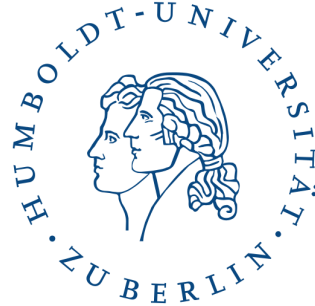


HUMBOLDT-
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Research on Corporate Transparency

Empirical Research Log

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Step 1: Identify Local Firms

This initial step required the identification of five firms operating within a specific geographic boundary. For this reason, the postal code 10405 was chosen, located in the district of Prenzlauer Berg, Berlin. The rationale behind selecting this postal code stems from the fact that this area is characterized by a vibrant mix of startups, consultancy firms, and creative service providers, making it a fertile ground for analyzing corporate transparency in a dynamic business ecosystem. In the interest of data reliability and future cross-verification with national registers and databases, each firm's legal identity and postal address were verified using their official websites, primarily through the *Impressum* section.

Identified Firms and Sources

1. **Pliant GmbH**
Address: Saarbrücker Str. 36, 10405 Berlin, Germany
Source: <https://www.getpliant.com/en/imprint/>
2. **SOR Digital GmbH**
Address: Prenzlauer Allee 186, 10405 Berlin, Germany
Source: <https://www.sordigital.com/Impressum>
3. **torq.partners GmbH**
Address: Saarbrücker Straße 20, 10405 Berlin, Germany
Source: <https://en.torq.partners/imprint>
4. **ID37 Company GmbH**
Address: Kollwitzstraße 40, 10405 Berlin, Germany
Source: <https://www.id37.io/impressum>
5. **Ludewig Marketing GmbH**
Address: Saarbrücker Straße 18, 10405 Berlin, Germany
Source: <https://ludewigmarketing.de/impressum/>

Research Observations

- All selected firms operate in sectors relevant to modern business services ranging from digital payment infrastructure (Pliant GmbH) to strategic consultancy (torq.partners) and digital media (SOR Digital).
- The legal form “GmbH” (Gesellschaft mit beschränkter Haftung) is common to all selected firms, which simplifies subsequent comparison in terms of financial disclosure obligations and filing formats under German commercial law.
- Several firms are located on the same street - Saarbrücker Straße - suggesting a localized entrepreneurial cluster, which may later provide useful context when interpreting patterns in disclosure behavior or reporting consistency.
- The Impressum served as a reliable and standardized data source, but it should be noted that in some cases, deeper validation will still be necessary in Step 2 to verify currentness of legal identifiers.

- Moreover, while shortlisting firms, it was observed that certain firms did not have any Impressum section on their websites which seemed a bit strange because it is a Legal requirement under the Law.

Reflection

The outcome of this step is a curated set of five representative firms within 10405 Berlin, each with a distinct operational profile. These will serve as the empirical foundation for subsequent analysis in the next steps of the assignment.

Step 2: Verification via Unternehmensregister

Source: <https://www.unternehmensregister.de/>

For each firm, the following information was searched and recorded:

- Official Company Name
- HRA/HRB Number
- Availability & Type of Financial Statements (Single/Consolidated)
- Fiscal Period
- Filing Date

Summary Table

Firm	HRA/HRB No.	FS Type	Fiscal Period	Filing Date
Pliant GmbH	HRB 217281	Single	2023	07.04.25
Pliant GmbH	HRB 217281	Single	2022	22.02.24
Pliant GmbH	HRB 217281	Single	2021	31.03.23
Pliant GmbH	HRB 217281	Single	2020	13.01.22
SOR Digital GmbH	HRB 212690	Single	2022	14.06.24
SOR Digital GmbH	HRB 212690	Single	2021	21.07.23
SOR Digital GmbH	HRB 212690	Single	2020	16.11.21
SOR Digital GmbH	HRB 212690	Single	2019	19.04.21
torq.partners GmbH	HRB 220290	Single	2023	06.02.25
torq.partners GmbH	HRB 220290	Single	2022	20.02.24
torq.partners GmbH	HRB 220290	Single	2021	21.07.22
torq.partners GmbH	HRB 220290	Single	2020	03.01.22
ID37 Company GmbH	HRB 205303	Single	2023	27.01.25
ID37 Company GmbH	HRB 205303	Single	2022	17.04.24
ID37 Company GmbH	HRB 205303	Single	2021	04.07.23
ID37 Company GmbH	HRB 205303	Single	2020	21.04.22
ID37 Company GmbH	HRB 205303	Single	2019	29.12.20
Ludewig Marketing GmbH	HRB 212185	Single	2022	12.10.23
Ludewig Marketing GmbH	HRB 212185	Single	2020	21.04.22
Ludewig Marketing GmbH	HRB 212185	Single	2019	01.10.21

