AN ASSESSMENT OF CASH FLOW PROFILES OF TURKISH FIRMS & SECTORAL COMPARISONS

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MASTER THESIS

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Abdul Haq Shegiwal tarafından hazırlanan **An Assessment of Cash Flow Profiles of Turkish Firms & Sectoral Comparisons** başlıklı bu çalışma **09/07/2021** tarihinde Eskişehir Osmangazi Üniversitesi Sosyal Bilimler Enstitüsü Lisansüstü Eğitim ve Öğretim Yönetmeliğinin ilgili maddesi uyarınca yapılan savunma sınavı sonucunda başarılı bulunarak, jürimiz tarafından **İşletme Anabilim** Dalında **Yüksek Lisans** tezi olarak kabul edilmiştir.

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ETİK İLKE VE KURALLARA UYGUNLUK BEYANNAMESİ

Bu tezin Eskişehir Osmangazi Üniversitesi Bilimsel Araştırma ve Yayın Etiği Yönergesi hükümlerine göre hazırlandığını; bana ait, özgün bir çalışma olduğunu; çalışmanın hazırlık, veri toplama, analiz ve bilgilerin sunumu aşamalarında bilimsel etik ilke ve kurallara uygun davrandığımı; bu çalışma kapsamında elde edilen tüm veri ve bilgiler için kaynak gösterdiğimi ve bu kaynaklara kaynakçada yer verdiğimi; bu çalışmanın Eskişehir Osmangazi Üniversitesi tarafından kullanılan bilimsel intihal tespit programıyla taranmasını kabul ettiğimi ve hiçbir şekilde intihal içermediğini beyan ederim. Yaptığım bu beyana aykırı bir durumun saptanması halinde ortaya çıkacak tüm ahlaki ve hukuki sonuçlara razı olduğumu bildiririm.

Abdul Haq SHEGIWAL

Imza:

ÖZET

TÜRK FİRMALARININ NAKİT AKIŞ PROFİLLERİNİN DEĞERLENDİRİLMESİ VE SEKTÖREL KARŞILAŞTIRMALAR

SHEGIWAL, Abdul Haq

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Danışman: Doç. Dr. Arzum ERKEN ÇELİK

Bu çalışmada Borsa İstanbul'da işlem gören finansal olmayan Türk firmalarının nakit akım tablolarının bileşenleri, İşletme Faaliyetlerinden Nakit Akışları'na (İFNA), Yatırım Faaliyetlerinden Nakit Akışları'na (YFNA), Finansman Faaliyetlerinden Nakit Akışları'na (FFNA) ait işaretler dikkate alınarak nakit akış profilleri değerlendirilmiş ve sektörel karşılaştırmalar yapılmıştır. Çalışma örneği 2015-2019 yılları arasında İmalat ve Hizmet sektörlerinde faaliyet göstermiş olan 224 firmadan oluşturulmuştur. Araştırma verileri Kamuyu Aydınlatma Platformu aracılığıyla elde edilen yıllık mali tablolardan süzülmüştür. Söz konusu firmaların nakit akış profillerinin ve yaşam döngüsü aşamaları belirlenmesinde Gup et, al. (1993) tarafından geliştirilen model esas alınmıştır. Nakit akış profilleri ile kârlılık performansı arasında anlamlı bir ilişki bulunup bulunmadığının ortaya konabilmesi için özkaynak kârlılığı (ROE) ve varlık kârlılığı (ROA); piyasa performansı arasında anlamlı bir ilişki bulunup bulunmadığının ortaya konabilmesi için Piyasa Fiyat/Defter Değeri ve Piyasa Fiyatı/Hisse Başına Satış oranı değerleri kullanılarak çoklu regresyon analizleri gerçekleştirilmiştir.

Frekans Analizi sonuçları, çalışma örneğinde bulunan çoğu firma (%75,36) için İFNA'nın pozitif (+) olduğunu ortaya koymaktadır. Negatif (-) YFNA oranı %87,4 iken; negatif (-) FFNA oranı, %57,6 bulunmuştur. Söz konusu firmaların %44,6'sı Model 2'deki (+, -, -) "Olgunluk Aşaması ve/veya Başarılı İşletme" kategorisinde, %23,2'si Model 4'teki (+, -, -) "Büyüme Aşaması ve/veya Büyüyen İşletme" kategorisinde yer aldığı saptanmıştır. Model 6 (-,-, +)'daki "Giriş ve/veya Genç İşletme" kategorisinde bulunan firma oranı %16,5'tir. 1,3,5,7 ve 8 numaralı modeller kapsamında bulunan "Olağandışı Durum" ya da "Nadir Durumu" firmalarının oranının ise %10 civarında olduğu tespit edilmiştir.

Çalışma kapsamında yapılan Çoklu Regresyon Analizi sonuçları ise Fiyat Bazlı oranların (Piyasa Değeri/ Defter Değeri ve Piyasa Değeri / Hisse Başına Satış) nakit akış profilleri ile istatistiksel olarak anlamlı ilişkileri bulunduğunu ortaya koymuştur. Karlılık Bazlı oranlar (Özkaynak Karlılığı ve Varlık Karlılığı) ile nakit akış profilleri arasında anlamlı bir ilişki bulunamamıştır. Bu durum, firmaların piyasa bazlı getiri performanslarının, nakit akışı profilleri ve bunların yönetimlerinin başarısında anlamlı etkisi bulunduğuna işaret etmektedir.

Anahtar Kelimeler: Nakit Akış Modelleri, Nakit Akış Profilleri, Karlılık Performansı, Piyasa Performansı

ABSTRACT

AN ASSESSMENT OF CASH FLOW PROFILES OF TURKISH FIRMS & SECTORAL COMPARISONS

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Master-2021

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We have assessed the cash flow profiles of the Turkish non-financial firms whose stocks are traded on Borsa Istanbul for their cash flow profiles and made sectoral comparisons by looking at the signs of three components of the cash flow statement (CFO, CFI, CFF) either positive or negative to distribute 224 sample firms for cash flow patterns in two various industries i.e., Manufacturing and Service industries comprising a total of 16 different sectors between the period 2015-2019 in this study. The data was collected from the annual financial statements through the Public Disclosure Platform. The method of Gup et. al. (1993) was used to identify the number of firms in each pattern for further analysis together with life cycle stages of the firms & business profiles. For profitability performance, return on equity (ROE) and return on assets (ROA) and for market performance, price to book value (PBV) and price to sales (PS) ratios were included to assess the significance of relationship between the cash flow patterns and financial ratios by running regression analysis. The analysis has been carried out firstly for frequency calculations of the signs of the cash flow components and sectoral comparisons were made. Secondly, statistical tools were used to figure out the statistical relationships between cash flow patterns and financial ratios involved.

The results reveal that CFO for most of the firms was found to be positive (+). The average positive (+) CFO of the firms was 75.36%. CFI was found to be negative with an average 87.4% while CFF was also found to have 57.6% negative. The results for distribution of firms in patterns found to have 44.6% of the sample firms in the Pattern 2 (+, -, -) characterised “Maturity Stage and/or Successful Business” whilst 23.2% of the firms found to have the Pattern 4 (+, -, +) characterised “Growth Stage and/or Growing Business”. The third most number of companies found was in the Pattern 6 (- - +) with 16.5 % characterised as “Introduction and/or Young Business”. (Patterns 1,3,5,7 & 8) comprising a total of 10-15% were found to be in the “Unusual Situation”.

The results from the multiple linear regression analysis reveal that Price-Based ratios (PBV and P/S) give significant outputs from the regression analysis while Profitability-Based ratios (ROE and ROA) do not. This indicates that market-based performance has a significant effect on cash flow profiles and their management.

