

# The Fee Effects of the 2014 EU Auditing Reforms:

## A first glance

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### **Abstract**

I test whether the implementation of the EU audit reforms has had an effect on audit and non-audit fees. I use European clients listed on exchange-regulated equity markets as my control group. An analysis based on the full sample suffers from lack of common support between treatment and control groups and produces inconsistent findings. Limiting the sample to clients of comparable size by within country-year-industry bin propensity score matching, I document an insignificant negative effect of the EU audit regulation on audit fees and an economically large and marginally significant negative effect on non-audit fees. I urge the reader to apply caution when interpreting my findings as they are sensitive to the matching procedure, rely on an unverified client exchange classification by Audit Analytics and are based on a small sub-sample of client data for the matched analysis, meaning that they represent a local average treatment effect for small publicly listed clients at best.

**Table 1: Descriptive Statistics and Covariate Balance (Full Sample)**

	Control (N=17047)		Treatment (N=21590)		Diff. in Means	Std. Error
	Mean	Std. Dev.	Mean	Std. Dev.		
Audit fees	0.347	4.235	1.527	4.612	1.18	0.045
Non-audit fees	0.15	1.392	0.549	1.957	0.399	0.017
Log(Audit fees)	10.781	1.771	12.577	1.729	1.796	0.018
Log(Non-audit fees)	5.858	5.288	9.45	4.773	3.592	0.052
Assets	2,840.136	40,278.94	17,683.97	119,956.5	14,843.83	872.734
Revenues	640.451	4,381.936	3,280.159	13,169.98	2,639.709	95.708
Market Capitalization	607.267	3,760.029	3,322.694	11,749.42	2,715.428	84.991
Log(Assets)	17.662	2.376	20.049	2.483	2.387	0.025
Log(Revenues)	16.902	2.768	19.129	2.681	2.227	0.028
Log(Market Capitalization)	17.29	2.227	19.601	2.258	2.31	0.023
Big 4	0.396	0.489	0.838	0.368	0.443	0.005

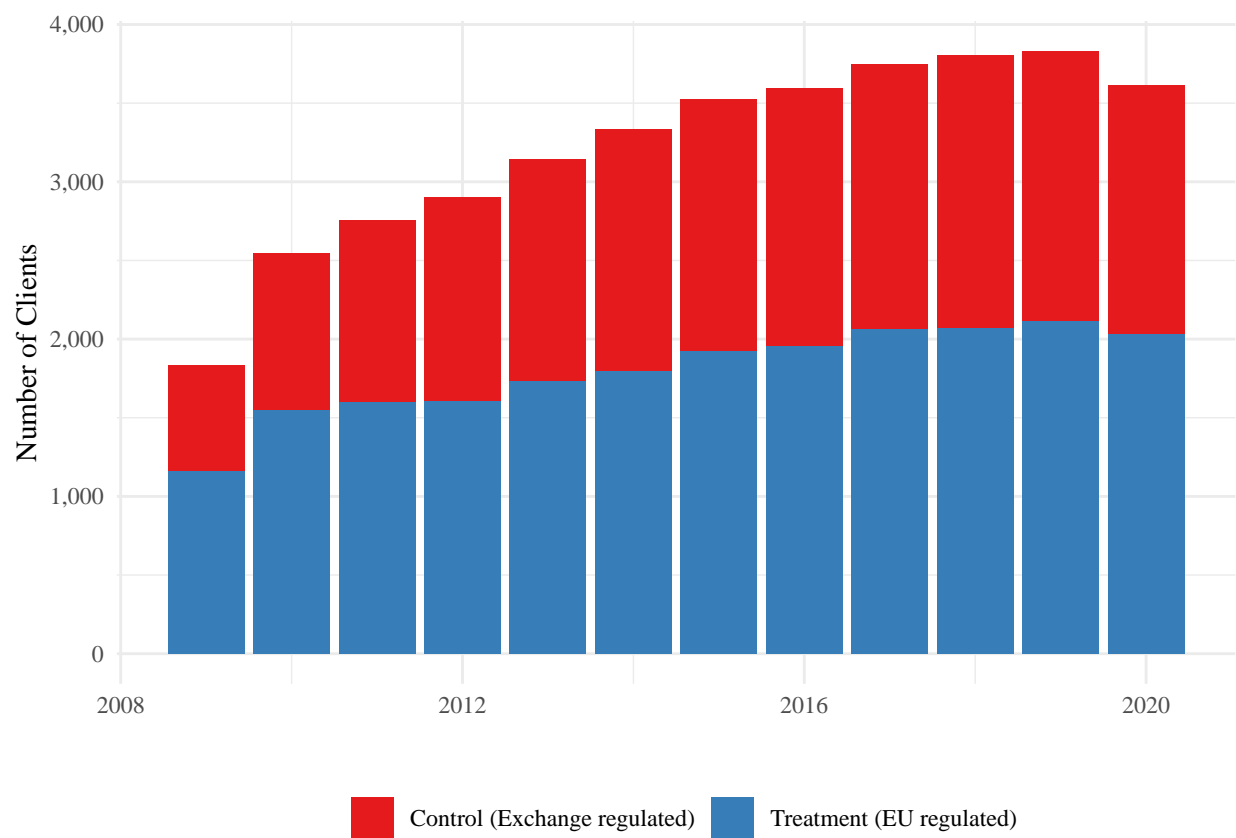
The data is obtained from Audit Analytics EU as provided by WRDS. Countries with less than 1,000 observations are excluded. The sample covers the periods 2009 to 2020 and 4,480 unique clients from 10 countries. For audits involving multiple audit firms audit fees are aggregated at the client-fiscal year level so that *Audit fees* (*Non-audit fees*) represent the (non) audit fees that the client incurred during a fiscal year. *Assets* and *Market Capitalization* are client values and measured at the fiscal year end. *Revenues* represents client net sales during the fiscal year. All values are measured in Mio. Euro. *Big 4* is a binary variable taking the value of one whenever a Big 4 auditing firm (KPMG, PWC, EY or Deloitte) is involved in the audit. The treatment group comprises clients that are listed on EU-regulated markets while the control group comprises clients that are listed on exchange-regulated markets.

