Exporing Discretionary Accruals:

A Stub Project*

Joachim Gassen

TRR 266 Accounting for Transparency

Humboldt-Universität zu Berlin

gassen@wiwi.hu-berlin.de

April 26, 2021

Abstract

The Open Science movement promotes the accessibility and reusability of research. This repository has the objective to help researchers establishing such an collaboration-oriented workflow. It uses a toy project on discretionary accruals for demonstration.

*I acknowledge financial support from Deutsche Forschungsgemeinschaft-Project-ID 403041268 - TRR 266.

1 Introduction

This is not a paper but a stub that is part of a project template repository. We developed this repository to provide a prototype for a reproducible and collaborative workflow. Several authors have discussed advantages of such workflows (Wilson et al. (2017), Gertler, Galiani, and Romero (2018), Christensen, Freese, and Miguel (2019)) and many scholars across fields have voiced the need for increased reproducibility in science (e.g., Ioannidis (2005), Gelman and Loken (2014), Duvendack, Palmer-Jones, and Reed (2017)).

2 Discretionary Accruals

To demonstrate our workflow, we explore discretionary accruals across the U.S. We calculate modified Jones and Dechow and Dichev type accruals and show their distributional properties. The main purpose of all this, however, is to provide a toy use case for our project template directory that contains all the code to obtain the data, run the analysis and prepare a paper as well as a presentation.

Table 1 presents our data that is based on a simple WRDS pull of Compustat data with financial firms (SIC 6XXX) excluded. We require data to calculate all variables and this drastically reduces the sample size. Modified Jones discretionary accruals are calculated loosely based on Hribar and Nichols (2007) and Dechow and Dichev discretionary accruals are calculated based on (big surprise) Dechow and Dichev (2002). As you will see from Figure 1, discretionary accruals are very noisy constructs, even after limiting the sample to observations with complete data and winsorizing all data to the top and bottom percentile for each year. Discretionary accruals show a very prominent heteroscedasticity with regards to size. While researchers have tried to address this problem, the distributional properties of these constructs significantly complicate the interpretation of discretionary accrual-related findings. Especially in high powered settings, the measurement error, being highly correlated with size, will tend to load on variables that are unrelated to the underlying economic construct but correlated with size. Further, the findings by Shust (2014) suggest the extent to which firms engage in R&D, the R&D intensity, is positively associated with the extent to which they engage in accrual-based earnings management, which is measured by discretionary accruals. Thus, we include Figure 2 showing the association between Dechow and

Dichev discretionary accruals and R&D expense. Table 2 shows some correlations related to that and Table 3 shows some (completely pointless) regressions.

[Figure 1 about here.]

[Figure 2 about here.]

[Table 1 about here.]

[Table 2 about here.]

[Table 3 about here.]

3 Conclusion

Isn't that wonderful? Discretionary accruals rock but what rocks even more is open science and a collaborative workflow. Clone or fork this repository to kickstart your own projects. If you do not like R, consider contributing code in your favorite statistical programming language to the repo. Thanks for reading and enjoy!

This repository was built based on the 'treat' template for reproducible research.

References

Christensen, Garret, Jeremy Freese, and Edward Miguel. 2019. *Transparent and Reproducible Social Science Research: How to Do Open Science*. University of California Press.

Dechow, Patricia M., and Ilia D. Dichev. 2002. "The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors." *The Accounting Review* 77 (s-1): 35–59. https://doi.org/10.2308/accr.2002.77.s-1.35.

Duvendack, Maren, Richard Palmer-Jones, and W. Robert Reed. 2017. "What Is Meant by Replication and Why Does It Encounter Resistance in Economics?" *American Economic Review* 107 (5): 46–51. https://doi.org/10.1257/aer.p20171031.

Gelman, Andre, and Eric Loken. 2014. "The Statistical Crisis in Science." *American Scientist* 102 (6): 460–65. https://doi.org/10.1511/2014.111.460.

Gertler, Paul, Sebastian Galiani, and Mauricio Romero. 2018. "How to Make Replication the Norm." *Nature* 554: 417–19. https://doi.org/10.1038/d41586-018-02108-9.

Hribar, Paul, and Craig D. Nichols. 2007. "The Use of Unsigned Earnings Quality Measures in Tests of Earnings Management." *Journal of Accounting Research* 45 (5): 1017–53. https://doi.org/https://doi.org/10.1111/j.1475-679X.2007.00259.x.

Ioannidis, John P. A. 2005. "Why Most Published Research Findings Are False." *PLOS Medicine* 2 (8): 696–701. https://doi.org/10.1371/journal.pmed.0020124.

Shust, Efrat. 2014. "Does Research and Development Activity Increase Accrual-Based Earnings Management?" *Journal of Accounting, Auditing & Finance* 30 (3): 373–401. https://doi.org/https://doi.org/10.1177/0148558X14560901.