Key Words: Cash Flow Patterns, Cash Flow Profiles, Profitability Performance, Market Performance

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LIST OF ABBREVIATIONS

T.C.:	Türkiye Cumhuriyeti
Ex:	Example
BIST:	Borsa İstanbul
PDP:	Public Disclosure Platform
KAP:	Kamu Aydınlatma Platformu
CFS:	Cash Flow Statement
SCF:	Statement of Cash Flows
NI:	Net Income
PL:	Profit and Loss account
BS:	Balance Sheet
IS:	Income Statement
i.e.	id est (that is)
&:	and
NYSE:	New York Stock Exchange
AMSE:	American Stock Exchange
FY:	Financial Year
FAS:	Financial According Standards
SFAS:	Statement of Financial Accounting Standards
ROI:	Return on Investment
ROE:	Return in Equity
PBV:	Price to Book Value
PSR:	Price to Share Ratio
PS:	Price to Share
IAS:	International Accounting Standards
IFRS:	International Financial Reporting Standards
IASC:	International Accounting Standards Committee
IASB:	International Accounting Standards Boards
US:	United States
GAAP:	Generally Accepted Accounting Principles
FASB:	Financial Accounting Standards Board
SFAS:	Statement of Financial Accounting Standards

NCF:	Net Cash Flows
CFFO:	Cash Flow from Operating Activities
CFFI:	Cash Flow from Investing Activities
CFFF:	Cash Flow from Financing Activities
A/P:	Accounts Payable
N/P:	Notes Payable
NWC:	Net Working Capital
APB:	Accounting Principles Board
IBM:	International Business Machine
SPSS:	Statistical Package for the Social Sciences
LCS:	Life Cycle Stages
CFP:	Cash Flow Profiles
MLR:	Multiple Linear Regressions
CFP:	Cash Flow Patterns
EGW:	Electricity, Gas & Water
İFNA:	İşletme Faaliyetlerinden Nakit Akışı
YFNA:	Yatırım Faaliyetlerinden Nakit Akışı
FFNA:	Finansman Faaliyetlerinden Nakit Akışı

PREFACE

I would like to thank my thesis advisor Assoc. Prof. Dr. Arzum ERKEN ÇELIK for her very valuable contributions and consistent assistance during the preparation of my dissertation. Likewise, I owe a debt of gratitude to her, and to my dear parents and fiancé who had to endure my postgraduate studies for a long time. It was a difficult decision to quit my permanent employment at one of the international banks in Afghanistan since I realised and knew how important it was to go to a beautiful country Turkey and pursue my master's studies under the supervision of very top-notched and talented teachers with a variety of other opportunities as an international student. I am, therefore, very thankful to all the people of the Republic of Turkey and more importantly the Turkish International Scholarship Program. May God bless Turkey and May God protect you and us from every type of calamity and harm. Finally, I sincerely wish that the resulting study will contribute to future studies.

INTRODUCTION

Firms either financial or non-financial across the world are in tough competition for their products or services to become branded, acquire state-of-the-art technology, keep expanding, get rid of losses and boost their internal capacity to remain as a profitable company in the relevant sector. The only purpose of the business is to attract and maximise stakeholders to speed up their day-to-operations for increasing revenue and developing the economic condition and stability of the business. Enterprises then enter to even international market for purchasing stocks to trade beyond the company's boundaries. As we witness, companies get established through a legal process in each country commencing from a start-up and gradually reach to maturity level or even face bankruptcy and vanish from both domestic and international market right away due to many reasons. The operation of businesses is based on their assets either tangible or intangible. Shareholders are required to introduce capital in the form of most liquid asset known as 'Cash' to inject either at the beginning which is compulsory or during the operations.

Now we realise the significance of cash and other assets for an enterprise as one of the basic ingredients for the financial health of a corporate and a primary determinant of a firm's theoretical value. Cash flow which describes the inflow and outflow of a firm's cash has an important role in the operation of the business. Therefore, companies follow international accounting standards to keep their financial record for internal and external purposes. They are compelled to get financial statements prepared by the independent audit companies authorised by the relevant authority in every country. Hence, one of the most significant components of the financial statement is the 'Statement of Cash Flow' or "Cash Flow Statement" which is prepared after balance sheet and income statement and plays an extremely important role in decision-making purpose for both internal and external users.

The statement of cash flow consists of three indispensable components. Cash flow from operating activities (CFO), cash flow from investing activities (CFI) and cash flow from financing activities (CFF) prepared by either direct or indirect method. However, both are recommended by the international boards around the world and countries follow the guidelines of their respective authority.

Similarly, a statement of cash flow is a bridge between the statement of income and balance sheet by stressing the amount of cash and cash equivalents that enter and leave during

the operations of the business. It is one of the tools that performs the measurement which showcases how well the company generates cash to pay its debts and fund its operating expenses. The statement of cash flow is a cash report which provides an insight to the shareholders, lenders, investors and petitioners about the position of the liquidity, solvency as well as short term liabilities of firms (Gentry et al., 1990).

Prior to this research study, a few studies were found in this area with a sample of a limited number of firms and sectors. However, this study covers 16 sectors in the manufacturing and service industries for the last five consecutive years i.e., 2015-2019. Likewise, this research recognises the critical role played as how companies manage their statement of cash flows which we found their patterns based on yearly distributions of their cash flow signs of the three activities. There is an urgent need to address the economic success of these companies for the last five years. On the other hand, just limited research was conducted that relate to the value of cash flow-based information particularly concentrating on cash flow profiles in various time phrases of firms. However, these studies only concentrate on the association of cash flow from operating activities with accounting earnings, returns and accruals.

In this research, we focus on the signs of cash flows from all activities by taking the example of Gup and his team's cash flow pattern method and consider as the basis because it is considered to be a mile-stone study which frames the usage signs for the three cash flow items of (CFO, CFI, CFF). We used this method to examine the economic condition of the firms and to find out whether firms were shifting to the declining or shake-out stages. Unfortunately, most companies jump immediately from the mature to the declining stage due to not maintaining international standards and lack of concentrating on the cash management or some other reasons which have been explained in the summary, conclusion & recommendation chapter of this research. Therefore, we looked at the signs of the statement of cash flows of non-financial firms that traded on Borsa Istanbul and figured out which pattern they locate to find solutions and further recommendations in the final chapter of this dissertation.

Additionally, there could be many problems with cash flow management of firms in the market for which thorough research was required to figure out the possible solutions to the problems with a proper and scientific study by research in this area. It is in this line that conducted to determine how these firms are handling their cash flow profiles and what international accounting standards are being followed to avoid being liquidated. The research is conducted based on the scientific work and together with its theoretical and social

dimensions. Secondary data collection method has been used and the data was collected from the annual audited financial reports through the Public Disclosure Platform (PDP) between 2015 and 2019 to look for the signs of the three components of cash flow statement either positive or negative and distributed the sample firms according to patterns, life cycle stages process and profiles of business. Based on the selection of sample data, 252 non-financial firms were selected as the population from sixteen sectors out of which 28 firms' SCF was not available or accessible for the public as a result the research study opted for the sample of 224 companies whose statement of cash flows were accessible and used for the analysis through the Excel programme and IBM SPSS Statistics programme version 25 for frequency calculations, regression analysis and significance tests.

The reason for having chosen the method of Gup and his team is because of the pattern distribution in the study properly and is found very useful for identifying the success and failure profile of these companies based on the distribution of firms for cash flow patterns. Hence, the purpose of this study is to provide insights into the cash flow of Turkish firms and further to make sector comparisons by determining pattern distributions of each sector. The study also finds variability in cash flow profiles of the Turkish firms and economic condition. The economic condition and stability of the Turkish firms were analysed based on deeply evaluating their cash flow profiles and used traditional ratios to make comparisons between industries and sectors.

We also looked at the impact of weak management of cash flow activities in the related sectors by comparing traditional ratios such (Return on Equity, Return on Assets, Price to Book Value & Price to Shares) in each sector separately. This study also concentrates whether the establishment date of firms had any role in the failure of firms in each sector since these firms are old enough and the objective was to understand if the unusual conditions of the businesses had any relation with the date of establishment for the companies in each sector. The research also provides valuable suggestions and recommendations to companies that having been categorised in the declining or shake-out stages whilst the result reveals that most companies were in the mature, growth and fast-growing profiles.