Table 1: Financial Statement Availability from Unternehmensregister

Research Observations

A total of five firms were analyzed through the Unternehmensregister portal, resulting in the identification of publicly filed financial statements across multiple fiscal years (2019–2023). The key findings are summarized below:

- **Completeness:** All five firms had deposited financial statements for at least three fiscal years, with Ludewig Marketing GmbH and SOR Digital GmbH having only up to the 2022 Fiscal Period covered. Most firms had consecutive filings, suggesting a high degree of transparency and legal compliance, except Ludewig Marketing GmbH, that is missing the filing for 2021.
- **Filing Timeliness:** Filing dates varied significantly. Some firms (e.g., Ludewig Marketing GmbH and ID37 Company GmbH) demonstrated early filing practices (e.g., 01.10.21 for 2019; 29.12.20 for 2019), while others showed delayed submissions (e.g., SOR Digital GmbH filed 2022 data on 14.06.24).
- **Financial Statement Type Uniformity:** All identified filings were for *single-entity* financial statements. No consolidated financials were available, indicating these firms likely operate without subsidiaries or within non-group structures.
- **Data Richness:** ID37 Company GmbH stood out with five consecutive years of filings, offering rich longitudinal data that will be particularly useful for comparisons and trend analysis.
- **Delayed Filings:** Most of the years, all five companies tend to exceed the normal 12-month reporting period under German commercial law. For instance, Pliant GmbH filed for the 2023 Fiscal Period in April 2025.
- **Consistency of Identifiers:** All firms had clearly traceable HRB numbers (ranging from HRB 205303 to HRB 220290), which will facilitate cross-checking and merging with Orbis database entries.

Reflection

The diversity in filing dates and completeness already signals potential variation in transparency behavior, even within a small geographic sample. This observation will serve as a baseline for the comparative analysis in later steps. The presence of timely and consistently filed reports is encouraging and may indicate positive corporate governance patterns among SMEs and growth-stage firms in 10405 Berlin.

Step 3: Orbis Data Comparison

- A fork was created using the provided repository:
<https://github.com/joachim-gassen/rct25>
- A local copy of the forked repository was created using:
<https://github.com/mujsarwar/rct25.git>
- The Orbis data was downloaded into the local forked repository and the file was placed in `data/generated`
- Each of the five firms was checked for presence in Orbis data.

Comparison Table

Firm	Found in Orbis	Matching Fiscal Year
Pliant GmbH	No	2023
Pliant GmbH	No	2022
Pliant GmbH	Yes	2021
Pliant GmbH	No	2020
SOR Digital GmbH	No	2022
SOR Digital GmbH	No	2021
SOR Digital GmbH	No	2020
SOR Digital GmbH	No	2019
torq.partners GmbH	No	2023
torq.partners GmbH	No	2022
torq.partners GmbH	Yes	2021
torq.partners GmbH	No	2020
ID37 Company GmbH	No	2023
ID37 Company GmbH	No	2022
ID37 Company GmbH	No	2021
ID37 Company GmbH	No	2020
ID37 Company GmbH	No	2019
Ludewig Marketing GmbH	No	2022
Ludewig Marketing GmbH	No	2020
Ludewig Marketing GmbH	No	2019

Table 2: Presence of Firms in Orbis Dataset

Research Observations

The matching process between Unternehmensregister records and Orbis data revealed notable inconsistencies in data availability, underscoring a common challenge in empirical corporate transparency research: fragmented public reporting ecosystems.

- **SOR Digital GmbH:** Despite consistent filings in the Unternehmensregister across five years, *SOR Digital GmbH* does not appear in Orbis for any of the corresponding fiscal periods. This suggests either an omission or filtering issue during Orbis data compilation.

