for further research rise while processing this study:

1. The research data could be extended to companies not listed in the Indonesia Stock Exchange. The research data could be more extensive and possibly more companies could be included from various industries;
2. it is interesting to test the impact of R&D on different profitability measures than profit margin. In addition, it could also be worthwhile to test the effect of other explanatory variables on the relation of R&D and companies' performance; and
3. when it is possible to obtain R&D intensity for more companies from a longer time period, it would be interesting to see how extensive economic lives the R&D intensity impacts.

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APPENDICES

Appendix 1. Mining Listed Companies in Indonesia Stock Exchange

No	Code	Name	Listing Date
1	ADRO	Adaro Energy Tbk	Jul 16, 2008
2	ANTM	Aneka Tambang (Persero) Tbk	Nov 27, 1997
3	ARTI	Ratu Prabu Energi Tbk	Apr 30, 2003
4	ATPK	ATPK Resources Tbk	Apr 17, 2002
5	BIPI	Benakat Petroleum Energy Tbk	Feb 11, 2010
6	BORN	Borneo Lumbung Energi & Metal Tbk	Nov 26, 2010
7	BRAU	Berau Coal Energy Tbk	Aug 19, 2010
8	BUMI	Bumi Resources Tbk	Jul 30, 1990
9	BYAN	Bayan Resources Tbk	Aug 12, 2008
10	CITA	Cita Mineral Investindo Tbk	Mar 20, 2002
11	CNKO	Exploitasi Energi Indonesia Tbk	Nov 20, 2001
12	CTTH	Citatah Tbk	Jul 3, 1996
13	DEWA	Darma Henwa Tbk	Sep 26, 2007
14	DKFT	Central Omega Resources Tbk	Nov 21, 1997
15	DOID	Delta Dunia Makmur Tbk Tbk	Jun 15, 2001
16	ELSA	Elnusa Tbk	Feb 6, 2008
17	ENRG	Energi Mega Persada Tbk	Jun 7, 2004
18	GTBO	Garda Tujuh Buana Tbk	Jul 9, 2009
19	HRUM	Harum Energy Tbk	Oct 6, 2010
20	INCO	International Nickel Indonesia Tbk	May 16, 1990
21	ITMG	Indo Tambangraya Megah Tbk	Dec 18, 2007
22	KKGI	Resource Alam Indonesia Tbk	Jul 1, 1991
23	MEDC	Medco Energi Internasional Tbk	Oct 12, 1994
24	MITI	Mitra Investindo Tbk	Jul 16, 1997
25	PKPK	Perdana Karya Perkasa Tbk	Jul 11, 2007
26	PTBA	Tambang Batubara Bukit Asam Tbk	Dec 23, 2002
27	PTRO	Petrosea Tbk	May 21, 1990
28	RUIS	Radiant Utama Interinsco Tbk	Jul 12, 2006
29	SQMI	Renuka Coalindo Tbk	Jul 15, 2004
30	TINS	Timah (Persero) Tbk	Oct 19, 1995

Appendix 2. List of The Companies Included in The Initial Samples and Their Mining Classification

No	Code	Name	Mining Classification
1	ANTM	Aneka Tambang (Persero) Tbk	Methals and other mineral
2	ARTI	Ratu Prabu Energi Tbk	Oil and gas
3	BUMI	Bumi Resources Tbk	Coal
4	CITA	Cita Mineral Investindo Tbk	Methals and other mineral
5	CNKO	Exploitasi Energi Indonesia Tbk	Rocks
6	ENRG	Energi Mega Persada Tbk	Oil and gas
7	INCO	International Nickel Indonesia Tbk	Methals and other mineral
8	KKGI	Resource Alam Indonesia Tbk	Coal
9	MEDC	Medco Energi Internasional Tbk	Oil and gas
10	PTBA	Tambang Batubara Bukit Asam Tbk	Oil and gas
11	RUIS	Radiant Utama Interinsco Tbk	Oil and gas
12	TINS	Timah (Persero) Tbk	Methals and other mineral

Appendix 3. Statistical-Test Results

1. One-Year

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	RD[a]	.	Enter
2	DEBR[a]	.	Enter
3	FSize[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: OPM

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.182[a]	.033	-.064	.10892	.033	.343	1	10	.571
2	.238[b]	.056	-.153	.11342	.023	.223	1	9	.648
3	.318[c]	.101	-.236	.11743	.045	.396	1	8	.547