The study is organised into three chapters. The first chapter explains the basic concepts and overview of cash flow statement, the importance of SCF, its benefits to the financial statement users both internal and external, cash flow profile and life-cycle stages, methods, and traditional ratios briefly. The second chapter explains the literature review and research

methodology. The literature review is done to find out previously similar or different studies conducted through articles, papers, thesis, or dissertation. The research methodology explains a clear picture of the research methodology which consists of the subject of the research that explains the history of the relevant topic, purpose and scope of the research and objectives of the study represents the aim of the research. The third chapter concludes presentation, analysis and interpretation of the data which has been produced from the dissemination and collection of the secondary data from the annual audited financial reports via public disclosure platform.

The data in this chapter is presented in tables, graphs, and charts then the ideas are interpreted and explained clearly, and the fourth chapter explains, the summary, conclusions & recommendations for firms listed by Borsa Istanbul and sectoral comparisons have been made and elaborated with amplification for further research.

1. CHAPTER
BASIC CONCEPTS OF CASH FLOW STATEMENT (CFS)

1.1. DEFINITION OF CASH FLOW

The movement of money into and out of your business is known as cash flows. For the determination of your firm's solvency, the cycle of cash inflows and outflows plays an essential role in the overall performance of a business. Meanwhile, analysis of cash flows is the study of the circulation of your firm's cash inflows and cash outflows with the aim to keep cash flows at the required level for your business as it provides the basis for the management and stability of your business. While analysing the cash flow of your firm, you are required to examine its all components which affect your cash flows i.e. accounts receivable, stock, accounts payable and the terms of credit. While analysing cash flows on each separate component of the SCF, you can flexibly specify problems related to it and work out to improve your cash flows. When businesses use cash flow statement in coordination with other components of financial statement, it provides information that let users assess the changes associated with net assets of a firm, its position in liquidity and solvency, effect in the financial structure and capability to affect the cash flows with amount and timing to familiarise to change of its circumstances and opportunities.

If the firm can generate cash and cash equivalents, it can be accessed via understanding the cash flow statement properly since it allows users to develop tools to analyse and compare the present value in the future cash flows of various firms and it improves the comparison of the operation performance by various businesses due to removing the effect of various accounting conducts for the similar economic event or transactions in the business. Amount, timing and certainty of the future cash flow are used as an indicator for the historical cash flows information. The cash flows are very beneficial in checking the proper accuracy of cash in the past assessments of the cash flow in the future and it also determines the relationship between profitability and NCF which impact changes in prices. The cash flow statement contains very helpful information that assists the users to assess and evaluate if the company is making adequate investment in keeping its capacity in the operation (Noor, Nour, Musa & Zorqan, 2012: 231-243).

1.2. AN OVERVIEW OF STATEMENT OF CASH FLOW (SCF)

Statement of cash flow explains the inflows and outflows of cash for the business according to its three main categories of activities i.e., operating activities, investing activities and financing activities. Statement of cash flows is one of the most important components of a financial statement. Prior to 1987, companies were required to present a statement of changes instead of the statement of cash flows. The SCF was known as "the fund statement". The history of the fund statement began in 1971. Opinion no. 19 was issued by the FASB to make it mandatory as the component of the financial statement for the businesses and this trend continued through many years. It provided useful information. However, it had numerous limitations. Hence it was finally replaced by the statement of cash flows in 1987 and effective since 15 July 1988. Below are a couple of definitions for the statement of cash flows.

A cash flow statement is one of the three statements needed for a financial statement to be prepared and organized under GAAP (Generally Accepted Principles of Accounting). Hence, SFAS (Statement of Financial Accounting Standards) No. 95 has defined clearly the content and structure of the SCF which was issued by the Financing Accounting Standards Board (FASB) back in November 1987. The statement of cash flows plays a significant role in fundamental securities analysis. Therefore, the statement ought to be as transparent and beneficial as possible. Statement of Financial Accounting Standards requires that cash inflows and outflows must be classified into three categories i.e. i. Operating cash flows, ii. Investing cash flows and iii. Financing cash flows. For small or big businesses, an annual statement of cash flow is a must (Broome, 2004: 16–22).

Statement of cash flow is a bridge between the statement of income and balance sheet by stressing the amount of cash and cash equivalents that enters and leaves during the operations of the business. It is one of the tools that performs the measurement which showcases how well the company generates cash to pay its debts and fund its operating expenses. The statement of cash flow is a cash report which provides an insight to the shareholders, lenders, investors and petitioners about the position of the liquidity, solvency as well as short term liabilities of firms. The author further elaborates that information based on cash flow is prepared in accordance with International Accounting Standards 7 (IAS 7), SCF. Though the statement of cash flows could be reported in two ways either the direct method or indirect method based on the statement of IAS7. However, for better reporting, accounting standards suggest using the direct method of cash flow statement while preparing (Güleç & Arda, 2019: 555–568).

"The cash flow statement is considered by many financial professions to be the single most important financial instrument. The cash flow statement is the final document prepared as part of the financial report and provides information that integrates data from the income statement, owner equity statement and balance sheet. Therefore, this section of the report adds validity and accountability to the financial statements. It shows how well the company is governed by the managers and how well they administer the resources entrusted to them. It also helps to assess the ability of the company to generate cash, thus helping assess the going concern principle. An analysis of the relationship between operating cash flows and quality of earnings may lead to useful indicators of a company's long-term financial health and sustainability. Combined with other financial information, the cash flow statement can be a useful tool for analysing key relationships in the financial statements, evaluating past performance, as well as predicting future performance. Furthermore, because the accrual method is used in income statement preparation, the cash flow statement necessarily reflects cash generation and expenditure. It can contribute to an assessment of a company's ability to generate cash from core business activities, repay debt, make capital expenditures and pay dividends" (Davis, 2016: 7).

The primary objective of the cash flow statement is to provide investors and creditors with the appropriate information about the company's both cash receipts and cash payments during a financial year. The cash flow statement also provides quick flexibility in the presentation of information to the shareholders (Gup & Dugan, 1988: 48).

For your firm, the statement of cash flows could be one of the most important statements prepared because the statement traces the flow of funds into and out of your enterprise during the financial period. For small businesses, CFS must be prepared as often as possible. However, it shall be prepared at least once a year as one of the compulsory statements to keep checking the record of your cash that were in and out during a complete accounting period. The main objective of this statement is to indicate the cash receipts and cash payments. It is important to keep in mind that it cannot be compared with the statement of profit or loss because it is only recording the movement of your money into and out of your business. Thus, non-several cash transactions can affect this statement as well. If your company is publicly trading or not, still the shareholders must prepare the CFS to measure and keep tracking the flow of your cash into and out of your firm (Zions Bank, 2020: 4).

1.2.1. The Historical Development and Conceptual Basis for the CFS

Both the balance sheet and statement of income have been required parts of the financial statement for all businesses for years. However, the CFS has been mandatory and formally required to be prepared by all type of businesses dealing with cash flows since 1988. On the other hand, before this year, there was a company in the United States that initially issued the summary of its company's financial transactions in 1963 which had included a summary of their cash in receipts and disbursements for that specific year. Having looked at the long history of SCF, we can realise its significance and usage even before it was formally introduced by the authorised boards in the US. Therefore, since its mandatory preparation and part of the financial statement, this plays an important role in the assessment of firms' performance and provides a clear picture of the cash in and out in the business.

1.2.1.1. Theoretical Development

In compliance with the requirements of the IFRS, the "cash flow" term is used as an alternative word for the word cash and equivalents thereafter. It is understood that cash flows are part of cash inflows and cash outflows together with their equivalents. Therefore, the theoretical development of cash flows has recently combined by the international accounting boards. The researchers currently have, therefore, developed no uniform provisions which may create the cash flow management concept concerning these aspects. i. There is a lack of uniform vocabulary or terminology. ii. There is an ambiguous definition of the aim and objectives needed to analyse the cash flow of a firm. iii. There is an adequate validated answer of problems pertaining to the system of hints which elaborates the cash flows of a firm. The cash flow accounting system provides users to link the past, present and future financial performance of the organisation (Soboleva et al., 2018: 2036).