**Table 2: Correlations (Full Sample)**

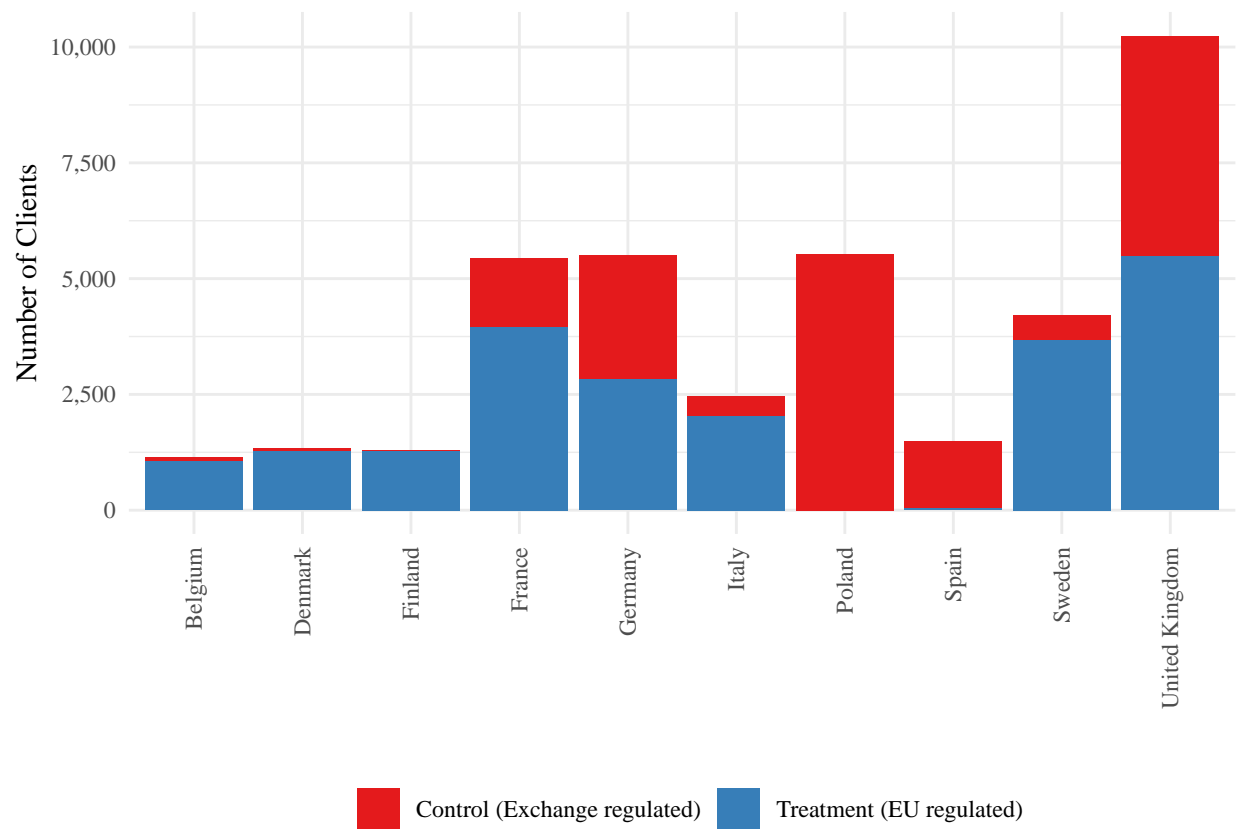
	A	B	C	D	E	F
A: Ln(Audit fees)		<b>0.63</b>	<b>0.84</b>	<b>0.82</b>	<b>0.81</b>	<b>0.55</b>
B: Ln(Non-audit fees)	<b>0.72</b>		<b>0.55</b>	<b>0.53</b>	<b>0.56</b>	<b>0.42</b>
C: Ln(Assets)	<b>0.83</b>	<b>0.64</b>		<b>0.86</b>	<b>0.90</b>	<b>0.54</b>
D: Ln(Revenues)	<b>0.84</b>	<b>0.64</b>	<b>0.88</b>		<b>0.80</b>	<b>0.49</b>
E: Ln(Market Capitalization)	<b>0.78</b>	<b>0.64</b>	<b>0.91</b>	<b>0.82</b>		<b>0.54</b>
F: Big 4	<b>0.56</b>	<b>0.47</b>	<b>0.56</b>	<b>0.51</b>	<b>0.56</b>	

Notes: This table reports Pearson correlations above and Spearman correlations below the diagonal. Number of observations: 38,637. Correlations with significance levels below 5% appear in bold print. The sample and all variables are as defined in Table 1.

