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## Analysis of ESG Dimensions in Terms of Sustainable Competition in Companies: A Research on SMEs in Turkey

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### **Abstract:**

*Objective: In this research, it was aimed to analyze ESG dimensions in terms of sustainable competition by using firm agility.*

*Method: 524 SME managers selected by simple random sampling method were subjected to the survey. A survey form consisting of four stages: demographic information form, company information form, ESG scales and Company Agility Scale was used as a data collection tool in the research.*

*Findings: There is a statistically significant and positive relationship between the governance dimension and flexible production and performance. There is a statistically significant and positive relationship between the social dimension and flexible production and performance. There is a statistically significant and positive relationship between the environmental dimension and flexible production and performance. The effects of flexible production and performance dimensions of firm agility on governance performance are statistically significant and positive. The effects of flexible production and performance dimensions of firm agility on social performance are statistically significant and positive. The effects of flexible production and performance dimensions of company agility on environmental performance are statistically significant and positive.*

*Originality: The firm agility levels of companies, especially SMEs, and among the firm agility dimensions, the flexible production dimension is very important in terms of companies' competitive advantage and adaptation to the new and changing market structure. In this regard, companies having higher ESG values may give them greater competitive advantage and power.*

**Keywords:** ESG, agility, SMEs, sustainability, competition

### **1. Introduction**

In the context of globalization, developments in information, communication and transportation technologies, new emerging markets, rising customer expectations with evolving consumer awareness, and the importance of information for all organizations are forcing businesses to change (Ahmad et al., 2023; Audi et al., 2022; Matyushok et al., 2021). Businesses trying to survive in this changing environment can no longer succeed using traditional methods. Compared to large enterprises, SMEs know how to behave in these conditions.

The goal of sustainable development is to jointly evaluate economic decisions that integrate social development and well-being, ecosystem protection and social responsibility rather than thinking solely about consumption (Yin et al., 2021; Yang et al., 2020). According to these two approaches, the three main axes that makeup sustainability are environment, society and economy. Environmental, social and corporate governance (ESG), or ESG in its current acronym, refers to environmental, social and governance practices that can have a significant impact on investment performance (Gubareva et al., 2023; Bai et al., 2022). ESG application is a practice that offers investors the opportunity to conduct a more comprehensive analysis by examining potential non-financial risks and opportunities in addition to traditional financial analysis.

It is accepted at the global level that the transition to a new order is necessary for the continuity of environmental, economic and social development. The UN Sustainable Development Goals, the Paris Agreement, the EU Green Deal, the US Green New Deal, successive declarations of goals by countries, the numerous frameworks created and the rapid development of sustainable/responsible investments can be described as important steps towards a more sustainable world (Filipoviç et al., 2022; Galvin et al., 2020). The cores of this comprehensive transformation have begun to manifest themselves in infrastructure, transportation, energy, manufacturing, distribution, markets, end users, organizations/companies, supply chains and operations. Sustainability is the ability to make life permanent while ensuring continuity of production and diversity (Mentes, 2023; Hafner & Raimondi, 2020). The competitive perspective based on sustainable development, which has begun to be implemented, is a holistic approach in which the environment and natural

resources are protected to maintain profitability; not only people but all living things continue to live in health and safety, and social and ethical standards.

Although different studies have been conducted on ESG and sustainability, there have not been enough studies on the effect of agility level as an indicator of the competitiveness of companies on ESG levels. Thus, the aim of the research was to analyze ESG dimensions in terms of sustainable competition by using firm agility.

## 2. Literature Review

A strong and healthy SME structure is a prerequisite, an essential guarantee and one of the cornerstones of economic development, political stability and social peace. SMEs contribute to balanced cross-regional development and growth and come to the forefront of the economy, performing a number of functions that most large enterprises cannot perform. They also benefit the economy by satisfying the needs of sub-sectors of large organizations (Çatal, 2010).

Companies with high corporate sustainability scores attract the attention of individual and institutional investors in the capital markets. Thus, bankers and investors in the money and capital markets are expected to consider the economic, environmental and social aspects of the concept of sustainable development as a whole, develop their strategies in this direction, balance their strategies with their financial goals and systematically communicate these activities to all stakeholders (Haffar & Searcy, 2017).