(Lawson, 1985:99) states that "cash flow accounting" will become the first accounting system that evaluates performance on two dimensions. Risk---and----profitability. Lawson also further claims this model is an allocation free model because payments and receipts are being recorded at the time they are received or made under cash flow statement. Though, the mode of Lawson represented an attempt to implement the perception of the valuation theory to the frame of financial accounting. Consequently, this theory could be undoubtedly further developed by later researches.

1.2.1.2. Institutional development and standards for cash flow statement

Together with an academic discussion, accounting regulating institutions of different nations have begun the process of cash flow reporting to be formalised that finally results to be one of the compulsory parts for the firm's financial reports. In the U.S. giving response to the critics against the Accounting Principles Board (APB) no. 19, the Financial Accounting Standards Board finalised in concept No. 1 & 5 of the statement concept that it is significant to report information pertaining to the transactions in cash receipts and cash payments for the financial users of accounting that finally issued the SFAS No.95 cash flow statement which replaced the APB No.19 (McEnroe, 2011, p. 48).

The U.S. and NZ were the only two first nations to announce a standard on cash flows disclosure. Although primarily the standard was issued in order to remove the doubt of APN. 19, it also advanced as a result of the FASB wrapping up the cash flows and Statement of Financial Accounting Concepts (SFAC) no. 5 was issued in recognition and measurement of financial statements of business enterprises (SFAC) no.5 (Donleavy, 1992: 27).

SFAS No. 95 made the definition of cash flows clear and its purpose of the standard requiring the arrangement and classification of cash payments and receipts based on their primary source from all three activities; operating, investing and financing. The standard aimed to give relevant explanation and information regarding the cash receipts and cash payments during the specific period for the users to:

> *"...assess the enterprises ability to generate positive future net cash flows...meet its obligations...assess the reasons for the differences between net income and associated cash receipts and payments...and assess the effects on an enterprise's financial position of both its cash and non-cash investing and financing transactions during the period." (FASB, 1987, paras. 4–6)*

1.2.2. Cash Inflows and Outflows

Cash inflows mean the money going to your business whilst cash outflows means that the money is leaving from your business. The cash inflows occur when the firm makes sales from its products in the production company, in the service industry, firms sell services and cash enters the business for the services rendered to customers. From both terms, it is clear enough that whenever cash comes to your business due to any transaction that involves sales of fixed assets, merchandise, services land or property, that money will ultimately come to your

business which is recorded under the title cash inflows. On the other hand, when the business pays money for the purchase of assets or services benefited, the money leaves the company which then recorded under cash outflows and all transactions are recorded in the statement of cash flow for its effect. Cash inflows and outflows affect all components of the cash flow statement i.e. operating activities, investing activities and financing activities. Meanwhile, if the firm is said to be healthy if the cash inflow is happening more frequently than cash outflows.

Cash outflows are important scenario too. It is not always good to keep adequate cash in your business rather than investing in some projects. For instance, banks worldwide use the deposit money of customers to lend and regenerate revenue and keep running their operations. However, sometimes shareholders and or/creditors do fear the loss of the cash if invested in some projects and projection of recovery falls severely which negatively affect the entire business. It is always important to make proper, accurate and mart analysis for the investment purpose before the money leaves your business. As a stockholder, you will always be looking at the company's profile and more significantly its inflows and outflows of cash to decide whether to invest in this business or not.

The decision-maker should understand the net cash flows where the money have come from. Another clear example of cash outflow is that the company is disbursing salaries to its employees, paying for the loan, electricity bill and other loss may occur during the operation of the business are recorded under the title operating activities are the cash outflows. The cash outflows mostly occur in investing and financing activities of the cash flow statement. Hence, the financial users need to understand whether the money that leaves the firm as part of cash outflows will be recovered or lost. Hence, every business needs to invest the money that is laying extra and utilise the most for generative profit for the business to expand and keep production or renders services that helps itself the firm, economy and the country.

1.2.3. Statement of Cash Flows According to (IAS No. 7)

[1]The IAS 7 Statement of Cash Flows was adopted by the International Accounting Standards Board (IASB) in April 2001 which was initially issued on behalf of the IASC (International Accounting Standards Committee) in December 1992. The committee decided to replace IAS 7 CFS over the statement of changes in financial position issued in October 1977. Therefore, based on the changes in the original concept used throughout the International

[1] IAS 7 STATEMENT OF CASH FLOWS @ IFRS FOUNDATION – PAGE A995, *paragraph,* 1 & 53

Financial Reporting Standards (IFRS), IAS 1 was later issued in 2007 in the presentation of financial statements and its title was altered to statement of cash flows. Further, the statement had an amendment in the year 2016 by the disclosure initiative "Amendments to IAS 7". The purpose of these amendments was to provide disclosures about changes in liabilities that were arising from the cash flow of financing activities. The effective date for the standard has been made compulsory since 01 January 1994 for businesses to prepare CFS as a mandatory part of the financial statement that firms must publish.

[2]"Cash flow information provides users of financial statements with a basis to assess the ability of the entity to generate cash and cash equivalents and the needs of the entity to utilise those cash flows. IAS 7 sets out requirements for the presentation and disclosure of cash flow information."

According to (IAS-3), a cash flow statement is defined as a statement that represents the changes in the financial position of a firm because of the inflows and outflows of cash in the operations of the organisation. The analysis of these inflows and outflows of cash is necessary for the short-range firm's activities.

1.2.4. Components Of Cash Flow Statement

The cash flow statement is comprised of three main components. In other words, according to the accounting standards, cash flow statement includes specific requirements for its reporting of cash flows. Therefore, cash inflows and outflows should be divided into three main activities. Each activity has further its sub-sections which provide valuable information about the cash in the business and under each sub-section, financial analysts can make a very useful decision as it provides the users with a clear picture of cash related transaction quarterly, monthly or yearly.

1.2.4.1. Cash Flow from Operating Activates (CFO)

Hertenstein and McKinnon (1997: 69) defined cash flow from operating activities as the result that indicates cash inflows and cash outflows pertaining to the operations which are very crucial as the basic lines of firms in which the company engages. For instance. Cash receipts from the sale of merchandises or services and for purchasing stock or inventory are cash outflows. Paying rent and incomes taxes are also included in the first component of the CFO. However, these items will not be shown directly because it is assumed that most of these

[2] IAS 1 PRESENTATION OF FINANCIAL STATEMENTS @ IFRS FOUDATION – PAGE A967, *paragraph 111*

transactions in cash inflows and outflows are summarised in the net income figure so independent audit companies begin from that figure following the adjustment of figures for everything else which suggests that is cannot be a true representation of the cash in and cash out in net income. This is called an indirect approach of a cash flow statement that represents cash flow from operating activities, but it is most preferably chosen by companies.

[3]Cash flow from operating activities is the principal revenue-producing activities of the organisation which are not part of investing or financing activities. Therefore, cash flows from operating activities comprise cash collected from customers and cash disbursed to suppliers and labour (IAS 7. 14).

Cash which is generated by the production of goods and sales of business is reproduced under the component of cash flow from operating activities. Therefore, it represents inflows of cash from operating activities of the business and outflows of cash for the enterprise's operating expenditures. For instance, cash generated from the operations is called the revenue net of expenses (Paliwal et al., 2015: 16).

Cash flow from operating activities also provides detailed information about the capability of the company's assets in position for generating cash to either pay off the current debt or obtain extra funds. Therefore, creditors also receive estimated financial statements including cash flow statement but not publicly published. Hence, activities related to the borrowing of the firm give complete information to investors about the cash flows in the future from the assets in place. Another important aspect of CFF is providing information about the dividend policy of the business that lets the investors and shareholders understand the mount and risk associated with assets in position as well as it provides the possibility for further opportunities to growth in the business (BLACK, 1998: 43).