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.004	1	.004	.343	.571[a]
	Residual	.119	10	.012		
	Total	.123	11			
2	Regression	.007	2	.003	.269	.770[b]
	Residual	.116	9	.013		
	Total	.123	11			
3	Regression	.012	3	.004	.300	.825[c]
	Residual	.110	8	.014		
	Total	.123	11			

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

d. Dependent Variable: OPM

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.193	.037		5.181	.000
	RD	.075	.127	.182	.585	.571
2	(Constant)	.183	.045		4.071	.003
	RD	-.015	.232	-.037	-.066	.949
	DEBR	.057	.120	.267	.472	.648
3	(Constant)	.497	.502		.990	.351
	RD	.121	.324	.296	.375	.717
	DEBR	-.030	.185	-.143	-.163	.875
	FSize	-.011	.018	-.315	-.629	.547

a. Dependent Variable: OPM

Excluded Variables[c]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	DEBR	.267[a]	.472	.648	.155	.327
	FSize	-.255[a]	-.805	.442	-.259	1.000
2	FSize	-.315[b]	-.629	.547	-.217	.447

a. Predictors in the Model: (Constant), RD

b. Predictors in the Model: (Constant), RD, DEBR

c. Dependent Variable: OPM

NPar Tests

One-Sample Kolmogorov-Smirnov Test

		OPM	RD	DEBR	FSize
N		12	12	12	12
Normal Parameters[a,b]	Mean	.2049	.1573	.4371	27.0000
	Std. Deviation	.10562	.25782	.49922	3.01511
Most Extreme Differences	Absolute	.164	.316	.281	.250
	Positive	.164	.316	.281	.160
	Negative	-.121	-.276	-.191	-.250
Kolmogorov-Smirnov Z		.570	1.093	.975	.866
Asymp. Sig. (2-tailed)		.902	.183	.298	.441

a. Test distribution is Normal.

b. Calculated from data.

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	RD[a]	.	Enter
2	DEBR[a]	.	Enter
3	FSize[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: OPM

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	RD	1.000	1.000
2	RD	.327	3.059
	DEBR	.327	3.059
3	RD	.180	5.561
	DEBR	.146	6.839
	FSize	.447	2.236

a. Dependent Variable: OPM

Excluded Variables[c]

Model		Beta In	Collinearity Statistics	
			VIF	Minimum Tolerance
1	DEBR	.267[a]	3.059	.327
	FSize	-.255[a]	1.000	1.000
2	FSize	-.315[b]	2.236	.146

a. Predictors in the Model: (Constant), RD

b. Predictors in the Model: (Constant), RD, DEBR

c. Dependent Variable: OPM

Coefficient Correlations[a]

Model			RD	DEBR	FSize
1	Correlations	RD	1.000		
	Covariances	RD	.016		
2	Correlations	RD	1.000	-.820	
		DEBR	-.820	1.000	
	Covariances	RD	.054	-.023	
		DEBR	-.023	.014	
3	Correlations	RD	1.000	-.906	-.671
		DEBR	-.906	1.000	.743
		FSize	-.671	.743	1.000
	Covariances	RD	.105	-.054	-.004
		DEBR	-.054	.034	.002
		FSize	-.004	.002	.000

a. Dependent Variable: OPM

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	RD	DEBR	FSize
1	1	1.537	1.000	.23	.23		
	2	.463	1.823	.77	.77		
2	1	2.400	1.000	.06	.03	.03	
	2	.493	2.206	.74	.13	.02	
	3	.107	4.737	.20	.84	.96	
3	1	3.129	1.000	.00	.01	.01	.00
	2	.752	2.040	.00	.06	.02	.00
	3	.116	5.188	.00	.45	.38	.00
	4	.002	36.577	1.00	.48	.60	1.00

a. Dependent Variable: OPM

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	RD[a]	.	Enter
2	DEBR[a]	.	Enter
3	FSize[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: OPM

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.182[a]	.033	-.064	.10892	
2	.238[b]	.056	-.153	.11342	
3	.318[c]	.101	-.236	.11743	2.589

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

d. Dependent Variable: OPM

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.004	1	.004	.343	.571[a]
	Residual	.119	10	.012		
	Total	.123	11			
2	Regression	.007	2	.003	.269	.770[b]
	Residual	.116	9	.013		
	Total	.123	11			
3	Regression	.012	3	.004	.300	.825[c]
	Residual	.110	8	.014		
	Total	.123	11			