In a competitive environment, businesses offering similar products and services to the same group of customers compete with each other in a sector/market. In a sense, competition means competing in the market using strategies that satisfy customers' needs, fulfill their expectations and create value for them. Competitive advantage can only be achieved through value-creation strategies. Sustainable competitive advantage depends on the development of firms and their competitive advantages based on innovation and investment in improving factors of production. It is extremely important for a business to maintain its achieved competitive advantage. However, maintaining a competitive advantage in a dynamic business environment is not easy (Kaygın, 2012).

Organizations are facing increasing pressure from multiple stakeholders on various ESG issues. It would be helpful to remember that the media plays an important role in this regard. In this regard, the results presented by RepRisk by scanning over 80 thousand media sources in 15 different languages around the world are significant and show how important the social assessment literature is in determining the strategies of organizations (Hawn & Ioannou, 2020).

## 3. Method

In this chapter, research methods, including models, sample sizes, data collection tools, and statistical methods, are given.

### 3.1. Research Model

The research aimed to investigate the mediating role of firm agility in the relationship between the governance dimension, an internal factor among the ESG dimensions, and the social and environmental dimensions, which are external factors. In this context, the research was designed using a descriptive scanning model and a relational scanning model.

### 3.2. Sampling

The research population consists of SMEs operating in Turkey, and the sample consists of 524 SME managers selected by a simple random sampling method. Cohen et al. (2001) reported that a sample of 384 or more participants represented a population of 5 million with a 95% confidence interval. This number was exceeded in the research and 524 participants were reached.

### 3.3. Data Collection Tool

A survey form consisting of four stages: demographic information form, company information form, ESG scale and Company Agility Scale was used as a data collection tool in the research. The ESG scale was taken from the study conducted by Şeker and Şengür (2022), and the ESG scale developed by taking expert opinions from the literature was used. Company Agility Scale is a scale developed by Kasımoğlu (2023) that examines company agility in five-point Likert type and two dimensions. There are a total of 17 items on the scale.

### 3.4. Statistical Methods

In data analysis, the Lawshe method was used for scale validity, and Cronbach Alpha internal consistency coefficients were calculated for reliability. Item-total correlation was performed for additivity. In the relational screening model, Spearman's rho and Generalized Linear Model (Logit) analyses were performed to minimize linearization deviations (Yılmaz & Turanlı, 2023; Yılmaz & Turanlı, 2022). Hierarchical regression and factorial regression analyzes were used for the mediating role. All analyzes were carried out in SPSS 25.0 for Windows with a 95% confidence interval and a significance level of 0.05.

### 3.5. Ethical Considerations

For the application of the research surveys, ethics committee permission was obtained from the Istanbul Commerce University Non-Interventional Studies Ethics Committee for the application of the relevant scales. Participants were also given a volunteer consent form and their approval for participation was obtained.

#### 4. Findings

80.7% of the participants are men and 19.3% are women. According to age, 11.1% of the participants are between 25-34, 31.1% are between 35-44, 32.8% are between 45-53, 22.5% are between 55-64, and 2.5% are 65 and over. According to professional experience, 88.5% of the participants have over 10 years of professional experience, 2.9% have 5-10 years of professional experience, and 8.6% have 5-10 years of professional experience. 7.8% of the participants are low-level managers, 36.5% are middle-level managers, and 55.7% are senior managers. 48.7% of the participants have undergraduate education, 44.1% have graduate education, 3.4% have high school education or less, and 3.8% have associate degree education. Those who have no knowledge about ESG comprise 17.6%, those with little knowledge comprise 29.2%, those with moderate knowledge comprise 42.2%, and those with advanced knowledge comprise 11.1%. The rate of those who think that ESG is not important is 1.9%, those who say it is less important is 4.4%, those who say it is moderately important is 46.8%, and those who say it is very important is 46.9% (Table 1).