**Figure 1: Number of Clients by Year and Group (Full Sample)**



**Figure 2: Number of Client Years by Country (Full Sample)**



**Figure 3: Number of Client Years by Industry (Full Sample)**

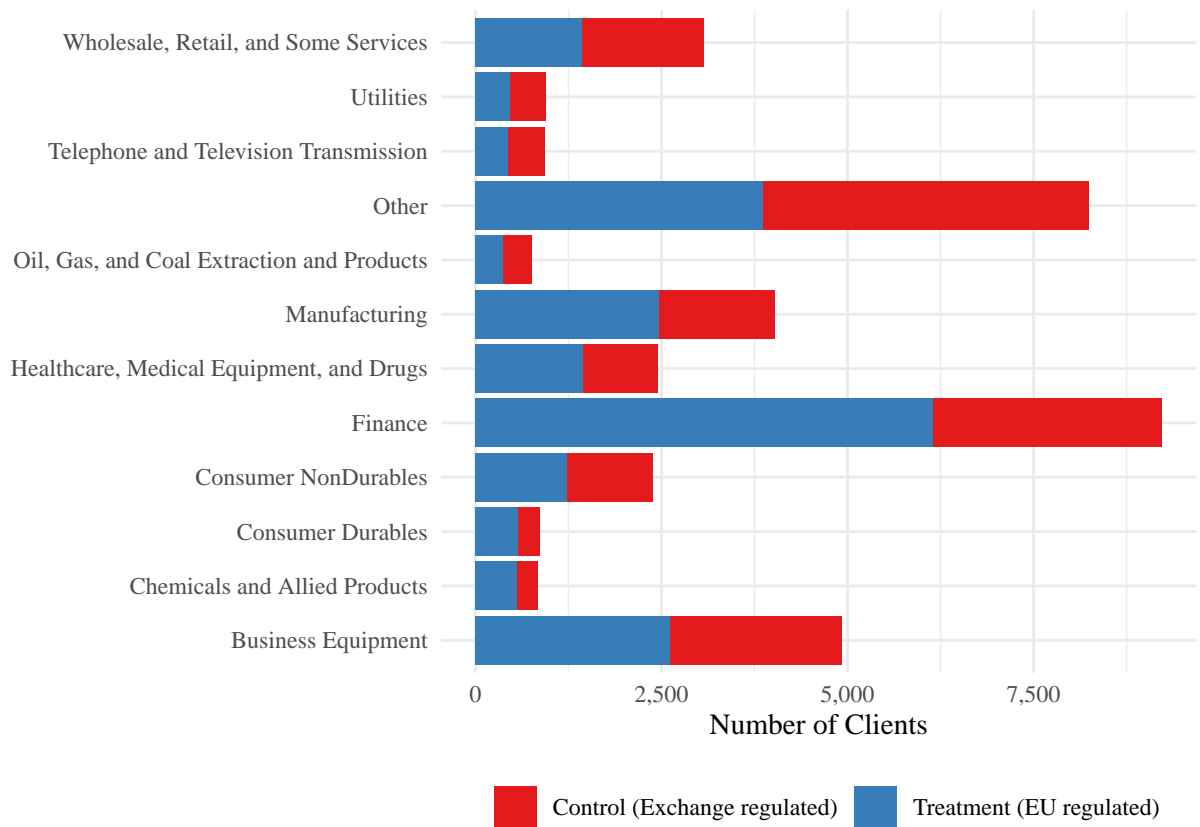


Figure 4: Audit Fees by Listing Type (Full Sample)

