# Chapter 6
# Predicting Dividend Payouts in Moroccan Firms Using AI With Emphasis on Transparency

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## ABSTRACT

*This chapter explores the prediction of dividend payout ratios among Moroccan listed companies by applying Random Forest Regression combined with Explainable Artificial Intelligence (XAI) techniques. Focusing on firm-specific financial indicators and macroeconomic variables over the period 2013–2023, the study aims to identify key drivers of dividend policy in an emerging market context. The analysis demonstrates that profitability, firm size, and historical payout behavior are the most influential predictors, while macroeconomic indicators such as inflation, GDP, and interest rates show limited impact. SHAP values are employed to enhance transparency, allowing for robust interpretation of model outputs. This chapter contributes to financial modeling, corporate governance, and machine learning literature by offering an interpretable AI-based framework for dividend forecasting tailored to the Moroccan market. The findings provide actionable insights for investors, man-*

DOI: 10.4018/979-8-3373-1737-3.ch006

*agers, and policymakers seeking to understand or optimize dividend strategies in emerging economies.*

## 1. INTRODUCTION

One of the most complicated and highly contentious subjects in corporate finance is still dividend policy. It has a significant impact on capital allocation choices, investor sentiment, and firm valuation. The decision regarding whether, when, and how much profit to return to shareholders in the form of dividends shows a company's overall strategic intent and market communication style in addition to its internal financial health. Dividend behavior can be systematically explained by traditional financial theories like Financial Flexibility Theory, Life Cycle Theory, Agency Theory, and Signaling Theory.

However, because influencing factors are nonlinear, interdependent, and context-specific, dividend prediction is still difficult in real-world settings, particularly in emerging markets.

Dividend payout forecasting is made more challenging in emerging economies like Morocco by a number of factors, including institutional limitations, differing levels of corporate governance maturity, macroeconomic volatility, and inconsistent or incomplete data reporting. Moroccan businesses work in a setting where it is frequently difficult to obtain comprehensive financial data, and economic strategy, customs, and regulatory constraints all influence financial behavior. As a result, the complex relationships that influence dividend decisions might not be adequately captured by the use of conventional econometric or linear statistical models.

This study suggests a modern, data-driven method to forecast dividend payout ratios by utilizing machine learning, more especially the Random Forest Regressor. Because it can handle high-dimensional, multicollinear, and nonlinear datasets—all characteristics common to financial data—the Random Forest algorithm is especially well-suited. Nonetheless, a prevalent critique of machine learning models is their inability to be interpreted. The research uses Explainable AI (XAI) techniques, specifically SHAP (SHapley Additive Explanations), which offer clear, visually intuitive explanations of feature importance and model behavior, to help address this problem.

This chapter's main research question is: **How can machine learning be used to predict dividend payout ratios for Moroccan listed companies with accuracy and interpretability for financial decision-making?**

The pedagogical aim of this chapter's is to help readers comprehend the theoretical underpinnings of dividend policy as well as the real-world financial context in which interpretable AI models are applied. In addition to learning how to critically analyze