Evidence From Turkey: Stock Market Returns, Operational Risk and

Abstract

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CHAPTER 6

Operational Risk Measurement: Qualitative Approaches

After 2002, the customer focus at the firm's New York headquarters increased. The firm's leadership, in addition to study managers, the risk of operational risk. This study assessed the impact of operational risk on the firm's New York and London banks. However, it was only by mid-2007 that banks started to focus on operational risk. The findings suggest that the risk of operational risk is a severe crisis, but the banking sector in Turkey also experienced a severe crisis, but the results of the study indicate that the risk of operational risk is not unique to economic conditions in Turkey but to other countries as well. The findings of the study suggest that the risk of operational risk is a severe crisis, but the banking sector in Turkey also experienced a severe crisis, but the results of the study indicate that the risk of operational risk is not unique to economic conditions in Turkey but to other countries as well.
Research: Finally, we present our main conclusions and suggestions for further research. These conclusions include: (1) the estimation of operational risk via risk factors in financial institutions; (2) the development of an operational risk model to measure the expected loss; and (3) the establishment of an operational risk management framework for financial institutions. These conclusions are based on empirical evidence from a range of financial institutions.

Operational Risk

Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people, and systems or from external events. This type of risk is considered to be the most significant type of risk for financial institutions, as highlighted by the Basel Committee on Banking Supervision in their 2001-2002 work on operational risk.

Operational risk is not new, but it is becoming increasingly important as financial institutions become more complex and operate in a globalized environment. Financial institutions face a wide range of operational risks, including fraud, cyber attacks, and errors in processing transactions. These risks can lead to significant financial losses, reputational damage, and regulatory sanctions.

Operational risk measurement and management are critical for financial institutions to ensure the safety and soundness of their operations. This chapter focuses on the measurement and management of operational risk in financial institutions.
### 6.2 Operational Losses and the Banking Sector in Turkey

#### Table 6.1: Descriptive Statistics for Banking Sector in Turkey

<table>
<thead>
<tr>
<th>Asset</th>
<th>Average # of Branches</th>
<th>Average # of Employees</th>
<th>Credit Risk Ratio</th>
<th>Market Risk Ratio</th>
<th>Operational Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Banks</td>
<td>10,807.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic Banks</td>
<td>14,747.92</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign Banks</td>
<td>39,369.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic Private Banks</td>
<td>256</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic Deposit Banks</td>
<td>71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depository Institutions</td>
<td>147</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banks</td>
<td>2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Banking Regulation and Supervision Agency, Banks Association of Turkey.
The measure of the impact of operational loss events has not been investigated.

The impact of operational loss events and the lack of operational loss impacts of operational risk are two reasons for this; the operational loss events are not well understood.

Operational Risk Events

The empirical distribution of operational and market risk capital model number 6.1

Empirical Distributions

The empirical distribution of operational and market risk capital model number 6.1

FIGURE 6.1

Empirical Distributions

Operational Risk Measurement: Qualitative Approaches

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for supervisors. One approach is to use experience or educated guess the stock market returns (AR). The conventional 2-day normal stock returns (AR) are defined by Equation 6.2.

\[ AR = \frac{\sum_{i=1}^{n} \left( R_{i} - R_{market} \right)}{n} \]

(6.2)

OBS (Observational Benchmark) for security i at time t. 

The conventional 2-day normal stock returns (AR) are defined by Equation 6.2.

\[ AR = \frac{\sum_{i=1}^{n} \left( R_{i} - R_{market} \right)}{n} \]

(6.2)
Identify the point in time with a volatility shift. If an asymmetric critical value of 1.75% can be used to cross a boundary in a statistical technique, based on the VAR and CUSUM statistics, define the volatility shift. With the volatility shift, we will observe a noticeable shift around zero. With a volatility shift, however, we will observe a shift around zero. If there is no volatility shift in the series, the plot of the absolute values will be 0.

$$D = \frac{\psi}{\eta} \sum_{t=T}^{T \pm 5} \left| \frac{Z_t}{\sigma} \right|$$

The CUSUM and nonparametric cumulative sum of squares until time $t$ is

$$C_t = \sum_{i=1}^{t} \left| Z_i \right|$$

where $T$ and $T \pm 5$ are the unconditional variance bounds and $C(1969)$ zero mean and $\sigma^2$ is the unconditional variance. Varma and Gujarati (1969) define $C(1969)$ as the CUSUM statistic. In this section, we assume $\sigma^2$ is the variance in a series with shocks. This is used to detect multiple breakpoints in a time series by the CUSUM statistics.

The CUSUM decomposition, by Varma and Gujarati (1969), the CUSUM algorithm can be described as follows:

1. Run the CUSUM decomposition and the recursive cumulative sum of squares algorithm.

The decomposition is to detect the data points where the breakpoints occur. We choose to follow

Figure 6.3: CAR for 21 Days and 7 Days Excess Returns Windows
The financial crisis has led to a significant increase in operational risk in banks. The report by the Bank for International Settlements (BIS) highlights the need for better risk management and governance.

1. Some other examples are cited, such as the loss of $740 million (Campania) and the loss of $651 million due to fraud in Deutsche Bank.

2. The report notes that the loss of $1.4 billion (Norddeutsche Landesbank) is also cited as an example of operational risk.

3. The report also highlights the increased focus on risk management in recent years.

4. The report concludes that the increased focus on risk management is necessary to ensure the stability of the financial system.

5. The report emphasizes the importance of effective regulation of the banking sector.