Chapter 18
The Effect of Capital Structure on Profitability: An Empirical Analysis

Seda Erdoğan
Bogazici University, Turkey

ABSTRACT
The main objective of this chapter is to understand the trade-off between using debt and equity in the financing decisions of investments and investigate whether capital structure affects profitability of corporate firms in Turkey. This relationship is tested through using observations of 235 firms for 4 years with the inclusion of Correlation Analysis, Independent Sample t-test, and Regression Analysis with random/fixed effect estimation. Results show that in the manufacturing sector, size, growth, GDP, market to book value, short-term debt to total assets, and total debt to total assets came out to be significant factors in determining profitability (i.e. ROA). Findings indicate that the relationship between independent variables (i.e. debt/total assets and profitability) is positive, since firms can benefit from the tax advantages brought through receiving additional debt. For the service firms, contradictory results are obtained, such that the relationship between leverage and profitability is negative.

INTRODUCTION
The capital structure is defined as the mix of debt and equity that the firm uses to finance its investments and assets. The capital structure choice that provides the greatest appeal to investors and shareholders, that results in the lowest cost of capital and maximized firm value in the presence of efficient investment strategies is called Optimal Capital Structure (Muzir, 2011) One of the principal objectives of corporate finance is to make a firm reach an optimal capital structure that would facilitate its operations to maximize profitability and firm value.

While firms can choose among many alternative capital structures, including lease financing, warrants, convertible bonds, forward contracts and bond swaps; under the general headlines firms mainly use either debt or equity. The first common source of capital is debt, which surges the risks up associated with the future earnings while at the same time allowing a firm to generate...
a higher expected rate of return stemming from
the tax benefit born from the interest expense;
which basically demonstrates a trade-off with the
changing levels of the use of debt. On the other
hand, the second source of capital, i.e. equity,
represents the right of shareholders on the firm’s
assets. The contribution of equity to the cost of
capital is higher as compared to debt financing
because creditors have privileged rights over the
firm’s assets as compared to shareholders in case
of bankruptcy and liquidation. The augmenting
usage of debt in raising capital to finance invest-
ments usually makes the firm’s future earnings
more risky to the shareholders due to the rising
financial risk basically born from borrowing more.

The relationship between capital structure
and profitability is an important one since the
amelioration in the profit margins of a firm is
extremely essential for its long-term survivability.
As the interest payment on debt is tax deductible,
the addition of debt to the existing capital funding
will improve the profitability of the firm. If inter-
est was not tax-deductible, firms’ owners would
be indifferent as to whether to use debt or equity
and in situations where interest is tax-deductible,
they would maximize the value of their firms by
using 100% debt financing (Azhagaiah & Gavoury,
2011). This is prohibited by the fact that the use of
debt in capital structure financing decisions leads
to agency costs. Hence, with the ultimate aim of
giving sound capital structure decisions, testing
the relationship between capital structure and the
profitability of the firm carries utmost importance.

The trade-off between using debt and equity
in the financing decisions of investments, the lack
of an agreement about what would qualify as the
optimal capital structure in the manufacturing
and non-manufacturing sectors and finally the
necessity to comprehend whether capital structure
effects profitability or not in Turkey constitute the
primary motive to conduct this research.

The rest of the paper is organized as follows: As
the initial step, both the theoretical papers, as well
as the more recently conducted empirical papers on
the relationship between capital structure and the
profitability of a firm will be analyzed. Following
this section, the methodology that will be used in
this study including Correlation, Univariate and
Multivariate analysis will be explained. Finally,
the results of the analysis will be stated followed
by our conclusion on the subject.

BACKGROUND

The initial attempts to discover capital structure
choice is the theory developed by Paton (1922)
who states that firm value is free of substituting
one form of capital for another in case of no
taxation. This conclusion got support from the
first proposition of Modigliani and Miller (1958)
called “Irrelevance Theorem”; which states that
firms should be indifferent choosing between debt
and equity financing; in which some simplifying
and very restrictive assumptions were taken into
consideration such as the presence of efficient
capital markets, fairly priced securities and dis-
torting taxes. Modigliani and Millers’ progressive
revision on their first proposition resulted in two
further propositions regarding the positive effect
of corporate tax shield and the negative effect of
personal income taxes, bondholders have to pay
through leading to an increase in the cost of capital
as the result of upward movement in the expected
return by shareholders (Brealey, Myers, & Marcus,
2001). Tax shield as a result of interest expense is
perceived to be the most important determinant on
capital structure decision and thought to positively
motivate firms to use more debt (Modigliani &
Miller, 1963). In addition to that, debt financing
may also be regarded by investors as a signal for
firm’s quality (Ross, 1977). On the other hand,
the phenomenon that highly leveraged firms has
greater likelihood of filing for bankruptcy (Altman,
1984) and is more exposed to financial distress
(Opler & Titman, 1994) makes firms unwilling
to raise fund through debt issuing.