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The Impact of Uncertainty on Textile Companies Profitability in the EU 27

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Abstract
Recent studies reveal that uncertainty is a problem for the profitability of companies in various sectors. The purpose of this study was to investigate the impact of uncertainty on the profitability of textile companies in the EU 27. A number of models were performed using the random effects estimator. The results indicate that the uncertainty variable WUI negatively and significantly affects the profitability of the textile industry in all models. In addition, the results show that while equity to total assets and cash flow to operating revenue have a positive effect, capital intensity and operating in Eastern Europe have a negative effect on profitability. Also, size, current ratio, operating revenue to stocks and inflation do not seem to have a significant impact on profitability.

Keywords
ROA, textile companies, EU 27, random effect estimator.

1. Introduction

Companies need to earn enough profit to continue their operations. In order to earn enough profits, they need to know the factors affecting profitability and make their strategies by taking these factors into account. Otherwise, corporate failure may occur.

While explaining the reasons for corporate failure, Altman and Hotchkiss (2006) [1] put the textile industry among the chronically sick industries. In this context, it is very important for the textile industry to know the factors affecting profitability.

Previous studies investigating the profitability determinants mainly consider some firm-specific factors (Ivanova and Angelova, 2023 [2]; Lazar, 2016 [3]; Alarussi and Gao, 2021 [4]).

Although firm-specific factors affect firm profits, external factors such as uncertainty can also have a significant effect on profitability in the textile industry. Especially in recent years, there have been many situations that increase uncertainty, including Brexit and the Covid-19 pandemic. However, the extent to which uncertainty has an effect in the textile industry has not been examined much.

Therefore, the aim of this study is to examine the factors affecting profitability and especially examine the effect of uncertainty on the profitability of the textile industry in the EU27. But uncertainty is very difficult to measure. For this purpose, several indices on uncertainty have been developed in the literature (Ahir et al, 2022 [5]; Baker et al, 2016 [6]).This paper uses the world uncertainty index - WUI (Ahir et al, 2022 [5]) as a proxy for uncertainty. Some literature examining the impact of uncertainty is given below.

There are many depressive effects of uncertainty, which have been discussed for many years. For example, businesses that are facing poor demand may be concerned about how long it will last. They will delay making irreversible investments until they get more information (Bernanke, 1983) [7]. Also, policy uncertainty was found to be negatively related to capital investments (Gulen and Ion, 2016) [8], and sales growth (Feng et al, 2023) [9]. Another study indicates that economic uncertainty negatively affects IPO activity (Demir et al., 2023) [10]. Even FDI inflows (Nguyen and Lee, 2021) [11] and economic growth (Lensink et al., 1999) [12] can be undesirably affected by uncertainty.

Recent studies on various sectors have considered uncertainty as a profitability determinant. For example Iqbal et al (2020) [13] investigated the relation between economic policy uncertainty (EPU) and company performance of US-listed non-financial firms. They state that EPU negatively and significantly affects company performance. Athari (2021) [14] investigated the impact of global economic policy uncertainty (GEPU) on Ukrainian bank profitability. The results show that GEPU negatively affects bank profitability. In another study on US tourism company performance, García-Gómez et al (2022) [15] concluded that EPU has a negative impact on ROA, ROE and Tobin's Q.

Uncertainty can affect the textile industry as negatively as any other industry. One reason is that households reduce their spending under uncertainty. For example,

Variables	Notation	Calculation	Obs.	Mean	Std Dev.	Min	Max
Dependent Variables							
Return on Assets	ROA	(Profit before tax / Total assets) * 100	386	2.58	9.79	-61.50	53.47
Independent Variables							
Total Assets (size)	Lnta	Natural Logarithm of Total Assets	386	10.86	1.66	6.51	16.39
Equity to Total Assets	Eqta	(Shareholder's Equity / Total Assets)	386	0.51	0.27	-0.67	0.99
Current Ratio	Curr	Current Assets / Current Liabilities	386	3.24	5.33	0.14	42.18
Operating Rev to Stocks	Sturn	Operating Revenue / Stocks	386	5.02	5.37	0.29	58
Cash Flow to Op. Rev.	Cfoprev	(Cash Flow/Operating Revenue)*100	386	6.36	17.39	-91.92	95.98
Capital Intensity	Cap	Fixed Assets / Sales	386	13.26	151.07	0.03	2715
Inflation	Inf	Consumer Prices (annual %)	386	1.13	1.47	-1.74	5.06
World Uncertainty Index	Wui	WUI (GDP Weighted Average)	386	25644	7051	17772	40649

Table 1. Definition of Variables and Descriptive Statistics

Aaberge et al (2017) [16] conducted a study on political uncertainty and household savings. They provided proof that a surge in political uncertainty resulted in temporary rises in savings among urban households in China.

