

## **An Examination for the Impact of F-Score Indicators on Stock Value under Mediating Role of Book Value**

**Soner GÖKTEN**

Başkent University  
Management Department  
Ankara, Turkey

[orcid.org/0000-0003-4213-1976](https://orcid.org/0000-0003-4213-1976)  
[sgokten@baskent.edu.tr](mailto:sgokten@baskent.edu.tr)

**Furkan BAŞER**

Ankara University  
Applied Sciences Faculty  
Ankara, Turkey

[orcid.org/0000-0001-6106-5527](https://orcid.org/0000-0001-6106-5527)  
[furkan.baser@ankara.edu.tr](mailto:furkan.baser@ankara.edu.tr)

**İbrahim Sefa YALÇIN**

Enerjisa Finance Department  
Ankara, Turkey

[orcid.org/0000-0002-5594-3538](https://orcid.org/0000-0002-5594-3538)  
[ibrahimsefayalcin@yahoo.com](mailto:ibrahimsefayalcin@yahoo.com)

### **Extensive Summary**

#### **1. Introduction**

In this study, the mediating role of book value between financial performance and market value is investigated by using mediated structural equation modelling as an alternative approach in the related literature. The theoretical frame of the study is constructed by benefit from the widely used value relevance of accounting models which treat earning and book value as exogenous to investigate the ability of information disclosed by financial statements to capture and summarize firm value. In the hypothesized meditation model book value is considered as a mediator while financial performance is used as an exogenous latent variable as the function of F-Score indicators instead of using a single proxy for earning. Quarterly announced accounting numbers and prices of active firms operating in Turkish electric power industry listed and traded on Borsa Istanbul between the years of 2009-2015 are used in construction of the dataset.

The results of the model indicate that book value mediates the impact of financial performance on stock value. In other words, full mediator role of the book value makes the direct relationship between financial performance and stock value insignificant. Therefore, according to the findings, it is fair to say that (a) the effect of financial performance on stock value occurs indirectly through book value even financial performance has a primacy in investors' decision making process and thus (b) investors

make their decisions or shape their beliefs by comparing the book value with market value in the frame of realized financial performance in Turkey.

## 2. Methodology

### 2.1. Data

Active firms operating in Turkish electric power industry listed and traded on Borsa Istanbul were selected as sample to run the hypothesized structural equation modelling. These firms are Akso Enerji Üretim A.Ş., Ayen Enerji A.Ş., Odaş Elektrik Üretim Sanayi Ticaret A.Ş., Park Elektrik Madencilik Sanayi ve Ticaret A.Ş., Zorlu Enerji Elektrik Üretim A.Ş. ve Aksu Enerji ve Ticaret A.Ş. Quarterly announced financial statements of 2009-2015 were used to calculate the variables and stock prices were taken from Yahoo Finance.

Financial performance as a latent variable was constructed as the function of  $\Delta ROA$  (change in return on assets),  $\Delta CFO$  (change in cash flow from operations),  $AC_t$  (Accruals),  $\Delta MARGIN$  (change in gross margin),  $\Delta TURN$  (change in asset turnover),  $\Delta LEV$  (change in leverage) and  $\Delta CR$  (change in current ratio);

$$F_t = f(\Delta ROA_t, \Delta CFO_t, AC_t, \Delta MARGIN_t, \Delta TURN_t, \Delta LEV_t, \Delta CR_t).$$

These determinants are the indicators of F-Score which is widely used to assess the financial health condition of the firms.

The length of the lag between F and stock prices (P) is taken as three months.

### 2.2. Model

The empirical objective of this study is to examine the relationship between F and BV and to investigate the effect of these variables on P. Specifically, in this study, we examined whether three direct effects between (1) F and BV (2) BV and P (3) F and P are statistically significant. In addition, the indirect relationship between F and P and the mediating role of BV in this indirect effect were investigated. Considering the existing causal relationships in the proposed model, research hypotheses are expressed as follows:

H<sub>1</sub>: The effect of F on BV is statistically significant.

H<sub>2</sub>: The effect of BV on P is statistically significant.

H<sub>3</sub>: The effect of F on P is statistically significant.

H<sub>4</sub>: The effect of F on P is mediated by BV

## 3. Results

The most commonly used method to assess the effect of mediation is the causal steps approach summarized in the classical study of Baron and Kenny (1986). To assess the direct effect of F on P, standardized regression coefficients estimated by the maximum likelihood method were obtained. In addition, it was determined that the model is compatible with the data and therefore the model was verified by structural equation modelling-SEM ( $\chi^2/df = 0.022$ , RMSEA=0.005, CFI=1.000, GFI=1.000, AGFI=0.999). Accordingly, it was revealed that the effect of F on P was statistically significant (std  $\hat{\beta} = 0.332$ ,  $p < 0.05$ ), so the first criterion of the mediation effect analysis proposed by Baron and Kenny (1986) was provided.

The last three of the criteria proposed by Baron and Kenny (1986) were controlled in the model in which the mediating effect is addressed. The goodness of fit indicators for this model showed that the model is acceptable ( $\chi^2/df = 0.377$ , RMSEA=0.005, CFI=1.000, GFI=0.996, AGFI=0.987). The path coefficients from F to BV and from BV to P were statistically significant (Table 2). Thus, the second and third criteria of Baron and Kenny (1986) were also provided. In this model, the path coefficient from F to P was close to zero and statistically insignificant, so BV has a full mediating role in the effect of F on P.

When the direct relations between F, BV and PT were analyzed, the following results were obtained: (1) F has a negative effect on BV (std  $\hat{\beta} = -0.266$ ; t-value=-2.238), (2) BV has a negative effect on P (std  $\hat{\beta} = -0.548$ ; t-value = -7.908), (3) The relationship between F and P is in the same direction (std  $\hat{\beta} = 0.332$ ; t-value = 2.965).