1.2.4.2. Cash Flows from Investing Activates (CFI)

[4]According to Statement of Financial Accounting Standards No. 95, cash flows from investing activities are involved in making & collecting loans as well as acquiring and disposing of debts or equity instruments, property, equipment, plants and other different productive assets. The assets held or intended to be used in the production of goods and or services by the organisation are part of this component of the SCF. The statement further elaborates that

[3] International Accounting Standards IAS.7 paragraph 14

[4] Statement of Financial Accounting Standards No. 95, Statement of Cash Flows, November 1987 paragraphs 15-16, page 7-8

materials are excluded because they are part of the firms' inventory. (FAS 95, 1987: 5-8, *paragraph* 15-16).

Paragraphs 16 & 17 of the SFAS No. 95 elaborates cash inflows and cash outflows of the investing activities separately.

Paragraph No. 16 Cash inflows from investing activities;

- All receipts from the collection of sales of loans which are made by the firm and of the other enterprise's debts.
- Instruments excluding cash equivalents which were acquired for the business
- All receipts from the sales of equity instruments of other firms and ROI in these instruments
- All receipts from the sale of property, plant as well as equipment and additional production assets.

Paragraph No. 17 Cash inflows from investing activities;

- Disbursements for loans made by the enterprise and payments to acquire debt instruments of other entities (other than cash equivalents)
- Payments to acquire equity instruments of other enterprises
- Payments at the time of purchase or soon before or after purchase to acquire property, plant, and equipment and other productive assets

1.2.4.3. Cash Flows from Financing Activates (CFF)

[5]SFAS No. 95 defines cash flows from financing activities that include acquiring resources from the enterprise's owners and providing them with ROI and return of their investment. The statement further explains that borrowing money and repaying for the debt borrowed or any obligation to be settled. Meanwhile, acquiring and paying off additional resources obtained on long term credit from the creditors (FAS 95, 1987: 8, *paragraph* 18-20).

Paragraphs 19 & 20 of the SFAS No. 95 elaborates cash inflows and cash outflows of the financing activities as below;

Paragraph No. 19 explains cash inflows from investing activities as under;

- Profits from the issuance of equity instruments
- Profits from the issuance of stocks, mortgages notes as well short-term borrowing and long-term borrowings

[5] Statement of Financial Accounting Standards No. 95, Statement of Cash Flows, November 1987 paragraph 18-20, page 8

Paragraph No. 19 explains cash inflows from investing activities as under;

- Paying dividends and or other distributions to the owners with outlays in order to make reacquisition of instruments of the enterprise.
- Payments of dividends or other distributions to owners, including outlays to reacquire the enterprise's equity instruments
- Repaying of amounts borrowed for the enterprise
- The enterprise must also pay other principal payments to the creditors who have made an extension for the long-term credits.

1.3. SIGNIFICANCE OF PREPARING STATEMENT OF CASH FLOWS

Preparation of cash flow statement is as compulsory as other financial statements at the end of the FY by any enterprise. It is, thus, one of the most important financial statements that provides vital information about the cash inflows and outflows during a financial year for firms. Now almost all firms that are operating businesses in any sector are prioritising to prepare the CFS. The statement of cash flow greatly provides the opportunity to track the collection and payments of money, resources of the firm during the financing year. It can help the investors for short-term planning and long-term planning and help to analyse the working capital of the firm as well.

It is important to understand what cash flow means and its significance since it will help you realise how the cash is effectively used by the firm. For instance, if an enterprise receives cash later than expected but on the other hand, it must pay off the liabilities right away, then the firm would go under critical financial stress. The company will have no choice but to request credit from one of the banks to meet its short-term obligations immediately. Consequently, the preparation of a statement of cash flow can give you a better awareness and consciousness of how the firm is running in contrast with the statement of profit and loss. If you can see at the cash inflows are not speeding up, you can estimate and predicate the business short-term future as well. Hence, it is known as forecasting of cash flow. This is very crucial for the company as stock markets react immediately in expectation of the future **(**Sandhya Kannan**,** 18 February 2018). Kotak Securities Limited, (Online), https://www.kotaksecurities.com, Sandhya Kannan, February 18, 2018.

Statement of cash flows provides important information about a firm. It indicates the in and out of money to a company. The statement also assists both investors and shareholders understand how much money is made and how much is spent during a financial year. The

shareholders study this statement to get a picture of understanding whether the business is financially stable or heading towards trouble. Therefore, we shall understand its importance to financial users both internal and external. Why is cash flow important? Below are some of the key points explained by the author in his article published on the Kotak securities website.

- When due diligence and estimations for a company is made based on the cash flow statement, it is considered a very important part of the financial statement.
- It allows investors and shareholders to utilise the information about cash flows for a firm historically and the estimation of cash flows in the future based on which they make investment decisions.
- It also indicates changes in the statement of financial position, and it helps in the analysis of operating, investing and financing activities.
- The CFS also provides insights regarding the liquidity and solvency of a company, which is very crucial for the growth and survival of any organisation.
- It expresses the balance of any enterprise during a period.
- As far as the core activities of an entity are concerned, cash flow statement provides very useful information about its cash-generative abilities.
- The intension of the shareholders and investors is to compare the cash flow statement with other companies because it helps them to indicate how quality their earnings are. This kind of comparison technique of CFS helps them take right decisions.
- The cash flow statement lets investors and shareholders determine the possibility of repayment in case the entity had acquired long-term credit from the bank or financial institutions. (Sandhya Kannan, 18 February 2018). Kotak Securities Limited, (Online), https://www.kotaksecurities.com, Sandhya Kannan, February 18, 2018

According to the survey conducted by Epstein & Pava (1992) on the usefulness cash flow statement having examined the responses of a questionnaire of 2359 shareholders in 50 states in the US which means these shareholders had owned 100 shares in a single stock on either NYSE or AMSE. Out of the sent questionnaire, they just received 246 responses and performed a statistical test. The authors compared this study with the one previously carried out by another researcher. The study indicates that 51.8% (1991) of the shareholders and investors read this statement somewhat thoroughly, but investors also give more attention to two other statements, i.e. income statement and balance sheet that

is 45.9% (1973). Another response the researchers received that 50.2% (1991) of the shareholders say the statement is somewhat useful but 57% say BS and IS are useful too. Hence, it is important today to prepare cash flow statement than before to make right decisions. The paper provides highlights on each page giving importance to the cash flow statement. For example, it says "It is easier to understand the statement of cash flows than the statement of changes in the financial position of a company".

1.3.1. Impact of Cash Flow Statement on business's performance

It is obviously known that cash is thought to be the backbone of an entity and international boards also encourage organisations to prepare cash flow statement at least once a year because information in cash flows does have a significant impact on the business performance due to involving cash and cash equivalents and various analysis have been done so far by previous researchers in this area who have found its direct impact on the business performance. Hence, one can realise that now cash solves everything in today's modern world and without cash, it is impossible to run the business.

Nwakaego et al., (2015) studied the effect of cash flow statement on firms' performance of the food and beverage sub-sector in Nigeria. The research was done through a survey covering 6 food and beverages companies which were trading at the Nigerian Stock Exchange by collecting their annual reports and accounts. The analysis of the data was done by the multiple regression method. The main objective of the study was to examine the impact of cash flows from operating and investing activities on the corporate performance in the mentioned sector. Hence, the study finds that cash flow from operating, and financing activities have a significant effect on the performance of an entity in the food and beverage sector of Nigeria. On the other hand, cash flow from investing activities had negative relationship with the company's performance. However, the study argues and recommends the usage of cash flow ratios in assessing company's performance allowing shareholders to make investing decisions effectively.

The effect of cash flows information becomes significant to highlight the performance of a corporate. Not only the balance sheet, income statement but also cash flow statement has become one of the vital components of the financial position package in assessing the operations performance and it gives crucial information about the operating liquidity. Statistically, there is a positive relationship between cash flow from operating activities and company's performance. However, the relationship varies from the impact of the model and the directions

of relationship based on the dependent variables. Therefore, decision-makers and firms realise the effect of cash flows on the firm's performance and enhance the efficiency in the decision making process with the information in the cash flow statement (Konak, 2018: 350).

