

## DOES HEALTHCARE FIRMS' LEVEL OF COMPLIANCE WITH CORPORATE GOVERNANCE AND SUSTAINABILITY PRINCIPLES REDUCE THE VOLATILITY OF THEIR STOCK PRICES? A CASE OF BORSA İSTANBUL

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### ABSTRACT

*Healthcare firms contribute greatly to both people's health and countries' economies. Being able to easily collect sufficient funds from the financial markets is very important for healthcare firms, just as it is for all other firms. It is expected that higher compliance with corporate governance and sustainability principles reduces firms' stock price volatility by improving investor demand and trust. In this way, firms may collect more funds from the financial markets more easily. Within this context, we empirically investigated the impact of the Turkish publicly listed healthcare firms' level of compliance with corporate governance and sustainability principles on their stock price volatility. Our findings suggest that the healthcare firms' level of compliance with corporate governance principles reduces stock price volatility; however, the effect was not statistically significant. In addition, we found that the healthcare firms' level of compliance with sustainability principles does not have a negative impact on their stock price volatility. This may be because the fields of corporate governance and sustainability, and the related non-financial reports, are still relatively new in Türkiye.*

**Keywords:** Health economics and finance, corporate governance, sustainability, stock price volatility, borsa Istanbul (BIST)

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## SAĞLIK İŞLETMELERİNİN KURUMSAL YÖNETİM VE SÜRDÜRÜLEBİLİRLİK İLKELERİNE UYUM DÜZEYLERİ HİSSE SENETLERİNİN FİYAT DALGALANMASINI AZALTıYOR MU? BORSA İSTANBUL ÖRNEĞİ

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### ÖZ

*Sağlık işletmeleri hem bireylerin sağlığına hem de ülkelerin ekonomilerine çok büyük katkılar sunmaktadır. Sağlık işletmelerinin- diğer tüm işletmeler için de geçerli olduğu üzere- finansal piyasalardan yeterli düzeyde fon toplayabilmesi büyük önem taşımaktadır. Kurumsal yönetim ve sürdürülebilirlik ilkelerine yüksek düzeyde uyumun, yatırımcı talebini ve güvenini artırarak işletmelerin hisse senedi fiyat dalgalanmasını azaltması beklenmektedir. Böylelikle, işletmelerin finansal piyasalardan daha kolay ve daha fazla fon temin edebilmesi mümkün olabilir. Bu çalışmada; Türkiye'de halka açık sağlık işletmelerinin kurumsal yönetim ve sürdürülebilirlik ilkelerine uyum düzeylerinin, hisse senedi fiyat dalgalanması üzerindeki etkisi empirik olarak araştırılmıştır. Araştırmanın bulguları, sağlık işletmelerinin kurumsal yönetim ilkelerine uyum düzeylerinin hisse senedi fiyat dalgalanmasını azalttığını, ancak bu etkinin istatistiksel olarak anlamlı olmadığını göstermektedir. Ayrıca, sağlık işletmelerinin sürdürülebilirlik ilkelerine uyum düzeylerinin hisse senedi fiyat dalgalanması üzerinde azaltıcı bir etkisi olmadığı sonucuna ulaşılmıştır. Bu durum, kurumsal yönetim ve sürdürülebilirlik alanlarının ve ilgili raporlamaların Türkiye'de hâlen görece yeni olmasıyla açıklanabilir.*

**Anahtar Kelimeler:** Sağlık ekonomisi ve finansı, kurumsal yönetim, sürdürülebilirlik, hisse senedi fiyat dalgalanması, borsa İstanbul (BİST)

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## I. INTRODUCTION

Risk is present in various forms and degrees at all times. Moreover, new and obscure risks are emerging continually as rapidly developing technological devices are being more and more integrated into daily life because of their increasing prevalence and mobility (Hafermalz et al., 2020; Zuboff, 2023). As the ever-evolving risks in an ever-changing world need to be managed effectively, the significance of management, which is one of the oldest arts and newest sciences, is steadily increasing (Bostan, 2024; Sayar, 2024).