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

d. Dependent Variable: OPM

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.193	.037		5.181	.000
	RD	.075	.127	.182	.585	.571
2	(Constant)	.183	.045		4.071	.003
	RD	-.015	.232	-.037	-.066	.949
	DEBR	.057	.120	.267	.472	.648
3	(Constant)	.497	.502		.990	.351
	RD	.121	.324	.296	.375	.717
	DEBR	-.030	.185	-.143	-.163	.875
	FSize	-.011	.018	-.315	-.629	.547

a. Dependent Variable: OPM

Excluded Variables[c]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	DEBR	.267[a]	.472	.648	.155	.327
	FSize	-.255[a]	-.805	.442	-.259	1.000
2	FSize	-.315[b]	-.629	.547	-.217	.447

a. Predictors in the Model: (Constant), RD

b. Predictors in the Model: (Constant), RD, DEBR

c. Dependent Variable: OPM

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.1609	.2645	.2049	.03357	12
Residual	-.13986	.22205	.00000	.10014	12
Std. Predicted Value	-1.310	1.774	.000	1.000	12
Std. Residual	-1.191	1.891	.000	.853	12

a. Dependent Variable: OPM

NPar Tests

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		12
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.10014381
Most Extreme Differences	Absolute	.159
	Positive	.159
	Negative	-.096
Kolmogorov-Smirnov Z		.551
Asymp. Sig. (2-tailed)		.922

a. Test distribution is Normal.

b. Calculated from data.

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	RD[a]	.	Enter
2	DEBR[a]	.	Enter
3	FSize[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: ABS Unstandardized Residual

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.202[a]	.041	-.055	.06535
2	.783[b]	.613	.527	.04374
3	.791[c]	.626	.485	.04564

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.002	1	.002	.426	.529[a]
	Residual	.043	10	.004		
	Total	.045	11			
2	Regression	.027	2	.014	7.135	.014[b]
	Residual	.017	9	.002		
	Total	.045	11			
3	Regression	.028	3	.009	4.457	.040[c]
	Residual	.017	8	.002		
	Total	.045	11			

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

d. Dependent Variable: ABS Unstandardized Residual

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.082	.022		3.661	.004
	RD	-.050	.076	-.202	-.653	.529
2	(Constant)	.050	.017		2.910	.017
	RD	-.318	.089	-1.288	-3.552	.006
	DEBR	.169	.046	1.323	3.649	.005
3	(Constant)	-.050	.195		-.256	.804
	RD	-.361	.126	-1.464	-2.871	.021
	DEBR	.196	.072	1.540	2.723	.026
	FSize	.004	.007	.167	.516	.620

a. Dependent Variable: ABS Unstandardized Residual

Excluded Variables[c]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	DEBR	1.323[a]	3.649	.005	.772	.327
	FSize	-.488[a]	-1.723	.119	-.498	1.000
2	FSize	.167[b]	.516	.620	.179	.447

a. Predictors in the Model: (Constant), RD

b. Predictors in the Model: (Constant), RD, DEBR

c. Dependent Variable: ABS Unstandardized Residual

2. Three-years

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	RD[a]	.	Enter
2	DEBR[a]	.	Enter
3	FSize[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: OPM

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.420[a]	.176	.152	.12805	.176	7.279	1	34	.011
2	.572[b]	.327	.286	.11751	.150	7.370	1	33	.010
3	.623[c]	.388	.331	.11378	.061	3.203	1	32	.083

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.119	1	.119	7.279	.011[a]
	Residual	.557	34	.016		
	Total	.677	35			
2	Regression	.221	2	.111	8.006	.001[b]
	Residual	.456	33	.014		
	Total	.677	35			
3	Regression	.263	3	.088	6.762	.001[c]
	Residual	.414	32	.013		
	Total	.677	35			

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

d. Dependent Variable: OPM

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.141	.025		5.640	.000
	RD	.246	.091	.420	2.698	.011
2	(Constant)	.170	.025		6.718	.000
	RD	.291	.085	.496	3.406	.002
	DEBR	-.079	.029	-.395	-2.715	.010
3	(Constant)	.573	.226		2.531	.016
	RD	.310	.083	.528	3.716	.001
	DEBR	-.121	.037	-.602	-3.303	.002
	FSize	-.014	.008	-.320	-1.790	.083

a. Dependent Variable: OPM

Excluded Variables[c]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	DEBR	-.395[a]	-2.715	.010	-.427	.963
	FSize	.054[a]	.343	.734	.060	.999
2	FSize	-.320[b]	-1.790	.083	-.302	.599

a. Predictors in the Model: (Constant), RD

b. Predictors in the Model: (Constant), RD, DEBR

c. Dependent Variable: OPM

Regression 3 years

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	RD[a]	.	Enter
2	DEBR[a]	.	Enter
3	FSize[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: OPM