Another possible reason is the difficulties experienced by the textile industry in the supply chain. Uncertainty in the supply chain may cause production to be slowed down or interrupted. A study conducted by Sreedevi and Saranga (2017) [17] reveals that uncertainty in the supply chain can cause high supply chain risk. They also state that supply risk can be reduced with supply flexibility.

When the literature is examined, it is seen that the effect of uncertainty on the profitability of textile companies has not been examined. In order to fill this gap, this study examines the effect of uncertainty on the profitability of the textile companies listed in the EU 27. This study uses the World Uncertainty Index (WUI), measuring the overall uncertainty across the globe, as a proxy for uncertainty.

2. The Data, Methodology and Results

The data used in this study was mainly taken from the Orbis database, Bureau Van Dijk. The variable inflation was taken from the website of the World Bank [18]. The world uncertainty index [5] was obtained from the website of https://worlduncertaintyindex.com/data [19]. The variable WUI measures the overall uncertainty across the globe. Since the WUI data were calculated quarterly in the original file, the average of the four quarters was calculated to obtain the annual data. Table 1 gives information about the variables used in this study and their descriptive statistics.

Companies which have NACE Rev 2 code 13-manufacture of textiles were included in the analysis. The data covers ten years, 2012-2021. The number of publicly listed textile companies in the database was 52, however, after the deletion of missing values, the remaining number of firms and observations were 44 and 386, respectively.

To neutralize the tax rate effect, following Pervan et al (2019) [20], instead of net income, profit or loss before tax was used in the calculation of the return on assets (ROA). Table 2 shows correlations among the variables.

The correlations among variables indicate that there would be no severe multicollinearity problem in the regression analysis.

In this study, firm-specific effects are modelled as a part of the error term. To test if there is an endogeneity problem emanating from the correlation between explanatory variables and firm-specific effects, we carried out the Hausman test for model specification. According to the test results (Table 3), the random effect estimator turns out to be both consistent and efficient.

Hence, our baseline regression model is specified as follows:

$$Roa_{it} = \beta_1 + \beta_2 lnta_{it} + \beta_3 eqta_{it} + \beta_4 curr_{it} + \beta_5 sturn_{it} + \beta_6 cfoprev_{it} + \beta_7 cap_{it} + \beta_8 inf_{ct} + \beta_9 wui_t + w_{it}$$
$$w_{it} = \varepsilon_i + u_{it}$$

where subscripts i, c, and t denote the individual firms, the country of origin, and the year, respectively.

The composite error term w_{it} has two components. Here, while ε_i is the individual-specific error component, u_{it} refers to the combined cross-section and time series error component (Gujarati, 2003) [21].

Finally, heteroscedasticity and autocorrelation tests were performed. After performing the tests, the presence of heteroscedasticity was detected. However, autocorrelation test results indicate that there is no first-order autocorrelation. In all model specifications, we then use standard errors robust to heteroscedasticity. In this study, 4 models were implemented. Table

	ROA	Lnta	Eqta	Curr	Sturn	Cfoprev	Cap	Inf	WUI
ROA	1								
Lnta	0.0713	1							
Eqta	0.2700	-0.2669	1						
Curr	0.0105	-0.2170	0.5042	1					
Sturn	0.0227	0.2161	-0.0885	-0.1525	1				
Cfoprev	0.6363	0.0923	0.2899	-0.0005	0.0026	1			
Cap	-0.0862	-0.1973	-0.0443	-0.0301	0.3976	-0.0382	1		
Inf	0.0617	-0.0701	0.1223	0.0963	-0.0171	0.2004	-0.0719	1	
WUI	-0.0153	0.0125	-0.0680	-0.0341	0.0273	0.1139	-0.0082	0.0195	1

Table 2. Correlation Matrix

Test	Results
Breusch and Pagan Lagrangian multiplier test	chibar2(01) = 173.49; Prob > chibar2 = 0.0000
Hausman test	chi2(7) = 12.53 ; Prob>chi2 = 0.0844

