Chapter-1
Introduction
1.0. INTRODUCTION

Traditionally financial structure has been seen as a purely financial problem without any reference to production theory. In as much as all the firms are responsible for economic activity which involves production of goods and services, it should be obvious that there would be some relationship between production theory and finance theory. While firms needs to be financially viable for continuing production, it is equally true that economic activity, production and real variables, including productivity, would contribute to this financial viability. For a continued existence and growth, firms have to undertake decisions in relation to financing of growth.

The contention of this thesis is that such a financing decision and consequent financial structure would be integrally linked to production activity, production theory, productivity, efficiency and growth.

It needs to be understood that finance is not an end in itself; rather it is a means for the continued existence of the firm. Productivity, innovation, technological progress and efficiency contribute to the growth of the firm.

In an accounting sense, this related to the ‘Going concern concept’. Each ‘going concern’ aims at continued production activity. This is clear cut indication of the integral relationship. The ‘going concern’ cannot survive unless this relationship exists.

In the following 7 chapters, we have developed an approach by which we have evolved a conceptual framework, looked at measurement issues and studied this primary thesis in the context of cement, pharmaceutical and steel industry. Now in this chapter we will focus on the following:

i. Rationale of the Study

ii. Objectives of the Study
1.1. RATIONALE OF THE STUDY

The interest in the financial structure has been driven by the existing theory of finance which includes:

i. Net Income Approach
ii. Net Operating Income Approach
iii. Traditional/Intermediate Theory
iv. Modigliani and Miller Theory
v. The Trade off Theory
vi. The Pecking Order Theory and
vii. Signaling Theory

The implications of these theories are well known. The new literature which relates the financial structure and productivity usually only looks at the effect of financial structure on productivity. This narrows down our understanding of the relationship. We, therefore wish to look beyond this one-way relationship.

We believe that there is a deep relationship between finance theory and production theory. Every firm needs finance for production, though the financing depends not only on the financial factors but also on the real factors. The emphasis of pure theory of finance is basically on the capital budgeting decision, the financing decision and the dividend decision. Dividend affects the market performance and profitability. If the shareholders are not satisfied then it affects the market performance whereas retained profits could lead to growth of the firm. So there is a linkage between finance theory and theory of growth.
The primary interest in this topic arises out of Nucci, Pozzolo and Schivardi (2005) study. However our approach and understanding is quite contrary to the assertion that “A major achievement of this renewed research effort is a conclusive answer to the question of causality”. This is because the direction of causality is purported to be from financial structure to productivity, in the above study.

Our main question is whether debt equity ratio causes productivity or productivity causes debt equity ratio. The author suggests that ‘more innovative firms have a different capital structure’, which implies that capital structure leads to innovation. The propensity to innovate has been related to TFP growth. Innovation is a product of investment and leads to deepening of capital (K/L increases). Therefore, single factor productivity increases but it is not responsible for disembodied technological progress.

Indirectly, Nucci, Pozzolo and Schivardi (2005) imply that the availability of funds in the financial system is either equity or debt and it would lead to higher productivity because firms with productivity would use such funds. This implies there would be a low debt equity ratio i.e., higher productivity and higher TFP. There is a problem of demand and supply of both types of capital i.e. debt and equity. Lower leverage has higher level of productivity.

Financial Development → Higher Equity → Innovation → Productivity → TFP
(= High TFP)

TFP (Total factor productivity) growth is the best know measure of productivity. We argue that TFP growth is disembodied technological progress, Therefore, it has three characteristic:

i. It cannot be attributed to any single factor of production.
ii. It is dynamic because it arises over a period of time.
iii. It is real.
iv. It leads to residual profit which is unanticipated.

Nucci, Pozzolo and Schivardi (2005) said that higher productivity is a consequence of opaque activity. They refer to R&D activity as opaque activity. Opaqueness is a
characteristic whose effect is not clearly known. On the other hand it can be argued that TFP growth is unobservable. The factors of production are paid to their contribution in real terms. Any residual growth, in real terms, is over and above the contribution that is accounted for. Therefore, it is not observable. Therefore, it is unrelated to the capital of the firm. Capital is clearly a result of anticipated changes in the structure of the firm (e.g., ownership structure). All of the above decisions are conscious decisions.

On the other hand it can be argued that productivity affects financial structure differently through single factor productivity and through TFP (Total factor productivity). So if single factor productivity is increasing it is because capital input is increasing and which is because of a conscious decision to invest. Such productivity affects financial structure directly. Whereas, TFP growth affects financial structure indirectly.

1.2. OBJECTIVES OF THE STUDY
The objectives of the thesis are as under:

i. To study the financial structure theories and production theories.
ii. To measure productivity growth and financial structure.
iii. To examine the linkages between financial structure and productivity theory.
iv. To study and measure the nominal and real determinants of financial structure.
v. To estimate productivity and financial structure of cement, pharmaceutical and steel industry.
vi. To study the relationship between financial structure and productivity in cement, steel and pharmaceutical industry.