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.420[a]	.176	.152	.12805	
2	.572[b]	.327	.286	.11751	
3	.623[c]	.388	.331	.11378	2.238

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

d. Dependent Variable: OPM

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.119	1	.119	7.279	.011[a]
	Residual	.557	34	.016		
	Total	.677	35			
2	Regression	.221	2	.111	8.006	.001[b]
	Residual	.456	33	.014		
	Total	.677	35			
3	Regression	.263	3	.088	6.762	.001[c]
	Residual	.414	32	.013		
	Total	.677	35			

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

d. Dependent Variable: OPM

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.141	.025		5.640	.000
	RD	.246	.091	.420	2.698	.011
2	(Constant)	.170	.025		6.718	.000
	RD	.291	.085	.496	3.406	.002
	DEBR	-.079	.029	-.395	-2.715	.010
3	(Constant)	.573	.226		2.531	.016
	RD	.310	.083	.528	3.716	.001
	DEBR	-.121	.037	-.602	-3.303	.002
	FSize	-.014	.008	-.320	-1.790	.083

a. Dependent Variable: OPM

Excluded Variables[c]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics: Tolerance
1	DEBR	-.395[a]	-2.715	.010	-.427	.963
	FSize	.054[a]	.343	.734	.060	.999
2	FSize	-.320[b]	-1.790	.083	-.302	.599

a. Predictors in the Model: (Constant), RD

b. Predictors in the Model: (Constant), RD, DEBR

c. Dependent Variable: OPM

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.0959	.4528	.1770	.08662	36
Residual	-.19328	.27346	.00000	.10879	36
Std. Predicted Value	-3.151	3.185	.000	1.000	36
Std. Residual	-1.699	2.403	.000	.956	36

a. Dependent Variable: OPM

Regression 3 years

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	RD[a]	.	Enter
2	DEBR[a]	.	Enter
3	FSize[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: OPM

Coefficients[a]

Model		Collinearity Statistics: Tolerance	VIF
1	RD	1.000	1.000
2	RD	.963	1.038
	DEBR	.963	1.038
3	RD	.948	1.055
	DEBR	.577	1.734
	FSize	.599	1.671

a. Dependent Variable: OPM

Excluded Variables[c]

Model		Beta In	Collinearity Statistics	
			VIF	Minimum Tolerance
1	DEBR	-.395[a]	1.038	.963
	FSize	.054[a]	1.001	.999
2	FSize	-.320[b]	1.671	.577

a. Predictors in the Model: (Constant), RD

b. Predictors in the Model: (Constant), RD, DEBR

c. Dependent Variable: OPM

Coefficient Correlations[a]

Model			RD	DEBR	FSize
1	Correlations	RD	1.000		
	Covariances	RD	.008		
2	Correlations	RD	1.000	-.192	
		DEBR	-.192	1.000	
	Covariances	RD	.007	.000	
		DEBR	.000	.001	
3	Correlations	RD	1.000	-.228	-.127
		DEBR	-.228	1.000	.633
		FSize	-.127	.633	1.000
	Covariances	RD	.007	-.001	-8.6E-005
		DEBR	-.001	.001	.000
		FSize	-8.6E-005	.000	6.56E-005

a. Dependent Variable: OPM

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	RD	DEBR	FSize
1	1	1.525	1.000	.24	.24		
	2	.475	1.792	.76	.76		
2	1	1.995	1.000	.11	.11	.11	
	2	.578	1.857	.00	.65	.53	
	3	.426	2.164	.89	.24	.36	
3	1	2.781	1.000	.00	.05	.03	.00
	2	.637	2.089	.00	.23	.27	.00
	3	.578	2.193	.00	.71	.28	.00
	4	.004	27.619	1.00	.01	.43	1.00

a. Dependent Variable: OPM

NPar Tests 3 years

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		36
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.10879174
Most Extreme Differences	Absolute	.114
	Positive	.114
	Negative	-.067
Kolmogorov-Smirnov Z		.685
Asymp. Sig. (2-tailed)		.735

a. Test distribution is Normal.

b. Calculated from data.