Table 3. Pre-estimation Diagnostic Tests

Variables	Model 1		Model 2	
ROA (Dep. Var.)	Coefficient	Robust Std. Err.	Coefficient	Robust Std. Err.
lnta	0.2604309	0.365003	-0.4812073	0.4259563
eqta	8.808909**	3.557638	11.17354***	3.707153
curr	-0.0449675	0.0984208	-0.0010337	0.095327
sturn	0.084396	0.0895613	0.1074277	0.0912723
cfoprev	0.372333***	0.0551491	0.3645428***	0.0537229
cap	-0.0040539***	0.0010833	-0.003858***	0.0010398
inf	-0.2771021	0.2069265	-0.1589167	0.1937531
WUI	-0.0001145***	0.0000394	-0.0001108***	0.0000388
eastern dummy			-6.253984***	2.376418
_cons	-3.965257	4.64439	4.479776	5.143428
Year dummies	NO		NO	
Number of obs	386		386	
Number of groups	44		44	

*The symbols ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively*

Table 4. Regression Results

4 gives the estimation results. In the first model, the effect of some firm specific variables, inflation and WUI on ROA was investigated. While the second model adds eastern dummies, year dummies were added in the third and fourth models.

There are four models in Table 4 and all models include 44 firms and 386 observations respectively. For the eastern dummy variable, observations belonging to firms in Eastern Europe take the value 1 and 0 otherwise.

3. World Uncertainty Index

All model results show that WUI has a negative and significant impact on the profitability of publicly listed textile companies in the EU 27. The depressive effects of uncertainty were already found in various studies, as mentioned above. In this context, this study results are in line with the previous studies. For the given period, it is possible to say that uncertainty is a significant variable for the textile industry in the EU 27.

4. Other Variables

The ratio equity to total assets has a positive and significant impact on the profitability. Financing a company with debt will result in more interest expense and less net income. thus, it is normal that the higher equity to total assets ratio, the higher the profit. A positive relation between equity to total assets and profitability was also found by Menicucci and Paolucci (2016) [22].

Variables	Model 3		Model 4	
ROA (Dep. Var.)	Coefficient	Robust Std. Err.	Coefficient	Robust Std. Err.
lnta	0.2970391	0.3716105	-0.5001217	0.4237718
eqta	9.31993***	3.619772	11.97125***	3.817554
curr	-0.0454016	0.100601	0.0017466	0.0983472
sturn	0.0773267	0.088064	0.0988482	0.0881473
cfoprev	0.3661716***	0.0535317	0.3572736***	0.0516715
cap	-0.0042005***	0.0011124	-0.0039599***	0.0010655
inf	-0.0123922	0.4578236	0.2226241	0.4685663
WUI	-0.0002448*	0.0001357	-0.0002498*	0.0001362
eastern dummy			-6.896852***	2.516986
_cons	-2.1429	5.531343	6.772484	5.366389
Year dummies	YES		YES	
Number of obs	386		386	
Number of groups	44		44	

*The symbols ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively*

Table 4. Regression Results (Contd.)

The effect of cash flow to operating revenue is positive and significant in all four models. Also, the fixed assets to sales ratio is negatively related to profitability in all four models.

The eastern dummy has a negative and significant impact on profitability in two models. This result can be interpreted as the textile companies in the Eastern European part of the EU 27 having a lower profitability than the other parts.

The natural logarithm of total assets, the current ratio, operating revenue to stocks, and inflation do not seem to have a significant impact on profitability.

5. Conclusion

In this study, the factors affecting the profitability of publicly listed textile companies in the EU27, especially the world uncertainty index, were examined.

The results indicate that while equity to total assets and cash flow to operating revenue have a positive effect, capital intensity has a negative effect on profitability. To reach higher profitability, textile companies should keep their equity-to-total assets and cash flow to operating revenue ratios high in the EU27.

An interesting finding of the study is that companies operating in the Eastern European part of the EU 27 are less profitable when compared with their competitors in other parts of the EU 27. This result is consistent with the Euratex report [23]. Based on Eurostat data, Euratex calculations show that Italy, Germany, France, Spain and Portugal are the leading countries in terms of turnover in the textile and clothing industry in the EU. This indicates that a great part of the sales are made by the companies in the western part of Europe and that led them to reach higher profitability levels. Companies in the Eastern part of the EU27 should investigate the reasons for this result and adjust their long term strategies to reach the profitability level of their competitors especially in the Western part of the Europe.

The study results also show that WUI makes a negative and significant impact on the profitability of textile companies.

Therefore, governments should produce solutions for the textile industry in the case of uncertainty. Textile companies, on the other hand, should develop their ability to make decisions under uncertainty.

There are three limitations of this study. Firstly, the data used in this study are limited to publicly listed companies in the EU 27. Usage of unlisted company data will probably provide more interesting results. Secondly, this study investigates textile companies only in the EU 27. The effect of uncertainty should also be investigated in the non-EU countries to have a more general idea about the textile industry. Thirdly, this study generally covers years with high uncertainty. Working with a longer data set that includes more stable years may provide more accurate results.

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