According to the research study conducted by Percy & P. G. (2018) on the impact of cash flow statement on firm performance by using the data collected from 37 manufacturing firms among 19 sectors from the Colombo Security Exchange between the dates 2011 and 2013, the study found that statement of cash flows decisions have different inferences and more consistencies that is not clearly seen as an indication concerning the company's performance that affect the other factors in the value of an enterprise. The research further found very astonishing findings that operating cash flows are not supported by both indicators of business performance since the study did not include operating activity in the first step of the analysis. The study argues that private manufacturing sector firms might be characterised by a highly stable and efficient industry from the business prospect. Hence, high stability and efficiency of the business must demand high cash flows which ultimately results in high performance. On the other hand, if the business is stable and competent, the performance of the company with adequate cash flows could have better business strategies to expect higher performance in the industry. However, it was also found that statement of cash flow do not have a significant relationship return on equity as a performance indicator but there is a significant relationship with the performance of investing and financing cash flow activities as an indicator of return on assets. The focus on the study was only stability, liquidity and profitability by using the cash flow statement information on firms.

1.3.2. Advantage and disadvantages of Cash Flow Statement

Firstly, cash flow statement has numerous benefits to any entity, business or corporation either SME's or corporate. Either the business or project is for the short-term or long term, it provides detailed information about how your cash enters and leaves the business. Since its replacement by the statement of changes in the financial position, it has played a very vital role for all the industries across the world and has been used widely. The CFS is now a mandatory part of the financial statement and without this part, shareholders, investors and other financial users cannot take decisions as it is made based on the cash which is considered to be the backbone for any entity. Since the decisions and concept statements issued by the international accounting standards, the preparation and its advantages for both financial and non-financial sector in all countries have been being used widely. The information in cash flows from

operating, investing and financing activities give a clear picture of the cash used during the financial year. It is known as the sources and uses of fund statement as well. International boards require companies to prepare this statement as it helps to understand both the internal and external users. As a shareholder, this statement will assist you to get a short-term loan from banks. As an investor or creditor, it will make the investment of your portfolio generate income. Following are some specific advantages written by the researcher in this thesis;

- Cash flow statement provides measurement to the company
- It provides information to the forefront to the status of business
- It is very useful in evaluating to understand the changes in the position of cash
- The cash flow statement helps initiate all measures that prevent any risky transaction pertaining to cash
- It also lists the inflow of cash potentially to the enterprise and shareholders
- The cash flow statement helps the financial users understand where the cash comes from and where it goes
- The statement is now as important as two other statements of financial i.e. BL & PL
- It helps you acquire credit easily from the borrowing institution based on the inflow and outflow of your cash's history

Now, everything has both pros and cons. However, the drawbacks of cash flow statement are not severe enough to discourage companies from its reporting or preparation but to let users understand the negative aspect of the statement as well. However, in this thesis, they will not be focused much because the dissertation is based on using CFS to assess the economic condition and profitability of firms that are trading at Borsa İstanbul. As it is known from its name, only cash related transactions are recorded whilst non-cash transactions are ignored. Ex, the issuance of bonus share when a building is being purchased, it is issuing shares.

Other drawbacks of the cash flow statement highlighted by (Aghdas Jafari Motlagh, 2013:110) who explained its limitations in three steps. In the first step, he explains that it is more possible to show window-dressing in the cash flow statement than the position of working capital of an enterprise. The statement of financial position could easily be manipulated by changing purchases and other various payments before the date of the balance sheet, and it will speed up

collecting cash from the debtors. Therefore, the probability of manoeuvring in working capital is seen less regarding the computation of working capital. As a result, the statement of funds-flow that indicates reasons liable for the changes in the working capital represents a more truthful view than the statement of cash flows. In the second step, he elaborates that the liquidity position of an enterprise is not only dependent on the cash position, but also dependent upon the assets which are convertible into cash. The exclusion of these assets whilst evaluating the short-term liabilities of an enterprise is confusing the accurate and real reporting of its ability of business in paying off the liabilities on the due date. Thirdly, he has also pointed out that the equation of cash generation from the operating activities of the business together with the NI of the firm is not fair. On the other hand, when the computation of cash generated from the operation of the business, the depreciation upon the fixed assets is not included. Consequently, this type of transaction leads to irregularities between the expenses and revenue whilst assessing the firm's results because no changes have been made to the PL account for the consumption of fixed assets.

1.4. BENEFITS OF CASH FLOW STATEMENT TO FINANCIAL STATEMENT USERS

Cash flow statements generated by the firm and the information pertaining to them are very beneficial for all the users of financial information. The data statement of cash flows contains are specifically important for shareholders, practitioners, managers, investors as well as creditors. Therefore, the information regarding cash flows is essentially needed for the shareholders to evaluate the possibilities of the firm's development and to assess the condition of its solvency, for the evaluation of firm's potential to company's evaluation of ability to focus on its liabilities and fulfil other financial debts. Both the investors and creditors need to realise whether the company is generating a positive cash flows or it is able to pay the dividends out, whether the firm is able to repay the loan and interest charged on the borrowed money and in general if the enterprise's directors are expert enough to manage the cash flows of the company efficiently. It is, therefore, extremely vital to evaluate a suitable formation of the details of cash flows for activities of the firm's success.

Further, cash flows also imply accounting information, analysis, control and estimating of the information regarding the business's cash flows are part of the evaluation and formation of the SCF because it provides very valuable information to both the internal and external financial statement users while management decision are being made when the members forecast activities from its perspectives. On the other hand, if cash flows are properly managed,

it will assist to disclose the inadequacies of different scopes of the firm's activity as well as its activities in the subsidiaries in order to project the measurement of the elimination to improve its activities affectively, but the issues of its structure and assessment of its contents and information have not been so far adequately investigated (Mackevièius & Senkus, 2006: 171).

[6] According to International Accounting Standards, when the statement of cash flows is used along with other components of the financial statement provides information enabling users to assess the changes in the net assets of any enterprise, its financial composition together with liquidity and solvency and the ability to affect its amount as well as the timing of cash flows to attract the changing the conditions and opportunities. Therefore, cash flow information is very beneficial in assessing the potential of a firm to generate cash and cash equivalent and it allows financial statement users to develop models in order to evaluate and make a comparison to the current value of the future cash flow of various companies. Meanwhile, it also improves its comparability performance of operations by different enterprises since it removes the impact of using various accounting treatments for similar economic events and transactions. Cash flow information provided historically is also sometimes used as an indicator of the amount, timing as well as certainty for the future cash flows. To check the accuracy of the past assessments of future cash flows, it is useful in assessing the profitability & net cash flows and the effect of changing prices. (IAS 7: 4-5)

1.4.1. Benefits of CFS to firms' managers in case of borrowing debt

There are rarely a few companies which do not even approach financial institutions or commercial banks for borrowing loan to meet its short-term liabilities or purchase assets to expand business because they are either afraid of bankruptcy or may face a huge loss in the business. However, it is not the case everywhere. Nearly all companies across the countries are looking for availing credit facilities either short-term or long-term for expansion of business or purchase of fixed assets i.e. machinery, plant, vehicles, land etc. Thus, internal financial users or financial analysts would make every effort to keep the cash flow statement as better as possible to help them easily borrow credit from any financial institution in their respective country under the policy of bank's credit policy and underwriting. One of the most important benefits of cash flow statement to a company's managers is that it provides them with a clear picture of how they convince bank's credit official to get them sanctioned the credit facility

[6] International Accounting Standards IAS.7 @ IFRS FOUDATION – paragraphs 4-5, page A995,

based on the information in the cash flow statement. The statement also helps the managers to encourage lending institutions based on the positive operating cash flows during a financial year.

Investors and shareholders also consider the statement of cash flow as one of the most valuable measures of profitability as well as the long-term outlook of an entity in the future. It helps the manager if the company is running out of cash to request for borrowing or has enough cash in order to pay off its all-due expenses. It will also reflect a firm's financial and economic health and lets managers know the position of cash in case of shortage to immediately request for a grant from one of the financial institutions and avoid liquidation which does not only affect the shareholder but also the workforce right away. The managers need to keep tracking of the cash position very time. In case of the deterioration of the situation in the cash position, they must request for borrowing debt to fulfil its short-term requirements right away and avoid bankruptcy.