In financial terms, risk is essentially the potential of financial loss. In other words, it is the possibility of the actual return on an investment being different from the expected return. There is also another related concept called volatility which is a component of risk, and it is measured by the degree of variation in an asset's price. Hence, volatility is an important indicator which provides information about the size of changes in a stock's value and is therefore used to evaluate the degree of uncertainty or risk associated with stock prices. Accordingly, high volatility means that a stock's price can significantly change in either direction in a short period of time, which is undesirable for firms and investors alike (Homan, 2006; Kumar, 2012; Satchell & Knight, 2011).

Good corporate governance may help reduce the volatility of firms' stock prices by helping them implement frameworks which provide transparency and accountability. A stable investment environment could be achieved if the interests of managers and shareholders are aligned through corporate governance practices. Also, the likelihood of a corporate scandal occurring, which would greatly increase the volatility of stock prices, is relatively reduced by corporate governance; as one of the main goals of corporate governance practices is to mitigate such risks (Alp & Kılıç, 2014; Brealey et al., 2020; Kadioğlu, 2021; Sayar et al., 2010; Tümer & Sayar, 2024b).

Sustainability related practices, which are similar to corporate governance practices in essence and are in accordance with them, may also help reduce the volatility of firms' stock prices due to enhanced efficiency and stronger stakeholder relations. Firms could have more stable earnings and cash flows because of these factors and thus the volatility of their stock prices could be reduced (Albuquerque et al., 2019; Gregory et al., 2014; Tümer & Sayar, 2024a, 2024b). Consequently, corporate governance and sustainability are of great importance in stabilizing market dynamics.

There are studies in the literature which suggest that corporate governance and sustainability are indeed beneficial in decreasing the volatility of stock prices. For instance, Gompers et al. (2003) report that firms with higher corporate governance scores achieve lower volatility and also higher long-term performance. Similarly, Lee et al. (2019) document that corporate governance practices have a stabilizing effect on volatility. Additionally, research by Rogers and Securato (2009) demonstrates that firms with high corporate governance standards exhibit reduced stock price volatility. Moreover, Friede et al. (2015) find that firms with higher sustainability scores experience less stock price volatility. Furthermore, Zhang et al. (2018) find that sustainability practices cause a significant drop in volatility persistence.

In this context, we aimed to examine the impact of Turkish publicly listed healthcare firms' level of compliance with corporate governance and sustainability principles on the volatility of their stock prices. We focused specifically on the healthcare sector because it is highly sensitive to regulatory oversight and public trust, making compliance with corporate governance and sustainability principles particularly critical. Corporate governance may enhance transparency, accountability, and ethical decision-making in the healthcare sector where patient trust and regulatory oversight are crucial. Stronger governance structures could reduce operational risks, limit the likelihood of malpractice, and signal stability to stakeholders, which in turn may lower information asymmetry and foster investor confidence. These mechanisms might help mitigate speculative behavior and decrease the probability of sharp market reactions, thereby contributing to more stable stock price movements (Chambers, 2012; Hu et al., 2022; Jamali et al., 2010; Tengilimoğlu et al., 2020, 2021, 2023).

Similarly, sustainability practices may strengthen long-term resilience by integrating environmental, social, and economic considerations into healthcare operations. By improving efficiency, reducing ecological impacts, and enhancing social responsibility, such practices could bolster institutional reputation and align firms with global standards. Consequently, these practices may attract socially responsible investors, reduce exposure to environmental and regulatory shocks, and diminish uncertainty about future risks (Chambers, 2012; Hu et al., 2022; Jamali et al., 2010; Tengilimoğlu et al., 2020, 2021, 2023). Overall, compliance with corporate governance and sustainability principles may enhance trust and credibility, thereby leading to reduced stock price volatility in healthcare firms. If healthcare firms' stock price volatility reduces, they may collect more funds more easily from the financial markets. This, in turn, could enhance the welfare and well-being of the entire country.

## II. METHODOLOGY

We determined the publicly listed healthcare firms in Türkiye from “TradingView” web site (TradingView, 2025), because of the absence of an official sectoral stock index for the healthcare sector in Borsa İstanbul (BIST). The firm names, sub-sectors and stock codes of the publicly listed healthcare firms in Türkiye are presented in Table 1.