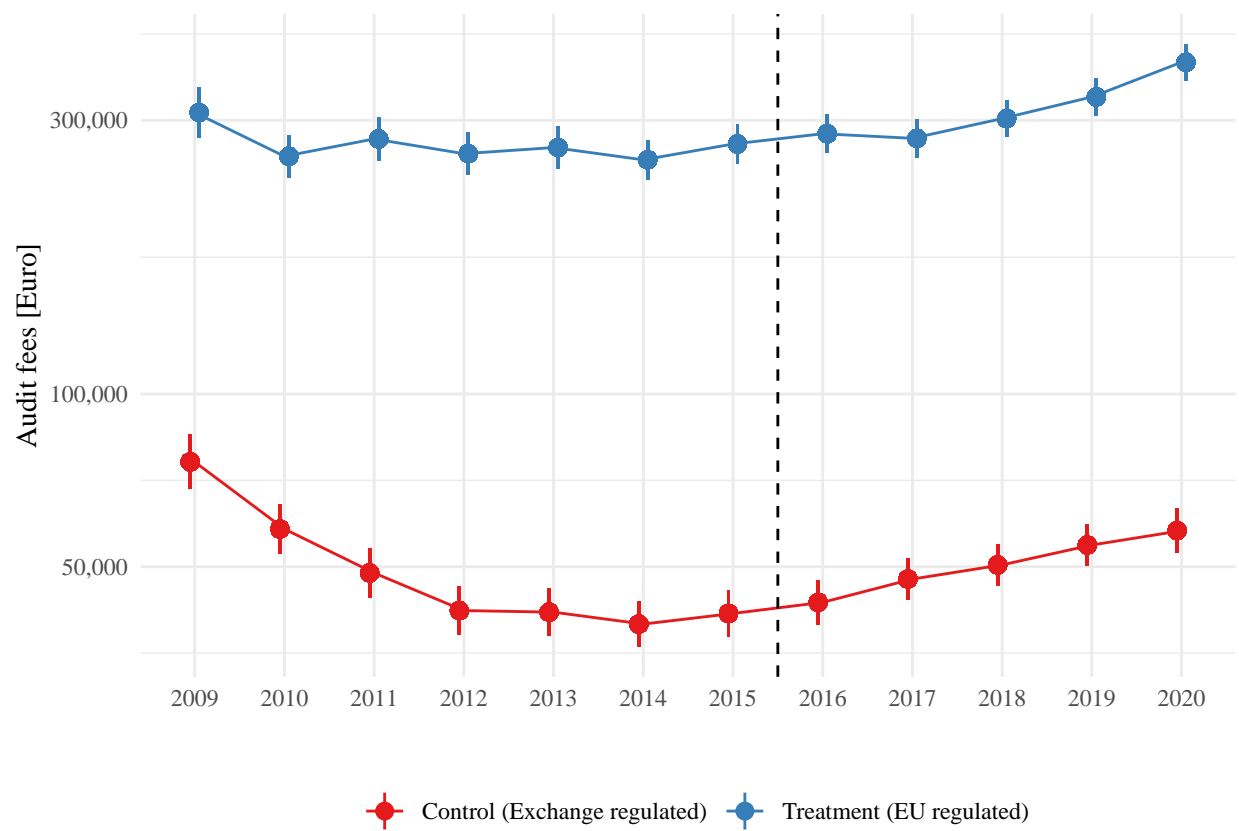
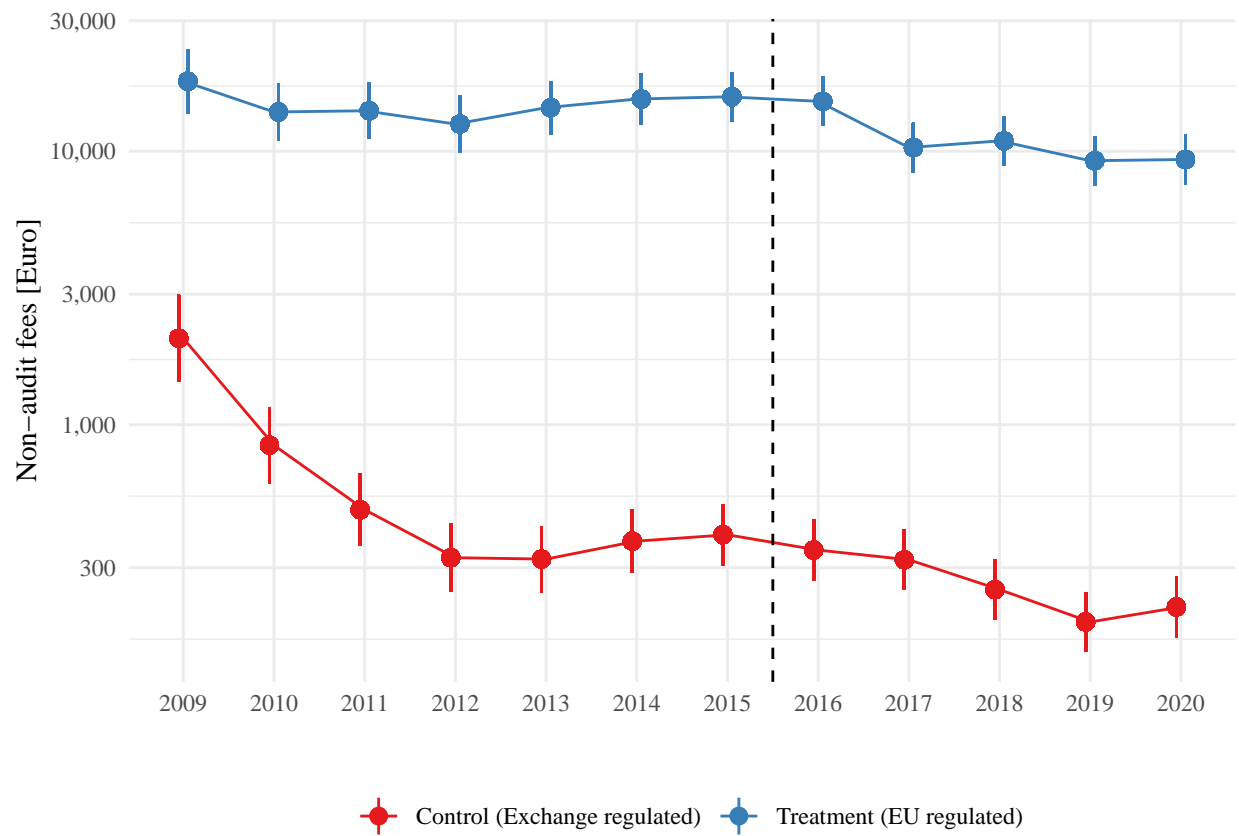


Figure 5: Non-audit Fees by Listing Type (Full Sample)



**Table 3: Difference-in-Differences Regressions (Full Sample)**

	<i>Dependent variable:</i>			
	Ln(Audit fees)	Ln(Audit fees)	Ln(Non-audit fees)	Ln(Non-audit fees)
	(1)	(2)	(3)	(4)
Treatment	1.773*** (0.025)		3.446*** (0.071)	
Post	0.093*** (0.027)		-0.601*** (0.077)	
Treatment $\times$ Post	0.053 (0.036)	-0.047** (0.018)	0.287*** (0.103)	0.015 (0.108)
Big 4		0.233*** (0.018)		0.444*** (0.165)
Ln(Assets)		0.268*** (0.016)		0.445*** (0.069)
Ln(Revenues)		0.064*** (0.007)		0.022 (0.045)
Ln(Market Capitalization)		-0.010 (0.008)		0.181*** (0.039)
Constant	10.735*** (0.019)		6.153*** (0.054)	
Estimator	ols	ols	ols	ols
Fixed effects	None	Client, Year	None	Client, Year
Std. errors clustered	No	Client, Year	No	Client, Year
Observations	38,637	38,637	38,637	38,637
$R^2$	0.208	0.202	0.114	0.012
Adjusted $R^2$	0.208	0.097	0.114	-0.118

Notes: This table presents the results of four OLS regressions regressing (non) audit fees on our treatment indicators and additional covariates. The sample and all variables are as defined in Table 1. Standard errors are presented in parentheses below the coefficients. \*/\*\*/\*\* indicate two-sided significance levels below 10/5/1 %, respectively.