1.4.2. Assessing and managing statement of cash flows as a decision-maker

Time to time assessment and evaluation of cash flow statement is extremely crucial to be carried out by the financial managers and shareholders in any type of industry or sector the firm is operating its business for products or services. Cash inflows and outflows are the most focused information nowadays investors rely on which help them make productive decisions during especially in financial crisis upon proper evaluation of its financial statements. As a financial manager for a company, it is extremely important to take accurate and logical decision based on the cash flows information for your business. Taking decisions based on cash is very risky for both financial analysts and shareholders. It is, therefore, recommended to properly assess and manage the statement of cash flows to make effective decisions.

Decisions are made internally before the publishment of the financial statements, general public and creditors tend to look at how you managed and utilised your cash and cash equivalents under its three components of the statement. As a creditor, it is really important to look where the cash of the business has been utilised, what assets have been purchased and how the outflows of cash affect the business performance. As a shareholder, it is the ultimate goal of the business to manage and assess the cash related transactions based on which decisions are made for the expansion of business and utilisation of resources in the industry. Nevertheless, a business's performance could affect badly if wrong and on-time decision were taken based on the improper and misjudgement of the information in the cash flow statement. We comprehend

that judgment based on cash flow information is more important than accrual-based information. If the firm is facing financial distress, decision-based on cash flows is more useful and beneficial to the business than considering other factors for the shareholders. The solvency of the business also depends on the proper assessment and evaluation of the cash flow statement as a crucial part of the financial statement.

1.4.3. Discussion of working capital as the basis for cash flow statement

As discussed before that cash flow statement was initially passed by the SFAS 95 in November 1987, which became compulsory for companies in the U.S. since 1988 that replaced the fund statement. It was also known as "Statement of changes in financial position. Therefore. It was almost entirely used to present funds from the operations (FFO) and its common use probably inspired the decision of (FASB) to allow firms to continue preparing for the cash flow statement (Hales & Orpurt, 2013: 4).

The importance of financial reporting in one decade shifted from the working capital focus that had been the concentration of statement of changes in financial position to the cash flows reporting.

Hubbard & Walz (1993:249) define the term "working capital" as the total of the firm's investment in current assets, i.e. cash & cash equivalents, A/R and inventories. NWC (Net Working Capital) is defined as currents assets minus current liabilities which are naturally A/P, N/P as well as wages occurred in accrued and taxes. Hence, working capital requirements in a particular project are enhancing in the current assets referable to the project and minus increment in the current liabilities that are also attribution to that project.

Cash flow statement and working capital are said to be the two most basic concepts of financial analysis. If any changes are occurring, they will affect the cash flow of a firm. Cash flow information presents cash related transactions occurring during a financial year whilst working capital which is also called net-working capital as defined above are amounts of money available with the business to pay its short-term obligations. Hence, the discussion remains very important for the shareholders and financial analysts to differentiate its effectiveness and usefulness over the statement of cash flow. Additionally, if the operating activity of the cash flow statement indicates a positive sign, it indicates us that the firm's liquid assets up surging that enables firms to pay off their debts.

1.5. CASH FLOW PROFILES AND LIFE CYCLES STAGES OF COMPANIES

1.5.1. Assessment of Cash Flow Profiles (Bruwer and Hamman, 2005)

Bruwer & Hamman (2005) examined the frequencies of cash flow patterns for companies listed in the South African industry for a single financial period. The research also covers three various cumulative periods ending in 1993, 1996 and 2002. During the selected periods, the study found mostly positive signs for operating cash flows, negative cash flows for investing and financing activities respectively coming under the maturity stage of pattern 2. Some expectations were obtained and tested within certain characteristics which linked to cash flow patterns and life-cycle theory. Hence, mature firms had the highest median among the cash flow patterns which occur for the net profit percentage more regularly. Companies that were at the growth stage, had the highest medians for the investment outflow, growth in the sales and total assets as well as accounts payable and inventories. The study further finds out that pattern 6 had the highest medians for inflows from the financing activities and total debts to the total assets. The study also concentrates on the net income and operating cash flow during the life-cycle stages of a company. This study was based on the research carried out by Gup et al., (1993) a combined pattern with the life-cycle theory for selecting firms from South Africa.

1.5.2. Analysis of cash flow patterns (Gup and his team, 1993)

Gup et al., (1993) describe below table for cash flow patterns from one to eight with a detailed explanation about how these cash flow patterns are expectedly to pertain to the company's economic condition. Later they have compared these expectations with some basic variables such as asset size, asset growth, internal growth rate, dividend growth rate, debt-to-asset ratio, and return on assets. As explained in their study, SCF provides useful information about the cash flow from operating activities, investing activities and financing activities. However, the magnitude is not being considered and the following table presents possible eight patterns of cash inflows, (positive, +) and outflows (negative, -) of the mentioned three activities. See Table 1.1.

Table 1.1 Cash Flow Patterns 1-8

Patterns	Cash Flows From		
	Operating	Investing	Financing
Pattern Number 1	+	+	+
Pattern Number 2	+	-	-
Pattern Number 3	+	+	-
Pattern Number 4	+	-	+
Pattern Number 5	-	+	+
Pattern Number 6	-	-	+
Pattern Number 7	-	+	+
Pattern Number 8	-	-	-

Source: Gup et al., (1993)

In the above table, they have considered the importance of the order of patterns as positive cash flows from operating activities (from one to four), and negative cash flows from operating activities (from five to eight). CFOs are the amounts that are generated internally by the business available for the acquisition of assets, paying off debts, and paying dividends as cash. As stated, cash flows that are generated from operating activities are the basis for an expansion of asset which will be considered in the investing activities and for inflows of cash from financing activities. On the other hand, cash which is generated from the operations of the business provides the bulk of the cash to repay investors as well as creditors, such activities are considered financing. Below is a brief description of each pattern the researchers have explained.

Pattern 1: Pattern one (+, +, +), the firm which has positive cash flows from all three activities is generating a positive net cash flow from the operating activities and selling long-term assets whilst raising additional debt and or equity capital. They believe pattern one is "Unusual" because the firm is collecting cash from all its three activities in the cash flow statement. Their prediction towards this kind of company is transitory as well.

Pattern 2: The second pattern (+, -, -) signs, the business is producing positive cash flows from the operating activities to make investments in the long-term assets and to decrease its liabilities or pay their dividends. They suggest this kind of pattern for a business to be a "Mature, Successful Company".

Pattern 3: In pattern three with (+, +, -) sings, as it is understandable that cash flows in the operating and investing are positive whilst the cash flow from financing is negative. This is because the company proceeds from the sale of long-term assets with positive operating cash

flows which is used to repay shareholder and/or debtholders. They believe pattern three is "Unusual" business.

Pattern 4: In pattern four with signs (+, -, +), they believe the company's operating cash flow is not adequate to support its investing activities. Consequently, a part of the investing inflows is financed with the proceeds from the new debt issuance or equity. They believe this pattern is reflecting a "Growing Firm". In this pattern, firms need to invest in long term assets to expand their revenue-generating capability.

Pattern 5: In pattern five (-, +, +), the firm's cash flow from operating activities is negative and the business might make up by the sale of the long-term assets as well as by issuing debt or equity capital. Shareholders in this kind of business will probably increase cash otherwise if they ponder the negative sign in the operating activities is temporary. They believe this kind of business would be included as "Unusual Firm".

Pattern 6: In this pattern with (-, -, +) signs, net cash flows from operating and investing activities are negative, the enterprise is investing in long term assets. These two negative signs of (operating and investing) are financed by issuing further debt or equity. They are suggesting that the negative sign in operating and investing activities is for a short time. It is believed that this pattern would suggest a "Young, fast-growing firm" and move towards expansion.