|                |                               | <b>n</b>   | <b>%</b>    |
|----------------|-------------------------------|------------|-------------|
| <b>Gender</b>  | Male                          | <b>423</b> | <b>80.7</b> |
|                | Female                        | 101        | 19.3        |
| Age            | 25-34                         | 58         | 11.1        |
|                | 35-44                         | 163        | 31.1        |
|                | 45-54                         | 172        | 32.8        |
|                | 55-64                         | 118        | 22.5        |
|                | 65 and over                   | 13         | 2.5         |
| Experience     | Under 5 years                 | 15         | 2.9         |
|                | 5-10 years                    | 45         | 8.6         |
|                | Over 10 years                 | 464        | 88.5        |
| Position       | At level manager              | 41         | 7.8         |
|                | Middle manager                | 191        | 36.5        |
|                | Senior manager                | 292        | 55.7        |
| Education      | License                       | 255        | 48.7        |
|                | Postgraduate                  | 231        | 44.1        |
|                | High school and below         | 18         | 3.4         |
|                | Associate degree              | 20         | 3.8         |
| ESG knowledge  | I don't know                  | 92         | 17.6        |
|                | I have little knowledge       | 153        | 29.2        |
|                | I have intermediate knowledge | 221        | 42.2        |
|                | I have advanced knowledge     | 58         | 11.1        |
| ESG importance | It doesn't matter             | 10         | 1.9         |
|                | less important                | 23         | 4.4         |
|                | Moderately important          | 245        | 46.8        |
|                | It is very important          | 246        | 46.9        |

*Table 1: Baseline Characteristics of Participants*

3.1% of the participants evaluate the competitiveness of their companies as weak, 8.8% as low, 54.2% as medium and 34.0% as advanced. The operating age of the company is 10.3% under 5 years, 12.0% between 6-10 years, 9.0% between 11-15 years and 68.7% over 15 years. 19.3% of the companies where the participants work are 10 years old and below, 8.8% are between 11-30, 6.5% are between 31-50, 3.6% are between 51-70, 4.2% are between 71-100 and 57.6% are between 71-100. They have 101 or more employees. 15.8% of the companies operate mainly abroad, 29.2% operate predominantly domestically, 6.9% operate only internationally, 17.2% operate only domestically, and 30.9% operate in a balance of domestic and international operations. The risk assessment is 4.6 very low, 23.1% low, 54.4% normal, 15.6% high and 2.3% very high risk (Table 2).

|                         |                                     | n   | %    |
|-------------------------|-------------------------------------|-----|------|
| Company competitiveness | Weak                                | 16  | 3.1  |
|                         | low level                           | 46  | 8.8  |
|                         | Medium-level                        | 284 | 54.2 |
|                         | advanced                            | 178 | 34.0 |
| Firm age                | under 5 years                       | 54  | 10.3 |
|                         | 6-10 years                          | 63  | 12.0 |
|                         | Between 11-15 years                 | 47  | 9.0  |
|                         | over 15 years                       | 360 | 68.7 |
| Firm workers            | 10 and under                        | 101 | 19.3 |
|                         | Between 11-30                       | 46  | 8.8  |
|                         | Between 31-50                       | 34  | 6.5  |
|                         | Between 51-70                       | 19  | 3.6  |
|                         | Between 71-100                      | 22  | 4.2  |
|                         | 101 and above                       | 302 | 57.6 |
| Operation area          | Weight overseas                     | 83  | 15.8 |
|                         | Mainly domestic                     | 153 | 29.2 |
|                         | overseas only                       | 36  | 6.9  |
|                         | Domestic only                       | 90  | 17.2 |
|                         | Domestic and international balanced | 162 | 30.9 |
| Risk evaluation         | Very low risk                       | 24  | 4.6  |
|                         | Low risk                            | 121 | 23.1 |
|                         | Normal                              | 285 | 54.4 |
|                         | High risk                           | 82  | 15.6 |
|                         | Very high risk                      | 12  | 2.3  |

Table 2: Firm Demography Properties of Participants

The first hypothesis of the research was given as:

- H1: There are significant relationships between the ESG dimensions of SMEs in the manufacturing sector and their firm agility.

|             | Flexible Production |       | Performance |       |
|-------------|---------------------|-------|-------------|-------|
|             | r                   | p     | r           | p     |
| Governance  | 0.724**             | 0.000 | 0.633**     | 0.000 |
| Social      | 0.619**             | 0.000 | 0.575**     | 0.000 |
| Environment | 0.603**             | 0.000 | 0.553**     | 0.000 |