**Table 4: Descriptive Statistics and Covariate Balance (Matched Sample)**

	Control (N=2085)		Treatment (N=2085)		Diff. in Means	Std. Error
	Mean	Std. Dev.	Mean	Std. Dev.		
Audit fees	0.344	0.897	0.672	3.692	0.328	0.083
Non-audit fees	0.117	0.331	0.29	2.135	0.174	0.047
Log(Audit fees)	11.896	1.165	11.969	1.334	0.073	0.039
Log(Non-audit fees)	7.727	5.038	7.586	5.152	-0.141	0.158
Assets	1,663.972	29,912.05	11,213.74	133,834.4	9,549.764	3,003.306
Revenues	631.361	4,994.779	937.684	4,995.003	306.324	154.699
Market Capitalization	488.296	1,692.697	1,340.16	9,672.517	851.864	215.049
Log(Assets)	18.653	1.882	18.8	2.091	0.147	0.062
Log(Revenues)	17.865	2.418	18.01	2.247	0.145	0.072
Log(Market Capitalization)	18.333	1.79	18.468	1.916	0.136	0.057
Big 4	0.559	0.497	0.557	0.497	-0.002	0.015

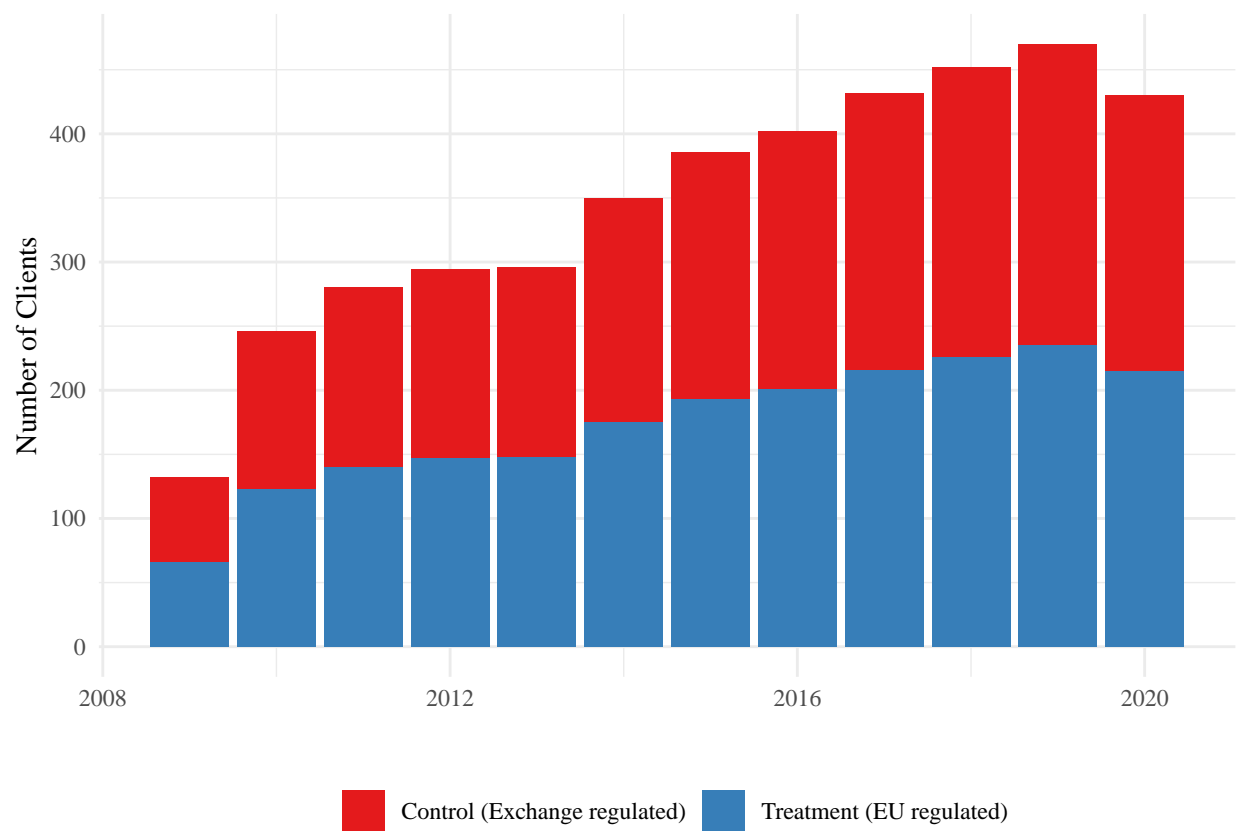
The data is obtained from Audit Analytics EU as provided by WRDS. To establish covariate balance between treatment and control observations, data are matched within country, year and Fama French 12 industry bins by logged values of size, revenue and market capitalization as well as a big 4 dummy. At least 50 observations with a minimum of 10 observations per group are required for each bin. Matching is done based on logit propensity scores without replacement and a caliper of 0.05. The sample covers the periods 2009 to 2020 and 1,135 unique clients from 3 countries. For audits involving multiple audit firms audit fees are aggregated at the client-fiscal year level so that *Audit fees* (*Non-audit fees*) represent the (non) audit fees that the client incurred during a fiscal year. *Assets* and *Market Capitalization* are client values and measured at the fiscal year end. *Revenues* represents client net sales during the fiscal year. All values are measured in Mio. Euro. *Big 4* is a binary variable taking the value of one whenever a Big 4 auditing firm (KPMG, PWC, EY or Deloitte) is involved in the audit. The treatment group comprises clients that are listed on EU-regulated markets while the control group comprises clients that are listed on exchange-regulated markets.