1.3. HYPOTHESIS
The hypothesis for the thesis as under:

i. H_{10}: There is no productivity growth in industries.
   • H_{1A0}: There is no productivity growth in cement industry.
   • H_{1B0}: There is no productivity growth in pharmaceutical industry.
   • H_{1C0}: There is no productivity growth in steel industry.
ii. \( H_0: \) Financial structure does not depend upon real factors.
   - \( H_{2A_0}: \) Financial structure of cement industry does not depend upon real factors.
   - \( H_{2B_0}: \) Financial structure of pharmaceutical industry does not depend upon real factors.
   - \( H_{2C_0}: \) Financial structure of steel industry does not depend upon real factors.

iii. \( H_3: \) Productivity does not cause financial structure.
   - \( H_{3A_0}: \) Productivity does not cause financial structure in cement industry.
   - \( H_{3B_0}: \) Productivity does not cause financial structure in pharmaceutical industry.
   - \( H_{3C_0}: \) Productivity does not cause financial structure in Steel industry.

iv. \( H_4: \) The determinants of financial structure do not vary across cement, pharmaceutical and steel industry.

We will also examine secondary hypothesis like:

i. Total Forex Earnings does not affect financial structure.
ii. Net Fixed Assets does not affect financial structure.
iii. Foreign Equity does not affect financial structure.
iv. Sales do not affect financial structure.
v. Imports do not affect financial structure.
vi. Capital does not affect financial structure.
vii. Technology does not affect financial structure.
viii. R&D does not affect financial structure.
ix. Royalties, technical know-how fees, etc. does not affect financial structure.
x. Current ratio does not affect financial structure.
xi. Foreign borrowings do not affect financial structure.
xii. Dividend does not affect financial structure.

1.4. METHODOLOGY

The methodology will be divided into two parts:

i. Time series analysis
ii. Cross sectional analysis
First of all we will frame our variables required for the study. The variables will be of two types, i.e. the real variables and the financial variables. We will use time series analysis for the computation of TFP (Total factor productivity), which is a real variable. And for our final model, we will use cross sectional analysis. Through this we will try to find out the relationship between financial structure and productivity; the real and financial determinants of financial structure.

1.5. SAMPLE AND DATA SOURCES

The sample size has been taken for cement, pharmaceutical and steel industries. All these industries contribute significantly in the growth and development of Indian economy. The study is based on secondary source of information. Data has been collected from ‘Prowess’ database, 4.01 of the Centre for monitoring the Indian economy (CMIE). The data set comprises for 20 years, i.e. from year 1991-2010. The sample size has been shown in Table 1.1.

Table 1.1: Sample

<table>
<thead>
<tr>
<th>Industry</th>
<th>Companies Available in Prowess</th>
<th>Sample Taken for Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>170</td>
<td>34</td>
</tr>
<tr>
<td>Pharmaceutical</td>
<td>632</td>
<td>47</td>
</tr>
<tr>
<td>Steel</td>
<td>440</td>
<td>45</td>
</tr>
</tbody>
</table>

1.6. CHAPTER SCHEME

Our chapter scheme starts with the introduction, which will be followed by the following chapters:

Chapter-2: Review of Literature. The review will be divided into 3 parts. In the first part we will discuss the studies related to financial structure. The second part will be based on the studies on productivity and in the third part; we will study those papers which will link the financial structure and productivity.
Chapter-3: Conceptual Framework. In this chapter we will build a new framework for this thesis which will be based on the theory of production and the financial theories.

Chapter-4: Research Methodology. In this chapter we will frame the financial and real variables. Also we will prepare our final model to establish the relationship between the financial structure and productivity.

Chapter-5: Cement Industry. We will discuss the profile of cement industry, the empirical analysis of the cement industry and finally the estimation and interpretation of results of cement industry.

Chapter-6: Pharmaceutical Industry. We will discuss the profile of pharmaceutical industry, the empirical analysis of the pharmaceutical industry and finally the estimation and interpretation of results of pharmaceutical industry.

Chapter-7: Steel Industry. We will discuss the profile of steel industry, the empirical analysis of the steel industry and finally the estimation and interpretation of results of steel industry.

Chapter-8: Conclusion and Recommendations. This chapter will deal with the summary of the whole thesis, the hypothesis results, the conclusion of the study along with the limitations of the study and the contribution of the study. In this chapter we also give the policy recommendations and the scope for further research.

1.7. CONCLUSION

In this chapter we have discussed how we came across with the idea of this thesis and its importance. This chapter also focused on the rationale, objectives, hypothesis, brief methodology, data and its sources and the chapter scheme. In the next chapters we will try to focus on every aspect of this thesis in detail. The next chapter deals with the review of literature based on previous research and studies on financial structure and productivity.