- **ID37 Company GmbH:** Surprisingly, no entries for *ID37 Company GmbH* were found in Orbis, despite five complete filings in the Unternehmensregister.
- **Ludewig Marketing GmbH:** Same is the case with *Ludewig Marketing GmbH*, whereby despite three filings in the public register, none were found in the Orbis data, further solidifying Orbis reliability doubts.
- **Overlap Coverage:** Only two firms, namely *Pliant GmbH* and *torq.partners GmbH*, had at least one year where Orbis and Unternehmensregister data intersected. However, this overlap was incomplete and inconsistent across years.

Reflection

The partial coverage in Orbis highlights the importance of multi-source data triangulation when studying transparency at the firm level. Orbis, while widely used in empirical research, may lag or selectively include data, leading to biased inferences if used in isolation. This reinforces the necessity of validating any empirical dataset against primary disclosure sources like Unternehmensregister.

Step 4: Largest Firm by Total Assets (2021)

- Identified "Wooga ParentCo DE GmbH" as the firm with the largest Total Assets in 2021 within 10405 Berlin via Orbis.
- Cross-referenced with Unternehmensregister to locate its 2021 financial statements.

Financial Comparison

Source	Total Assets	Book Equity	Net Sales
Orbis	€180,551,790	€50,380,788	N/A
Unternehmensregister	€180,551,790.20	€50,380,787.73	N/A

Table 3: Comparison of Financial Data Across Sources (2021)

Research Observations

The comparison of financial statement data for Wooga ParentCo DE GmbH - identified as the largest firm in postal code 10405 Berlin by total assets in 2021 - reveals a high degree of numerical consistency between Orbis and Unternehmensregister sources.

- **Total Assets:** The reported total assets from both sources were virtually identical, with Orbis recording €180,551,790 and the Unternehmensregister showing €180,551,790.20. The minor €0.20 deviation is likely due to rounding or currency formatting during data ingestion.
- **Book Equity:** The book equity figures also align closely: Orbis reports €50,380,788, while the Unternehmensregister lists €50,380,787.73. This negligible difference (less than €1) again suggests rounding or display differences.
- **Net Sales:** Neither data source provided net sales figures for the firm. This may be due to voluntary non-disclosure, exemption under SME filing thresholds, or delayed reporting.
- **Data Matching Success:** Wooga ParentCo DE GmbH had fully traceable data across both databases. This made it suitable for direct Orbis–Unternehmenregister comparison. For this very reason, there was absolutely no need to look for the second-largest firm and so on.

Reflection

The strong alignment of Orbis and Unternehmensregister values in this case suggests that Orbis is a reliable source for published financials - at least for larger firms. However, missing revenue data reminds us that Orbis may not offer full financial granularity, and that public register validation remains essential.

Step 5: Statistical Comparison – 10405 vs Berlin

Metrics Compared

- Total Assets
- Equity Ratio (Equity / Total Assets)

Research Design

- **Data Source and Subsetting:** The analysis is based on firm-level panel data from the Orbis database, specifically filtered for firms located in Berlin. The dataset was restricted to the fiscal year 2021 to maintain temporal consistency, and further subsetting to isolate firms located in the postal code **10405** for comparison against the broader Berlin population.
- **Data Cleaning and Validation:** Observations with missing or zero values for key financial variables - *total assets (toas)* and *shareholders' funds (shfd)* - were excluded to ensure robustness of financial ratios and to avoid division errors during calculation.
- **Variable Construction – Equity Ratio:** For each firm, an **Equity Ratio** was computed as the ratio of shareholders' funds to total assets ($\text{shfd} / \text{toas}$). This metric reflects the proportion of firm assets financed by equity and serves as a key measure of capital structure.
- **Data Aggregation and Labeling:** The cleaned data for the two subgroups (10405 and Berlin) were labeled and combined into a unified dataset to facilitate direct comparative analysis and statistical testing.
- **Log Transformation:** A natural logarithmic transformation was applied to the total assets variable ($\log(\text{toas})$) to reduce skewness and normalize the distribution, enabling more reliable statistical inference for variables with high dispersion.
- **Descriptive Statistics Generation:** For both groups, core summary statistics — including mean, standard deviation, median, interquartile range (IQR), minimum, and maximum - were computed for both total assets and equity ratio variables. These were systematically tabulated for transparency and interpretability.
- **Inferential Statistical Testing:** Welch's Two-Sample *t*-tests were performed to test for statistically significant differences in mean total assets and mean equity ratio between firms in 10405 and the overall Berlin population. This approach accounts for unequal variances and unequal sample sizes between groups.