**Table 5: Correlations (Matched Sample)**

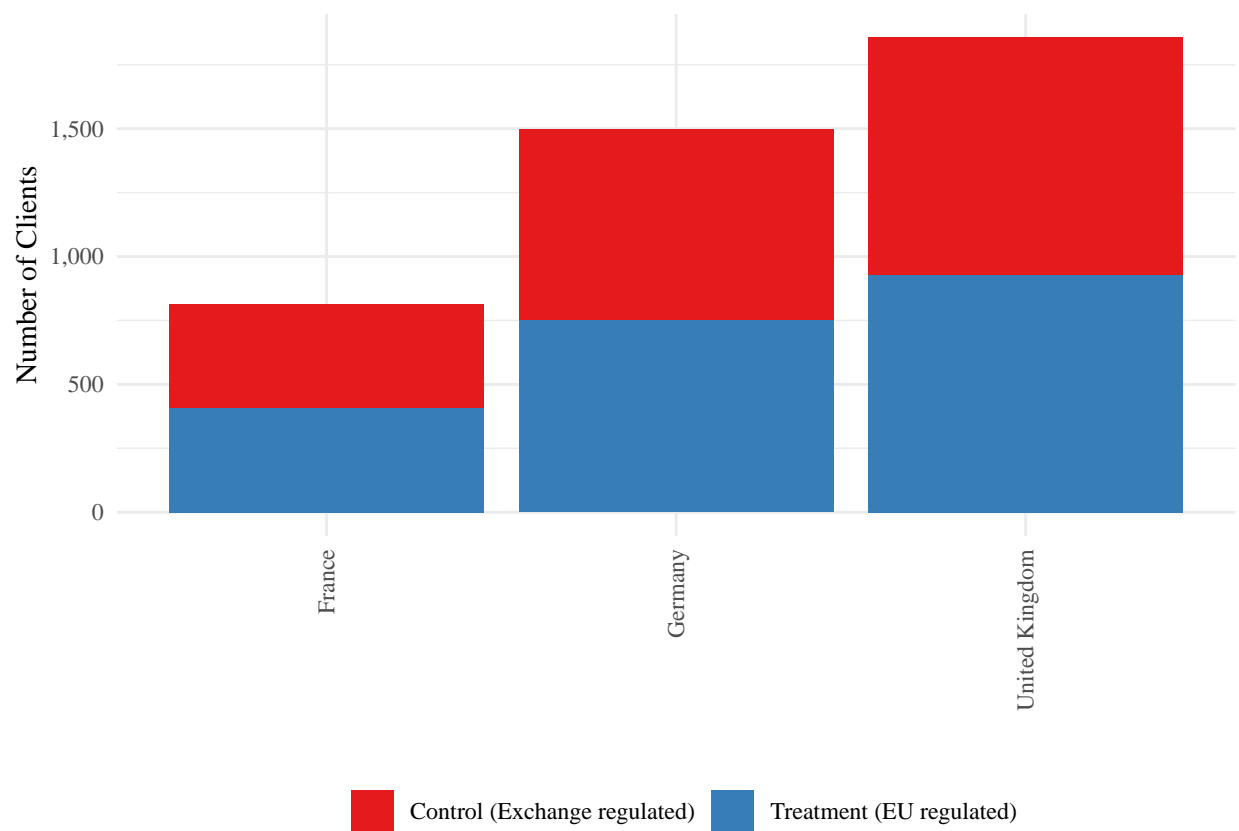
	A	B	C	D	E	F
A: Ln(Audit fees)		<b>0.45</b>	<b>0.78</b>	<b>0.78</b>	<b>0.68</b>	<b>0.40</b>
B: Ln(Non-audit fees)	<b>0.55</b>		<b>0.41</b>	<b>0.37</b>	<b>0.40</b>	<b>0.21</b>
C: Ln(Assets)	<b>0.74</b>	<b>0.50</b>		<b>0.80</b>	<b>0.85</b>	<b>0.37</b>
D: Ln(Revenues)	<b>0.79</b>	<b>0.48</b>	<b>0.81</b>		<b>0.73</b>	<b>0.39</b>
E: Ln(Market Capitalization)	<b>0.61</b>	<b>0.49</b>	<b>0.84</b>	<b>0.72</b>		<b>0.38</b>
F: Big 4	<b>0.41</b>	<b>0.29</b>	<b>0.37</b>	<b>0.40</b>	<b>0.37</b>	

Notes: This table reports Pearson correlations above and Spearman correlations below the diagonal. Number of observations: 4,170. Correlations with significance levels below 5% appear in bold print. The sample and all variables are as defined in Table 4.

