Tests

This section will not be in the final document. It is only to report the result of the bunch of tests I carried out in order to define which panel data methotolody I will use for each one of my 6 models.

@Croissant2008a and @Torres-Reyna2010 really helped me.

Here are the tests :

1. Test of poolability
2. Hausmann Test to determine the fixed or random effect
3. Test for time fixed effect
4. Test for cross-sectional dependence
5. Test for serial correlation
6. Test for stationarity
7. Test for heteroskedasticity

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Poolability	NA	NA	NA	NA	NA	NA
Hausmann	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Time Fixed Effect	No	Yes	No	Yes	No	Yes
Cross Sectional Dependence	?	Yes	?	?	?	Yes
Serial Correlation	Yes	Yes	Yes	Yes	Yes	Yes
Stationarity	None	None	None	None	None	None
Heteroskedasticity	Yes	Yes	Yes	Yes	Yes	Yes

Table 1: Test Summary

The table 1 summaries the result of each test for each model. You can find details below.

Regarding the poolability test I have an issue with my code that I still need to solve. This is why it writtent *NA* in the table 1. I have also an issue with the test for cross-sectionnal dependence. Indeed depending the method I used with the test syntax (i.e. Pesaran's CD test (test="cd"), Breusch and Pagan's LM test (test="lm"), I got divergent results. **Do you know why?**

Some specifications :

1. The data base of model 1,3 and 5 (i.e. model with DV = ROA) is not the same than the one of model 2,4 and 6 (i.e. model with DV = Tobins Q). Indeed I have 350 companies whose I have the tobin's Q value as I have 399 companies whose I have the ROA's value. **What do you think? Can I do that? Maybe should I do a test to test if both sample are the same? What kind of test?**
2. As in my data base I have some negatieve DebtRatio (i.e. leverage) I used the sq(DebtRatio) as a control variable. **Is it ok?**
3. I did not remove outliers from my databases. **I still need to have your opinion about the outliers treatment in panel data.** However I have identified them with the cooks distance. Basically I have about 15 outliers in each database.
4. I have unbalanced panel data

% latex table generated in R 3.4.4 by xtable 1.8-2 package % Tue Apr 03 11:27:50 2018

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	17.0	0.8	20.9	0.0
SustainabilityPayLink	0.5	1.1	0.4	0.7
SustainableThemedCommitment	-2.4	2.1	-1.1	0.3
AuditScore	0.8	2.1	0.4	0.7
DebtRatio	0.0	0.0	2.1	0.0
NetMargin	-0.3	0.2	-1.5	0.1
log(Asset)	-0.6	0.0	-18.4	0.0

Table 2: Linear Regression, Dependent Variable: Exam Score