Table 3: Relationship between ESG Dimensions and Firm Agility

\*\*p<0.01

There is a statistically significant and positive relationship between the governance dimension and flexible production ( $r=0.724$ ;  $p<0.01$ ) and performance ( $r=0.633$ ;  $p<0.01$ ). There is a statistically significant and positive relationship between the social dimension and flexible production ( $r=0.619$ ;  $p<0.01$ ) and performance ( $r=0.575$ ;  $p<0.01$ ). There is a statistically significant and positive relationship between the environmental dimension and flexible production ( $r=0.603$ ;  $p<0.01$ ) and performance ( $r=0.553$ ;  $p<0.01$ ) (Table 3). The second hypothesis of the research was given as:

- H2: Firm agility levels of SMEs in the manufacturing sector positively affect their governance performance.

| Parameters          | B      | Std. Error | 95% Wald Confidence Interval |        | Hypothesis Test     |    |         |
|---------------------|--------|------------|------------------------------|--------|---------------------|----|---------|
|                     |        |            | Min                          | Max    | Wald X <sup>2</sup> | df | p-value |
| (Intercept)         | 5.299  | .8208      | 3.691                        | 6.908  | 41.680              | 1  | 0.000   |
| Flexible production | .508   | .0408      | .428                         | .588   | 155.196             | 1  | 0.000   |
| Performance         | .118   | .0502      | .019                         | .216   | 5.496               | 1  | 0.019   |
| (Scale)             | 22.559 | 1.4685     | 19.857                       | 25.629 |                     |    |         |

Table 4: Effects of Firm Agility on Governance Performance of SMEs

According to the results of the Generalized Linear Model analysis, the effects of flexible production ( $B=0.508$ ;  $p<0.01$ ) and performance ( $B=0.118$ ;  $p<0.05$ ) dimensions of firm agility on governance performance are statistically significant and positive (Table 4). The third hypothesis of the research was given as:

- H3: Firm agility levels of SMEs in the manufacturing sector positively affect their social performance.

| Parameters          | B      | Std. Error | 95% Wald Confidence Interval |        | Hypothesis Test     |    |         |
|---------------------|--------|------------|------------------------------|--------|---------------------|----|---------|
|                     |        |            | Min                          | Max    | Wald X <sup>2</sup> | df | p-value |
| (Intercept)         | 12.933 | 1.0776     | 10.821                       | 15.045 | 144.033             | 1  | 0.000   |
| Flexible production | 0.477  | 0.0535     | 0.372                        | 0.582  | 79.496              | 1  | 0.000   |
| Performance         | 0.206  | 0.0659     | 0.077                        | 0.336  | 9.801               | 1  | 0.002   |
| (Scale)             | 38.878 | 2.5307     | 34.221                       | 44.168 |                     |    |         |

Table 5: Effects of Firm Agility on Social Performance of SMEs

The effects of flexible production (B=0.477; p<0.01) and performance (B=0.206; p<0.05) dimensions of firm agility on social performance are statistically significant and positive (Table 5). The fourth hypothesis of the research was given as:

- H4: Firm agility levels of SMEs in the manufacturing sector positively affect their environmental performance.

| Parameters          | B      | Std. Error | 95% Wald Confidence Interval |        | Hypothesis Test     |    |         |
|---------------------|--------|------------|------------------------------|--------|---------------------|----|---------|
|                     |        |            | Min                          | Max    | Wald X <sup>2</sup> | df | p-value |
| (Intercept)         | 12.121 | 1.3448     | 9.485                        | 14.757 | 81.233              | 1  | 0.000   |
| Flexible production | 0.537  | 0.0668     | 0.407                        | 0.668  | 64.806              | 1  | 0.000   |
| Performance         | 0.221  | 0.0823     | 0.060                        | 0.383  | 7.240               | 1  | 0.007   |
| (Scale)             | 60.551 | 3.9415     | 53.298                       | 68.791 |                     |    |         |