Wilson, Greg, Jennifer Bryan, Karen Cranston, Justin Kitzes, Lex Nederbragt, and Tracy K. Teal. 2017. "Good Enough Practices in Scientific Computing." *PLOS Computational Biology* 13 (6): 1–20. https://doi.org/10.1371/journal.pcbi.1005510.

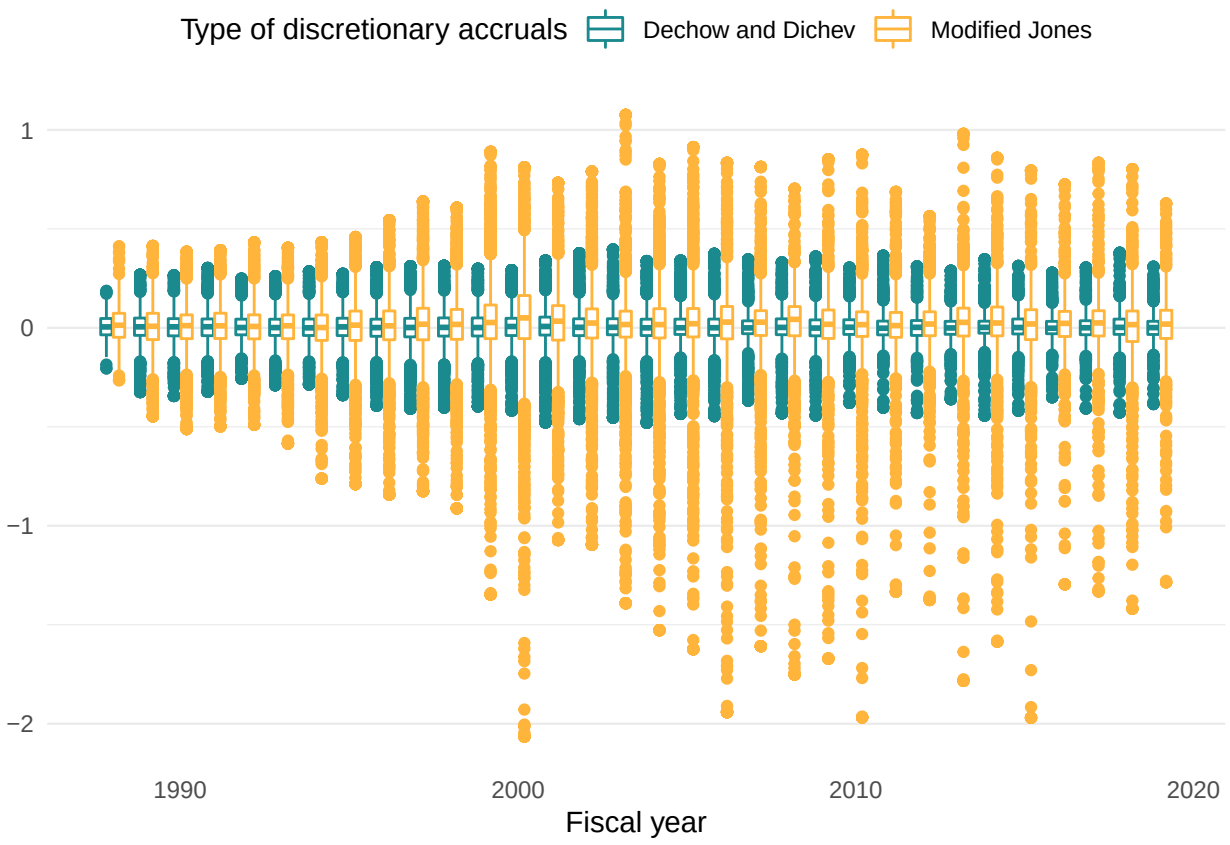

Figure 1: Distribution of Discretionary Accruals over Time

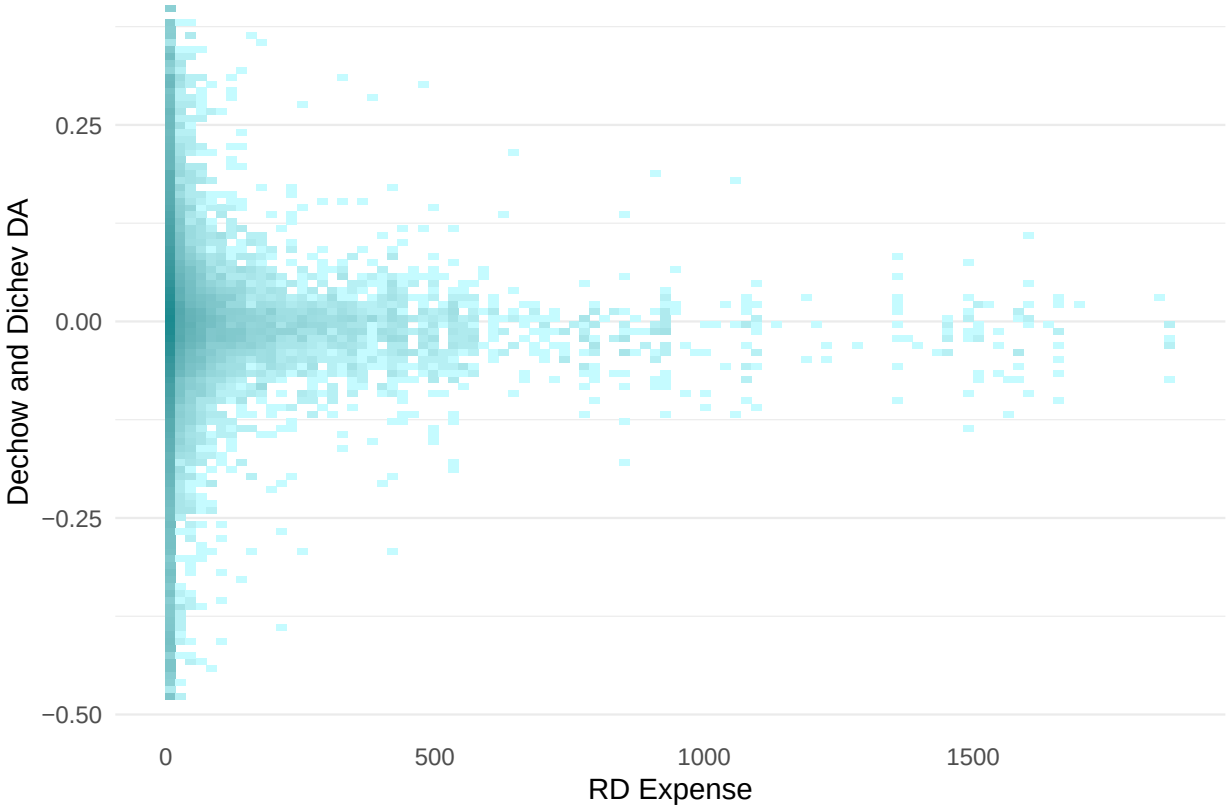

Figure 2: Dechow and Dichev DA and RD Expense

Table 1: Descriptive Statistics

	N	Mean	Std. dev.	Min.	25 %	Median	75 %	Max.
Modified Jones DA	37,061	0.001	0.255	-2.065	-0.054	0.019	0.091	1.075
Dechow and Dichev DA	37,061	0.002	0.103	-0.480	-0.037	0.002	0.044	0.396
Ln(Total assets)	37,061	4.330	2.295	-1.725	2.708	4.212	5.846	11.118
Ln(Market capitalization)	37,061	4.575	2.358	-1.357	2.877	4.457	6.219	11.799
Market to book	37,061	3.204	9.649	-146.049	1.042	2.091	4.072	124.861
Net Income	37,061	30.849	113.625	0.000	0.227	2.518	14.973	1,874.644
RD Expense	37,061	42.104	265.760	-1,028.522	-5.963	0.130	11.103	5,375.640

Note: The data is obtained from the Compustat U.S. as provided by WRDS. The sample covers the period 1988 to 2019 and 5,738 unique firms.

Table 2: Correlations

	A	B	C	D	E	F	G