Statistical Output and Table

Statistic	Berlin	10405	T-test p-value
N	28,009	353.00	
Mean Total Assets (EUR)	24,510,694	3,893,202	0.0000
SD Total Assets	607,413,392	13,480,776	
Median Total Assets	1,015,124	885,359	
IQR Total Assets	3,303,914	2,371,425	
Min Total Assets	1.00	53.00	
Max Total Assets	71,843,000,000	180,551,790	
Mean Log(Total Assets)	13.78	13.33	
SD Log(Total Assets)	2.27	2.27	
Mean Equity Ratio	-46.33	-5.11	0.2617
SD Equity Ratio	6,085	96.56	
Median Equity Ratio	0.38	0.44	
IQR Equity Ratio	0.63	0.75	
Min Equity Ratio	-1,001,262	-1,814	
Max Equity Ratio	1.00	1.00	

Table 4: Descriptive Statistics and T-Test Results for Berlin and 10405 Firms (2021)

Notes: This table presents descriptive statistics for firms located in postal code 10405 and the broader Berlin firm population, based on Orbis data for fiscal year 2021. "Total Assets" are reported in Euros (EUR). "Equity Ratio" is calculated as Shareholders' Funds divided by Total Assets. Log-transformed values are natural logarithms of Total Assets to reduce skewness and facilitate comparison. Extreme values have not been winsorized or trimmed in order to retain the full shape of the distributions. The sample includes 28,009 Berlin firms and 353 firms from 10405.

Reflection

This section aimed to compare firms from postal code 10405 to the broader Berlin firm population by examining two core financial metrics: total assets and equity ratios. Using a recent cross-section from Orbis (fiscal year 2021), our descriptive statistics reveal meaningful structural distinctions.

The mean total assets of Berlin firms stand at €24,510,694, which is more than six times higher than the mean of firms in 10405 (€3,893,202). The difference is statistically significant ($p < 0.0001$), as confirmed by the Welch Two Sample t-test. Interestingly, the median values are closer (€1,015,124 for Berlin vs. €885,359 for 10405), suggesting that Berlin's higher average is driven by extreme outliers (as evidenced by the much larger standard deviation of €607 million for Berlin compared to €13.5 million for 10405). This highlights the importance of not relying on means alone, especially when firm sizes are highly skewed.

The log transformation of total assets helped normalize this skewness and revealed smaller differences in means (13.78 for Berlin vs. 13.33 for 10405), confirming that firm size distributions are more comparable in logarithmic scale. Equity ratios painted a subtler picture. Although Berlin firms had a surprisingly negative mean equity ratio of -46.33 compared to -5.11 for 10405, the t-test showed this difference was not statistically significant ($p = 0.2617$). This finding suggests that while individual firms may vary in their capital structure, overall equity reliance does not differ markedly across the two

groups. However, the minimum values ($-1,001,262$ for Berlin and $-1,814$ for 10405) point to severe undercapitalization in extreme cases. These edge cases may represent firms with technical insolvency or complex group financing structures.

Another insight came from sample size. The Berlin dataset includes 28,009 firms versus just 353 in 10405 - a vast difference that inevitably introduces a scale bias. However, the use of percentage-based metrics like the equity ratio and the application of log transformation for asset values helped neutralize this imbalance in the statistical tests.

Conclusion

The comparative analysis between firms in postal code 10405 and those across Berlin shows that *size matters* - but not in the way we initially expect. While total assets are significantly higher on average in Berlin, the distributional similarities in medians and log-transformed means reveal that small and mid-sized firms dominate both datasets. The lack of a significant difference in equity ratios supports the idea that firm capital structures are not geographically driven, at least not at the level of postal code segmentation within a city. This is a notable outcome, as it implies that transparency initiatives or policy interventions aimed at improving capitalization or disclosure standards may not need to differentiate at such a granular geographic level.

Overall, the analysis reaffirms the value of combining descriptive statistics with inferential testing. It also highlights the importance of addressing skewness, choosing appropriate metrics (e.g., using medians for heavy-tailed data), and understanding outlier effects. These lessons are not only relevant for this assignment but are also fundamental when interpreting firm-level financials in regulatory and academic contexts.