Table 6: Effects of Firm Agility on the Environment Performance of SMEs

The effects of flexible production (B=0.537; p<0.01) and performance (B=0.221; p<0.05) dimensions of company agility on environmental performance are statistically significant and positive (Table 6). The fifth hypothesis of the research was given as:

- H5: Firm agility levels of SMEs in the manufacturing sector positively affect the environmental performance of firms through governance performance.

| Parameters                     | OR     | Std. Error | 95% Wald Confidence Interval |        | Hypothesis Test     |    |         |
|--------------------------------|--------|------------|------------------------------|--------|---------------------|----|---------|
|                                |        |            | Min                          | Max    | Wald X <sup>2</sup> | df | p-value |
| (Intercept)                    | 19.718 | 0.7327     | 18.282                       | 21.154 | 724.230             | 1  | 0.000   |
| Flexible production*Governance | 0.012  | 0.0024     | 0.008                        | 0.017  | 27.374              | 1  | 0.000   |
| Performance*Governance         | 0.007  | 0.0029     | 0.002                        | 0.013  | 6.608               | 1  | 0.010   |
| (Scale)                        | 48.005 | 3.1248     | 42.255                       | 54.537 |                     |    |         |

Table 7: Effect of Firm Agility on Environmental Performance through Governance Performance

The effects of flexible production\*governance (B=0.012; p<0.01) and performance\*governance (B=0.007; p<0.05) dimensions of firm agility on environmental performance are statistically significant and positive (Table 7). The sixth hypothesis of the research was given as:

- H6: Firm agility levels of SMEs in the manufacturing sector positively affect their social performance through governance performance.

| Parameters                     | OR     | Std. Error | 95% Wald Confidence Interval |        | Hypothesis Test     |    |         |
|--------------------------------|--------|------------|------------------------------|--------|---------------------|----|---------|
|                                |        |            | Min                          | Max    | Wald X <sup>2</sup> | df | p-value |
| (Intercept)                    | 19.866 | 0.5738     | 18.741                       | 20.991 | 1198.539            | 1  | 0.000   |
| Flexible production*Governance | 0.010  | 0.0019     | 0.007                        | 0.014  | 31.792              | 1  | 0.000   |
| Performance*Governance         | 0.007  | 0.0023     | 0.003                        | 0.012  | 10.504              | 1  | 0.001   |
| (Scale)                        | 29.446 | 1.9168     | 25.919                       | 33.453 |                     |    |         |

Table 8: Effect of Firm Agility on Social Performance through Governance Performance

The effects of flexible production\*governance (B=0.010; p<0.01) and performance\*governance (B=0.007; p<0.01) dimensions of firm agility on social performance are statistically significant and positive (Table 8).

## 5. Discussion

In this research, the relationship between companies' ESG levels and company agility was examined, and the effects that companies' agility levels might have on managing their ESG levels were analyzed quantitatively. In this context, in the research, ESG levels were measured with the ESG scale developed within the scope of the research with 524 SME managers, and the relationships between them and company agility and the effect of company agility were analyzed. The results revealed that as companies' agility levels increase, their ESG levels also increase. In addition, the results obtained in the research reveal that the company's agility level, especially the flexible production dimension, has a more significant impact on ESG.

Although there have been studies on ESG in different fields in the literature (Rau & Yu, 2024; Shen et al., 2023; Li et al., 2021), there have not been enough studies on the relationship of ESG dimensions with the flexible production dimension of company agility. On the other hand, there are studies revealing the relationship between ESG and production (Van Weeren, 2024; Liu et al., 2022; Tulupov & Titkov, 2022). According to the results obtained in the research, the relationship between the performance dimension of company agility and both governance ( $r = 0.633$ ), social ( $r = 0.575$ ) and environmental ( $r = 0.553$ ) dimensions was found to be statistically significant and positive. According to the comparison of correlation coefficients, the dimension most associated with the flexible production agility of companies is governance, followed by social and environmental dimensions, respectively. Although there may be many reasons for these results, flexibility in management or managerial decisions is among the most important inputs in the entire production process within an SME. The decisions made by the management during the production process, as well as the level and manner of including all internal and external stakeholders in the team and the business in these decisions, are related to the success and flexibility of the companies in production. In companies that are more flexible and agile, ESG values of governance and social and environmental values are significantly higher. These results indicate that company agility can be used as a managerial tool to increase ESG dimensions.