Regression 3 years

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	RD[a]	.	Enter
2	DEBR[a]	.	Enter
3	FSize[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: ABS Unstandardized Residual

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.167[a]	.028	-.001	.06029
2	.294[b]	.086	.031	.05933
3	.406[c]	.165	.087	.05760

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.004	1	.004	.977	.330[a]
	Residual	.124	34	.004		
	Total	.127	35			
2	Regression	.011	2	.005	1.561	.225[b]
	Residual	.116	33	.004		
	Total	.127	35			
3	Regression	.021	3	.007	2.105	.119[c]
	Residual	.106	32	.003		
	Total	.127	35			

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

d. Dependent Variable: ABS Unstandardized Residual

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.095	.012		8.082	.000
	RD	-.042	.043	-.167	-.988	.330
2	(Constant)	.088	.013		6.862	.000
	RD	-.055	.043	-.214	-1.265	.215
	DEBR	.021	.015	.247	1.454	.155
3	(Constant)	.285	.115		2.488	.018
	RD	-.045	.042	-.178	-1.072	.292
	DEBR	.001	.019	.013	.061	.951
	FSize	-.007	.004	-.362	-1.733	.093

a. Dependent Variable: ABS Unstandardized Residual

Excluded Variables[c]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	DEBR	.247[a]	1.454	.155	.245	.963
	FSize	-.370[a]	-2.325	.026	-.375	.999
2	FSize	-.362[b]	-1.733	.093	-.293	.599

a. Predictors in the Model: (Constant), RD

b. Predictors in the Model: (Constant), RD, DEBR

c. Dependent Variable: ABS Unstandardized Residual

3. Five-Years

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	RD[a]	.	Enter
2	DEBR[a]	.	Enter
3	FSize[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: OPM

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.163[a]	.027	.010	.48676	.027	1.591	1	58	.212
2	.312[b]	.097	.066	.47284	.071	4.466	1	57	.039
3	.355[c]	.126	.079	.46940	.029	1.839	1	56	.180

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.377	1	.377	1.591	.212[a]
	Residual	13.742	58	.237		
	Total	14.119	59			
2	Regression	1.376	2	.688	3.076	.054[b]
	Residual	12.744	57	.224		
	Total	14.119	59			
3	Regression	1.781	3	.594	2.694	.055[c]
	Residual	12.339	56	.220		
	Total	14.119	59			

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

d. Dependent Variable: OPM

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.041	.076		.542	.590
	RD	.313	.248	.163	1.262	.212
2	(Constant)	.108	.080		1.346	.184
	RD	.344	.241	.180	1.427	.159
	DEBR	-.109	.052	-.266	-2.113	.039
3	(Constant)	-.667	.577		-1.156	.253
	RD	.365	.240	.191	1.522	.134
	DEBR	-.089	.053	-.217	-1.668	.101
	FSize	.029	.021	.177	1.356	.180

a. Dependent Variable: OPM

Excluded Variables[c]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	DEBR	-.266[a]	-2.113	.039	-.270	.996
	FSize	.237[a]	1.866	.067	.240	.994
2	FSize	.177[b]	1.356	.180	.178	.917

a. Predictors in the Model: (Constant), RD

b. Predictors in the Model: (Constant), RD, DEBR

c. Dependent Variable: OPM

Regression 5 Years

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	RD[a]	.	Enter
2	DEBR[a]	.	Enter
3	FSize[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: OPM

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.163[a]	.027	.010	.48676	
2	.312[b]	.097	.066	.47284	
3	.355[c]	.126	.079	.46940	2.126

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

d. Dependent Variable: OPM

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.377	1	.377	1.591	.212[a]
	Residual	13.742	58	.237		
	Total	14.119	59			
2	Regression	1.376	2	.688	3.076	.054[b]
	Residual	12.744	57	.224		
	Total	14.119	59			
3	Regression	1.781	3	.594	2.694	.055[c]
	Residual	12.339	56	.220		
	Total	14.119	59			

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

d. Dependent Variable: OPM

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.041	.076		.542	.590
	RD	.313	.248	.163	1.262	.212
2	(Constant)	.108	.080		1.346	.184
	RD	.344	.241	.180	1.427	.159
	DEBR	-.109	.052	-.266	-2.113	.039
3	(Constant)	-.667	.577		-1.156	.253
	RD	.365	.240	.191	1.522	.134
	DEBR	-.089	.053	-.217	-1.668	.101
	FSize	.029	.021	.177	1.356	.180

a. Dependent Variable: OPM

Excluded Variables[c]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	DEBR	-.266[a]	-2.113	.039	-.270	.996
	FSize	.237[a]	1.866	.067	.240	.994
2	FSize	.177[b]	1.356	.180	.178	.917

a. Predictors in the Model: (Constant), RD

b. Predictors in the Model: (Constant), RD, DEBR

c. Dependent Variable: OPM

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.5138	.5725	.0948	.17373	60
Residual	-2.38879	.52993	.00000	.45731	60
Std. Predicted Value	-3.503	2.750	.000	1.000	60
Std. Residual	-5.089	1.129	.000	.974	60

a. Dependent Variable: OPM

Regression 5 Years

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	RD[a]	.	Enter
2	DEBR[a]	.	Enter
3	FSize[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: OPM