**Table 1. The Firm Names, Sub-Sectors and Stock Codes of the Publicly Listed Healthcare Firms in Türkiye**

Official Firm Name	Sub-Sector of Healthcare Sector	Stock Code in BIST
Anatolia Tanı ve Biyoteknoloji Ürünleri Araştırma Geliştirme Sanayi ve Ticaret A.Ş.	Health Technology	ANGEN
Avrupa Yatırım Holding A.Ş.	Health Services	AVHOL
Deva Holding A.Ş.	Health Technology	DEVA
Eis Eczacıbaşı İlaç Sinai ve Finansal Yatırımlar Sanayi ve Ticaret A.Ş.	Health Technology	ECILC
Nasmed Özel Sağlık Hizmetleri Ticaret A.Ş.	Health Services	EGEPO
Gen İlaç ve Sağlık Ürünleri Sanayi ve Ticaret A.Ş.	Health Technology	GENIL
Kayseri Şeker Fabrikası A.Ş.	Health Technology	KAYSE
Lokman Hekim Engürüsağ Sağlık Turizm Eğitim Hizmetleri ve İnşaat Taahhüt A.Ş.	Health Services	LKMNH
Meditera Tıbbi Malzeme Sanayi ve Ticaret A.Ş.	Health Technology	MEDTR
Mlp Sağlık Hizmetleri A.Ş.	Health Services	MPARK
Oncosem Onkolojik Sistemler Sanayi ve Ticaret A.Ş.	Health Technology	ONCSM
Rta Laboratuvarları Biyolojik Ürünler İlaç ve Makine Sanayi Ticaret A.Ş.	Health Technology	RTALB
Seyitler Kimya Sanayi A.Ş.	Health Technology	SEYKM
Tapdi Oksijen Özel Sağlık ve Eğitim Hizmetleri Sanayi Ticaret A.Ş.	Health Services	TNZTP
Türk İlaç ve Serum Sanayi A.Ş.	Health Technology	TRILC

There are 15 publicly listed healthcare firms in Türkiye; 5 of them are in the health services sub-sector (AVHOL, EGEPO, LKMNH, MPARK, TNZTP) and 10 of them are in the health technology sub-sector (ANGEN, DEVA, ECILC, GENIL, KAYSE, MEDTR, ONCSM, RTALB, SEYKM, TRILC). The required data for measuring the level of compliance with sustainability could not be collected for KAYSE, ONCSM and TNZTP. Therefore, they could not be included in the analysis.

In the literature, abstract concepts such as transparency and sustainability are often measured through the construction of scoring tables (Sayar et al., 2010; Tümer & Sayar, 2024a). We applied this

approach in the present study. Accordingly, in the measurement of corporate governance and sustainability levels of the publicly listed healthcare firms, we used relevant yearly non-financial reports (the Corporate Governance Principles Compliance Report for corporate governance and the Sustainability Principles Compliance Report for sustainability) which are published in the formats determined by the Capital Markets Board of Türkiye (CMB, 2018, 2022). The Corporate Governance Principles Compliance Report was first published by firms for the year 2018, while the Sustainability Principles Compliance Report was first published by firms for the year 2022. Therefore, the scope of the study was determined as the year 2022, so that we could collect data from both reports.

**Table 2. The Scoring of the Corporate Governance Principles Compliance Report**

Stock Code	Score	Maximum	Yes	Partial	No	Not Applicable + Exempted
ANGEN	112	134	53	6	8	1
AVHOL	115	132	49	17	0	2
DEVA	95	120	41	13	6	8
ECILC	117	128	57	3	4	4
EGEPO	89	132	42	5	19	2
GENIL	98	130	46	6	13	3
LKMNH	115	136	54	7	7	0
MEDTR	97	120	48	1	11	8
MPARK	112	128	53	6	5	4
RTALB	89	124	40	9	13	6
SEYKM	107	136	50	7	11	0
TRILC	108	132	51	6	9	2

We gave each firm a corporate governance compliance score by scoring the firms' answers to the questions in the Corporate Governance Principles Compliance Report (Yes: 2 points, Partial: 1 point, No: 0 points, Not Applicable & Exempted: Excluded); and we gave each firm a sustainability compliance score by scoring the firms' answers to the questions in the Sustainability Principles Compliance Report (Yes: 2 points, Partial: 1 point, No: 0 points, Not Applicable: Excluded). The scorings of the Corporate Governance Principles Compliance Report and the Sustainability Principles Compliance Report are presented in Tables 2 and 3 respectively.