A: Modified Jones DA		**0.38**	**0.03**	0.00	**0.02**	0.00	**0.06**
B: Dechow and Dichev DA	**0.46**		**0.05**	**0.08**	**0.07**	**-0.02**	**-0.01**
C: Ln(Total assets)	**-0.05**	**-0.01**		**0.88**	**0.02**	**0.43**	**0.37**
D: Ln(Market capitalization)	**-0.03**	**0.04**	**0.88**		**0.13**	**0.44**	**0.38**
E: Market to book	**0.05**	**0.12**	**0.13**	**0.42**		**0.02**	**0.02**
F: Net Income	**-0.05**	-0.00	**0.47**	**0.56**	**0.24**		**0.60**
G: RD Expense	**0.23**	**0.07**	**0.42**	**0.40**	**0.11**	-0.00	

This table reports Pearson correlations above and Spearman correlations below the diagonal. Number of observations: 37061. Correlations with significance levels below 5% appear in bold print.

Table 3: Regressions

	Dependent variable:	
	Modified Jones DA	Dechow and Dichev DA
	(1)	(2)
Ln(Total assets)	−0.005	0.013***
	(0.006)	(0.001)
Market to book	0.001**	0.001***
	(0.0002)	(0.0001)
n_i	0.0001***	0.00001***
	(0.00002)	(0.00000)
r_d	−0.0002***	−0.0001***
	(0.00005)	(0.00001)
Estimator	ols	ols
Fixed effects	gvkey, fyear	gvkey, fyear
Std. errors clustered	gvkey, fyear	gvkey, fyear
Observations	37,061	37,061
R^2	0.006	0.011
Adjusted R^2	-0.177	-0.171
Note:		*p<0.1; **p<0.05; ***p<0.01