**Figure 6: Number of Client by Year (Matched Sample)**



**Figure 7: Number of Client Years by Country (Matched Sample)**



**Figure 8: Number of Client Years by Industry (Matched Sample)**

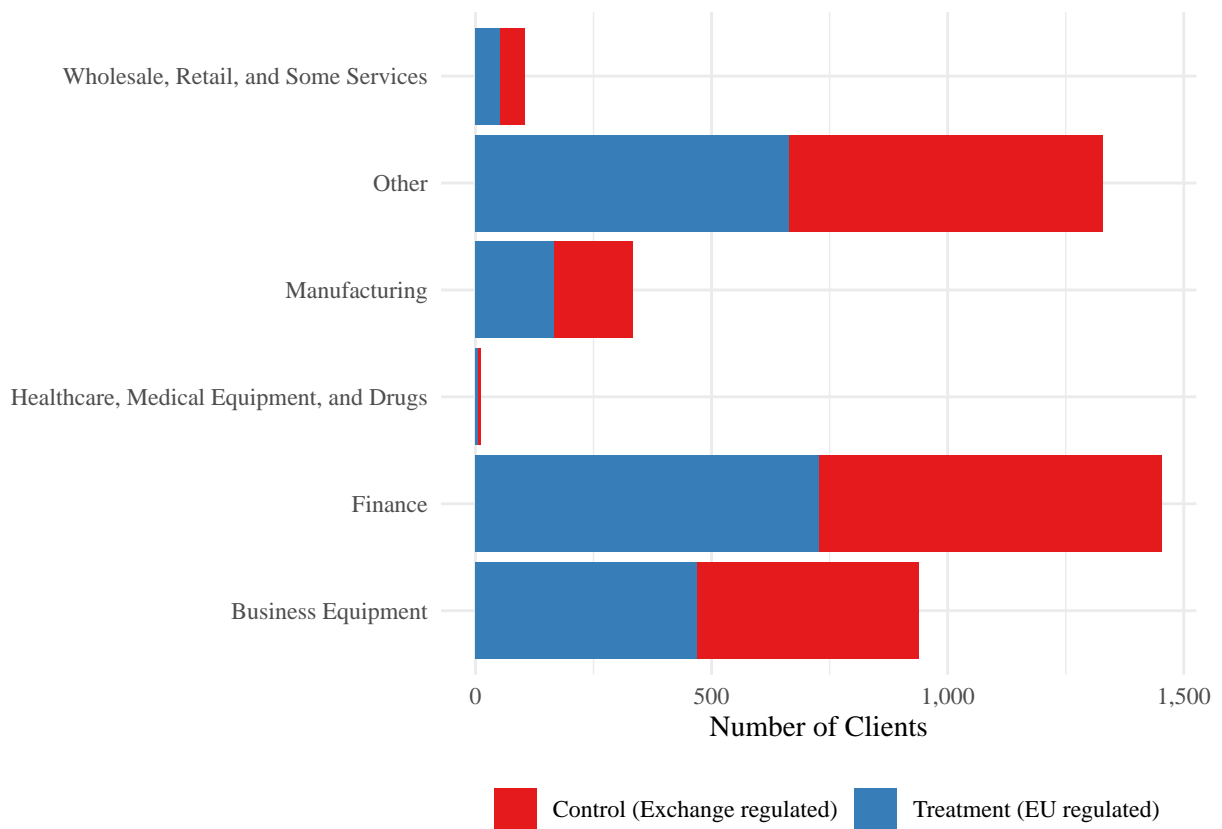


Figure 9: Non-audit Fees by Listing Type (Matched Sample)