**Table 3. The Scoring of the Sustainability Principles Compliance Report**

Stock Code	Score	Maximum	Yes	Partial	No	Not Applicable
ANGEN	17	100	4	9	37	6
AVHOL	8	112	2	4	50	0
DEVA	70	110	29	12	14	1
ECILC	67	106	27	13	13	3
EGEPO	20	112	5	10	41	0
GENIL	38	98	15	8	26	7
LKMNH	31	112	8	15	33	0
MEDTR	41	112	10	21	25	0
MPARK	85	102	40	5	6	5
RTALB	8	108	4	0	50	2
SEYKM	5	112	1	3	52	0
TRILC	23	112	4	15	37	0

Afterwards, we proportioned the firms' relevant scores as a percentage. On the other hand, we obtained daily stock price values for each firm from "Investing.com" web site (Investing.com, 2024) which is a free, comprehensive and highly preferred platform that provides detailed data on global financial markets. We calculated the yearly standard deviation of stock prices for each firm as a proxy for stock price volatility. The final corporate governance compliance level (CGCL), sustainability compliance level (SCL) and stock price volatility (SPV) of the publicly listed healthcare firms in Türkiye are collectively shown in Table 4.

**Table 4. The Corporate Governance Compliance Level (CGCL), Sustainability Compliance Level (SCL) and Stock Price Volatility (SPV) of the Publicly Listed Healthcare Firms in Türkiye**

Stock Code	CGCL (%)	SCL (%)	SPV
ANGEN	83.58	17.00	3.04
AVHOL	87.12	7.14	2.33
DEVA	79.17	63.64	9.18
ECILC	91.41	63.21	7.06
EGEPO	67.42	17.86	3.62
GENIL	75.38	38.78	8.84
LKMNH	84.56	27.68	5.05
MEDTR	80.83	36.61	9.91
MPARK	87.50	83.33	17.14
RTALB	71.77	7.41	1.96
SEYKM	78.68	4.46	1.45
TRILC	81.82	20.54	1.55

We utilized the Ordinary Least Squares (OLS) method (Wooldridge, 2013) to estimate the impact of corporate governance and sustainability on stock price volatility. In the analysis, we used stock

price volatility as the dependent variable, and we used corporate governance and sustainability compliance scores as independent variables. We conducted the analysis by using SPSS software package.

### III. RESULTS

We collected relevant available annual data from 12 publicly listed healthcare firms in Türkiye and created the corresponding variables. The descriptive statistics of the variables are presented in Table 5.

**Table 5. The Descriptive Statistics**

Variable	N	Minimum	Maximum	Mean	Std. Deviation	Variance
SPV	12	1.45	17.14	5.9275	4.71217	22.205
CGCL	12	67.42	91.41	80.7700	6.85827	47.036
SCL	12	4.46	83.33	32.3050	25.64105	657.464

According to the descriptive statistics, the mean value for CGCL (80.7700) is higher than the mean value for SCL (32.3050). On the other hand, the values of standard deviation and variance for SCL (25.64105 and 657.464 respectively) are higher than those for CGCL (6.85827 and 47.036 respectively). The Analysis of Variance (ANOVA) results for the econometric model are presented in Table 6.

**Table 6. The ANOVA Results**

ANOVA Results	
<b>Sum of Squares</b>	199.071
<b>df</b>	2
<b>Mean Square</b>	99.536
<b>F-statistic</b>	19.828
<b>p-value</b>	0.001

When the ANOVA results are examined, it can be stated that the econometric model is statistically significant (F-statistic: 19.828; p-value < 0.05). The estimation results about the impact of the publicly listed healthcare firms' corporate governance and sustainability compliance levels on their stock price volatility are presented in Table 7.