Flexible production is an important issue emphasized in the literature not only in terms of company agility but also in terms of the competitive advantage of companies in general (Malik et al., 2023; Sarkar et al., 2022; Yadav et al., 2022; Sarkar & Chung, 2021). According to the results obtained in the research, the relationship between the flexible production dimension of company agility and both the governance ( $r = 0.724$ ), social ( $r = 0.619$ ) and environmental ( $r = 0.603$ ) dimensions was found to be statistically significant and positive. In fact, although there is a similar order and distribution with flexible production, the correlation coefficients are generally lower than with flexible production. These results suggest that performance is of secondary importance to firms' ESG levels compared to flexible production. These results successfully represent the markets that are global and active today. Although product quality, satisfaction levels, and performance, including corporate values, are important in global markets, a more flexible and versatile production becomes more important for companies to fully adapt to changing markets.

Studies on the relationship between company agility and management functions reveal that company agility is related to management agility and fast decision-making (Elazhary et al., 2023; Ilmudeen, 2022; Vejseli et al., 2022). The effect of firm agility on governance had a coefficient effect of 0.508 on the flexible production dimension, while it had a coefficient effect of 0.118 on performance. Regression results are also compatible with correlation results. While the coefficient of flexible production for the social level was 0.477, the coefficient of performance was found to be 0.206. For the environmental dimension, regression coefficients of 0.537 in flexible production and 0.221 in performance were found. Taken together, these regression coefficients show that flexible manufacturing has the most significant impact on the ESG dimensions in the multivariate analysis, related to the environment, followed by the social dimension and finally, governance. Performance agility has environmental, social, and governance impact values. Therefore, in general, company agility, especially flexible production, has positive and significant contributions to the ESG levels of companies. In the interactive model, it is seen that the impact of company agility on both the environment and social performance varies through governance. This reveals that governance, among the ESG dimensions, has a regulatory role in the relationship between firm agility levels and environmental and social dimensions.

Limitations of the research

The most important limitation of the research is that although there are many studies on ESG, there are not enough measurement tools or scales to measure or evaluate ESG dimensions in a quantitative sense. For this reason, ESG has generally been addressed and evaluated semi-quantitatively or qualitatively in research. For this reason, there is a significant limitation in finding sufficient and comprehensive literature studies with which the results obtained in the research can be compared quantitatively.

Another limitation of the research is related to the concept of SMEs. Although the content and nature of the SME concept generally varies in different sectors, SMEs in Turkey are classified based on the number of employees and turnover. However, different definitions of SMEs are now made in different sectors, especially in some countries such as China. Therefore, since all SMEs are together, there is a limitation in terms of differentiation.

Contributions of the research to the literature

The most important contribution of the research to the literature is that it developed a quantitative measurement tool regarding ESG and introduced it to the literature. Although the developed scale evaluated ESG dimensions in a general sense, it made a significant contribution to the literature as it was the first scale developed in this field and was open to improvement.

Another important contribution of the research to the literature is that it is the first study to examine the relationship between company agility and ESG. In this respect, the research is important as it is among the leading studies in the literature. In addition to ESG measurement, the fact that it points to the use of company agility as a managerial tool in its management also reveals the contributions of the research to field applications.

## 6. Originality

As a result, it may be stated that company agility is one of the most important business management components in today's modern marketing process and global markets. ESG levels, which have been shown to be very important for companies and supported by many literature studies, appear to be directly related to the agility levels of companies. Moreover, this relationship is meaningful not only in a unidimensional and relational context with correlation analysis but also in a multidimensional sense, according to regression analysis results.

According to the results obtained in the research, the firm agility levels of companies, especially SMEs, and among the firm agility dimensions, the flexible production dimension are very important in terms of companies' competitive advantage and adaptation to the new and changing market structure. In this regard, companies having higher ESG values may give them greater competitive advantage and power. Therefore, company agility and its measurement and management can be described as an important indicator of the managerial competitiveness of companies.

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