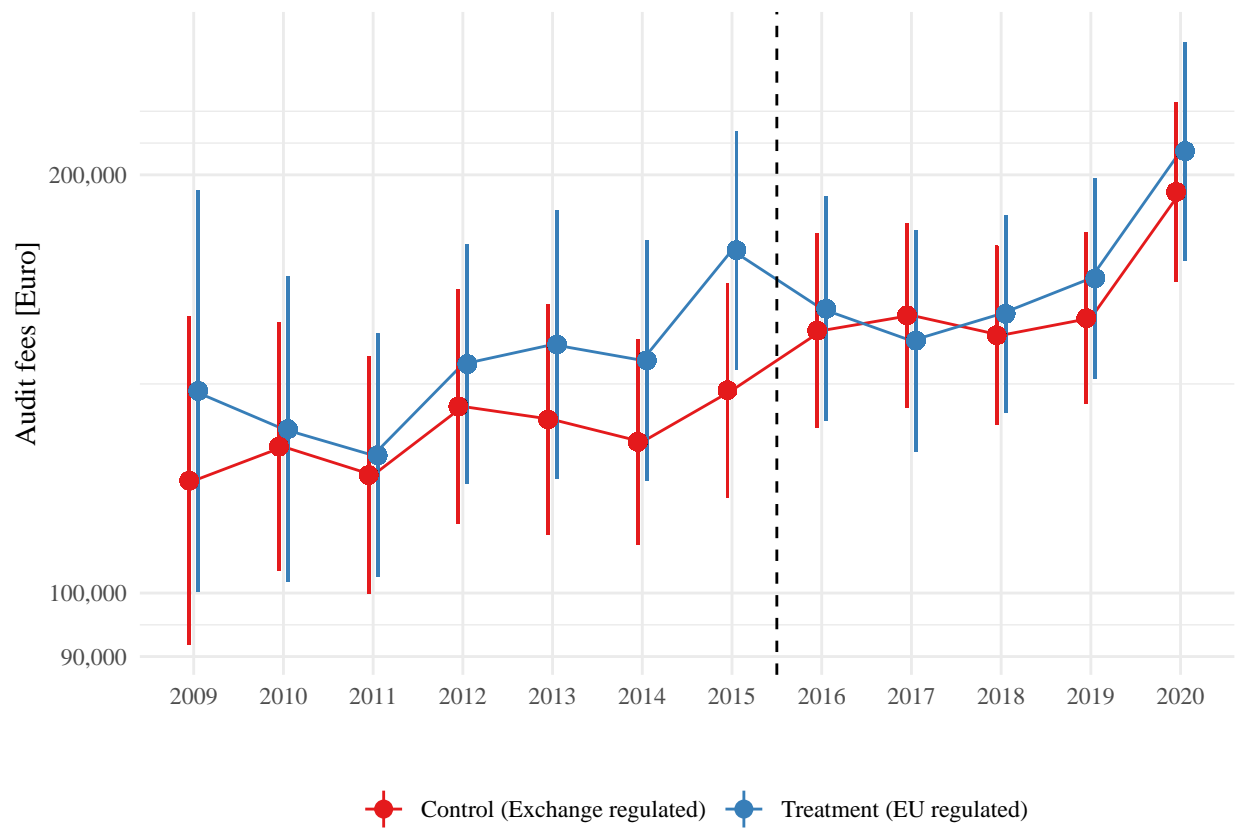
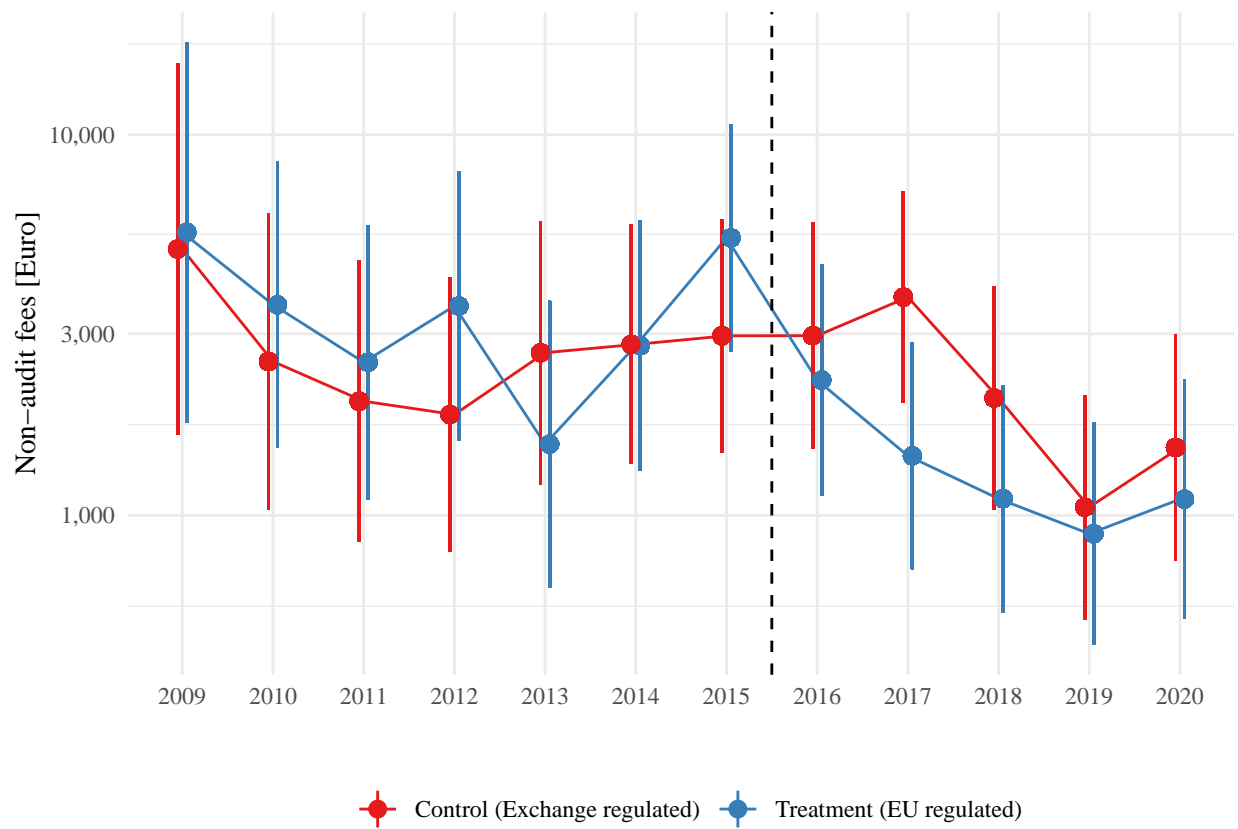


Figure 10: Non-audit Fees by Listing Type (Matched Sample)



**Table 6: Difference-in-Differences Regressions (Matched Sample)**

	<i>Dependent variable:</i>			
	Ln(Audit fees)	Ln(Audit fees)	Ln(Non-audit fees)	Ln(Non-audit fees)
	(1)	(2)	(3)	(4)
Treatment	0.116** (0.056)		0.211 (0.228)	
Post	0.220*** (0.055)		-0.252 (0.223)	
Treatment $\times$ Post	-0.083 (0.077)	-0.038 (0.033)	-0.672** (0.315)	-0.463 (0.326)
Big 4		0.142*** (0.037)		0.222 (0.398)
Ln(Assets)		0.277*** (0.048)		0.357 (0.267)
Ln(Revenues)		0.045* (0.023)		-0.072 (0.135)
Ln(Market Capitalization)		-0.026 (0.025)		0.344** (0.172)
Constant	11.781*** (0.040)		7.859*** (0.161)	
Estimator	ols	ols	ols	ols
Fixed effects	None	Client, Year	None	Client, Year
Std. errors clustered	No	Client, Year	No	Client, Year
Observations	4,170	4,170	4,170	4,170
$R^2$	0.006	0.194	0.005	0.011
Adjusted $R^2$	0.005	-0.113	0.004	-0.366

Notes: This table presents the results of four OLS regressions regressing (non) audit fees on our treatment indicators and additional covariates. The sample and all variables are as defined in Table 4. Standard errors are presented in parentheses below the coefficients. \*/\*\*/\*\* indicate two-sided significance levels below 10/5/1 %, respectively.