Coefficients[a]

Model		Collinearity Statistics Tolerance	VIF
1	RD	1.000	1.000
2	RD	.996	1.004
	DEBR	.996	1.004
3	RD	.992	1.008
	DEBR	.919	1.088
	FSize	.917	1.091

a. Dependent Variable: OPM

Excluded Variables[c]

Model		Beta In	Collinearity Statistics	
			VIF	Minimum Tolerance
1	DEBR	-.266[a]	1.004	.996
	FSize	.237[a]	1.006	.994
2	FSize	.177[b]	1.091	.917

a. Predictors in the Model: (Constant), RD

b. Predictors in the Model: (Constant), RD, DEBR

c. Dependent Variable: OPM

Coefficient Correlations[a]

Model			RD	DEBR	FSize
1	Correlations	RD	1.000		
	Covariances	RD	.061		
2	Correlations	RD	1.000	-.062	
		DEBR	-.062	1.000	
	Covariances	RD	.058	-.001	
		DEBR	-.001	.003	
3	Correlations	RD	1.000	-.041	.064
		DEBR	-.041	1.000	.278
		FSize	.064	.278	1.000
	Covariances	RD	.058	-.001	.000
		DEBR	-.001	.003	.000
		FSize	.000	.000	.000

a. Dependent Variable: OPM

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	RD	DEBR	FSize
1	1	1.560	1.000	.22	.22		
	2	.440	1.884	.78	.78		
2	1	1.918	1.000	.12	.11	.11	
	2	.687	1.671	.01	.39	.67	
	3	.395	2.202	.87	.50	.22	
3	1	2.740	1.000	.00	.05	.04	.00
	2	.699	1.980	.00	.19	.77	.00
	3	.556	2.220	.00	.76	.09	.00
	4	.006	21.962	1.00	.01	.09	.99

a. Dependent Variable: OPM

NPar Tests 5 Years

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		60
Normal Parameters[a,b]	Mean	.0681356
	Std. Deviation	.17559977
Most Extreme Differences	Absolute	.104
	Positive	.104
	Negative	-.063
Kolmogorov-Smirnov Z		.809
Asymp. Sig. (2-tailed)		.529

a. Test distribution is Normal.

b. Calculated from data.

Regression 5 Years

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	RD[a]	.	Enter
2	DEBR[a]	.	Enter
3	FSize[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: ABS Unstandardized Residual

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.035[a]	.001	-.016	.12799
2	.050[b]	.002	-.033	.12903
3	.070[c]	.005	-.048	.13002

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.001	1	.001	.072	.789[a]
	Residual	.950	58	.016		
	Total	.951	59			
2	Regression	.002	2	.001	.071	.931[b]
	Residual	.949	57	.017		
	Total	.951	59			
3	Regression	.005	3	.002	.093	.964[c]
	Residual	.947	56	.017		
	Total	.951	59			

a. Predictors: (Constant), RD

b. Predictors: (Constant), RD, DEBR

c. Predictors: (Constant), RD, DEBR, FSize

d. Dependent Variable: ABS Unstandardized Residual

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.141	.020		7.079	.000
	RD	-.018	.065	-.035	-.269	.789
2	(Constant)	.144	.022		6.559	.000
	RD	-.016	.066	-.033	-.250	.804
	DEBR	-.004	.014	-.035	-.267	.790
3	(Constant)	.085	.160		.531	.598
	RD	-.015	.067	-.030	-.223	.824
	DEBR	-.002	.015	-.021	-.152	.880
	FSize	.002	.006	.052	.371	.712

a. Dependent Variable: ABS Unstandardized Residual

Excluded Variables[c]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	DEBR	-.035[a]	-.267	.790	-.035	.996
	FSize	.058[a]	.434	.666	.057	.994
2	FSize	.052[b]	.371	.712	.050	.917

a. Predictors in the Model: (Constant), RD

b. Predictors in the Model: (Constant), RD, DEBR

c. Dependent Variable: ABS Unstandardized Residual