**Table 7. The Estimation Results**

	Coefficient	Std. Error	t-ratio	p-value	VIF	Tolerance	Adj. R <sup>2</sup>
Constant	6.618	8.471	0.781	0.455			
CGCL	-0.078	0.109	-0.716	0.492	0.816	1.226	0.774
SCL	0.174	0.029	5.959	0.000	0.816	1.226	

*Model: SPV = 6,618 - (0,078) \* CGCL + (0,174) \* SCL*

The results show that there is no collinearity problem between independent variables (Tolerance: 1.226; VIF: 0.816 < 10) and the explanatory power of the independent variables of the econometric model is high (Adj. R<sup>2</sup>: 0.774).

According to the estimation results, the publicly listed healthcare firms' level of compliance with corporate governance principles is estimated to have a negative impact on volatility, although the coefficient is not statistically significant (Coefficient:  $-0,078 \pm 0,109$ ; t-ratio: -0,716; p-value > 0,05). On the other hand, the publicly listed healthcare firms' level of compliance with sustainability principles is estimated to have no negative impact on volatility (Coefficient:  $0,174 \pm 0,029$ ; t-ratio: 5,959; p-value < 0,05).

#### **IV. DISCUSSION AND CONCLUSION**

We investigated the impact of Turkish publicly listed healthcare firms' level of compliance with corporate governance and sustainability principles on their stock price volatility. Analyzing this relationship is important because compliance with corporate governance and sustainability principles may reduce stock price volatility, and the healthcare firms could collect more funds from the financial markets more easily if their stock price volatility is reduced.

Similar to the findings of other studies in the literature that found that corporate governance reduces stock price volatility (Gompers et al., 2003; Lee et al., 2019; Rogers & Securato, 2009), our findings suggest that the publicly listed healthcare firms' level of compliance with corporate governance principles may reduce stock price volatility, although the relevant coefficient was not statistically significant. This outcome supports the view that corporate governance can play a stabilizing role in financial markets. Mechanisms such as increased transparency, stronger accountability, and more effective alignment of managerial and shareholder interests may contribute to lowering uncertainty and limiting speculative fluctuations in stock prices. Furthermore, by reducing the likelihood of malpractice or corporate scandals, robust governance structures may enhance investor confidence and reduce the probability of sharp negative market reactions. In this sense, our results are consistent with the broader theoretical expectation that well-functioning corporate governance frameworks may contribute to more stable market dynamics, particularly in sensitive sectors such as healthcare.

On the other hand, contrary to the theoretical expectations and the findings of other studies (Friede et al., 2015; Zhang et al., 2018), we found that the publicly listed healthcare firms' level of compliance with sustainability principles does not reduce stock price volatility. One of the main reasons for the absence of a negative association may be that the sustainability principles and the related non-financial reportings are rather newly being adopted in Türkiye and may not yet be sufficiently embedded in corporate strategies to influence investor perceptions or market outcomes. Another possible explanation is that investors in the Turkish financial markets may not fully integrate sustainability-related information into their investment decisions, either due to limited awareness or because financial literacy in this area remains underdeveloped. Additionally, the possibility exists that sustainability disclosures are currently perceived as symbolic or compliance-driven rather than substantive, which may reduce their impact on stock price behavior. It could therefore be suggested that, as sustainability practices become more standardized and as awareness among both firms and investors increases, the effect of sustainability on volatility may become more visible over time.

The present study has some limitations to be acknowledged. The scope of the study was limited due to data availability. Additionally, we only used data from the publicly listed healthcare firms in Türkiye, so our results are not generalizable. Further research is needed regarding the impact of corporate governance and sustainability principles in the context of the healthcare sector. Similar analyses could be conducted in the future with a wider scope and a larger sample. Also, the impact of corporate governance and sustainability principles on other related factors such as price elasticity could be researched separately by scholars.

**Ethical Approval:** This study does not require ethics committee approval.

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