Pattern 7: In pattern seven (-, +, -) signs in the three activities, the firm is expected to have a deficit in the operating cash flows and the company is shrinking due to distribution of cash to its shareholders and/or repaying to the debtholders. This kind of firm is indicating that they may be showing losses on their statement of income which is contributing to net operating cash outflows. Meanwhile, the company is paying to their creditors or possibly shareholders. The sale of long-term assets produces cash to make payments for the outflows of operating and investing activities. They are off the opinion that such a firm will unlikely to continue for several periods and will not liquidate. They believe this pattern is "Unusual Firm."

Pattern 8: In the eighth and last pattern (-, -, -,) all activities (operating, investing, and financing) have negative cash flows. This kind of condition occurs when cash balances that were previously accumulated are being consumed to offset negative cash flows. They believe this pattern suggests as "Unusual Firm' with their cash that is flowing for all three activities.

1.5.3. Company Life Cycle Theory and Life Cycle Stage of (Dickinson, 2011)

The study conducted by Dickinson (2011) examined cash flow patterns as a proxy for companies' life cycle which is obtained from the information of accounting. The study shows that patterns of cash flow provide a firm and fast indicator of firms' life-cycle stages and let investigators assess the firm's present performance and its performance in the future based on the firm's life-cycle stages. Therefore, Dickinson had divided life-cycle stags into five stages as below;

- Introduction
- Growth
- Mature
- Shake-out
- Decline

Classification for life-cycle stages is established by using three components of cash flows namely CFFO, CFFI, CFFF which indicates that the life-cycle of firms is entirely separated from firms' age. The author used a life-cycle proxy to examine the economic condition, market as well as accounting behaviour of companies inside the life-cycle of each stage which later develops an effective method for identification of firms' life cycle together by using the combination of patterns in the cash flow. Similarly, Dickinson also creates an ex-ante assumption having considered a uniformed distribution for life-cycle stages among all companies and has used the signs of all components cash flows and determined 8 possible cash flows patterns. Dickinson used the three most famous stock markets for sample namely, New York Stock Exchange, American Express Credit Card Exchange & National Association of Securities Dealer Automated Quotation (NASDAQ) for sample firms between the period 1989-2005. The author in this research paper had pointed out many variables. For example, profitability returns in stock, risk, financial leverage, tax rates, age, size and dividend payments are not liner relationship with firms' life-cycle. The writer here performs analysis in the probation to elaborate and understand the method of how these variables have pertained to the life-cycle and how it uses a life-cycle proxy to assess the profitability in the analysis of the statement of financial position. Dickinson further conducts a model called probit to examine the life-cycle stages regarding 13 variables as ratios including return ratios, sales and dividend payments and earnings per share. In this specific analysis, the author had conducted a test known as " Chow" over the entire example against the life-cycle stage sub-sample to quantify if the coefficients in each sub-sample were the same and equal among other life-cycle stages.

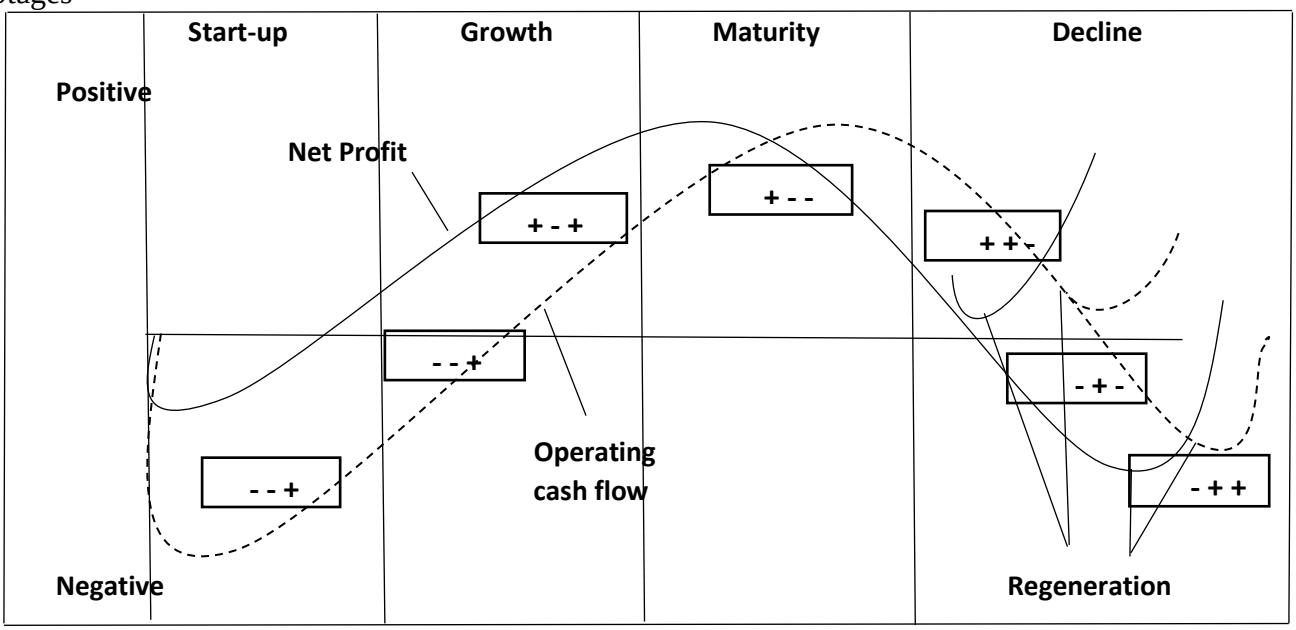
As a result, it was found in the study that a proper and structural shift among the stages of the life-cycle is important.

The analysis of the study further reveals that the use of cash flow patterns might avoid misclassification along to univariate the classification in operational life-cycle such as the size, profitability as well as age of the firms. According to the result of the study, it revealed that evidence from cash flow patterns performs better than the evidence of life-cycle which illustrates future profitability too. On the other hand, the research study also mentioned that the life-cycle of the businesses were determined based on the cash flow patterns method which was not taken into consideration whilst shareholders make decisions. However, it also points out that it might be in favour of the shareholders or investors to take the matter into the account.

1.5.4. Linking life-cycle theory to Gup and Samson's cash flow patterns

Figure 1.1 describes the linking of the life-cycle theory of Gup and Samson's (1993) for the cash flow patterns in each phase. It is to be mentioned that two patterns (Pattern 1 and 8) are said to be unusual and they, therefore, do not fit a particular phase or stage in the life cycle of a firm. In the figure below, pattern 6 (-,-,+) represents the "Start-up" as well as the early growth phase. Meanwhile, pattern 4 (+,-,+) indicates the firm's "Growth Phase". Pattern 2 (+,-,-) is representing the "Maturity phase" and pattern 7 (-,+,-) represents the "Decline" phase. On the other hand, pattern 3 (+,+,-) could represent either the "Decline" or the reconstruction of a business, whilst patter 5 (-,+,+) is said to be unusual. However, it might also be revealing of regeneration within the business.

Figure 1.1. Cash flow patterns within the life cycle of a company from Start-up to Decline Stages



Source: Steyn Bruwer, B. W., & Hamman, W. D. (2005:7)

1.6. CASH FLOWS AND PROFITABILITY

There is sometimes confusion among the people who mistakenly believe that statement of cash flow will indicate the profitability of an enterprise or a project. Even though they are nearly related, they are different. Cash inflows and outflows are represented through the cash flow by the business. There is a calculation when we subtract cash outflows from cash inflows, we get the result of " Net Cash Flow". On the other hand, the firm's profitability is represented by income and expenses. Meanwhile, when we subtract expenses from revenue, we get the result of profit/loss which make you think of the cash flows as a transaction that impact your business and the profitability that affect your return on income tax. Your cash inflows and outflows will express liquidity, but income and expenditure will show profitability. Hence, liquidity is said to be a short-term concept whilst profitability is a medium-term concept (Hofstrand, 2013:2).

1.6.1. Profitability Concept as a Measure of Company Performance

The concept of profitability as a measurement of a firm's performance in the manufacturing or service industry is significantly drawing our attention to assess a company's performance from two various perspectives.

i. The ultimate goal of firms is to make maximum profit during a financial year together with the expansion of business by emphasising to implement existing policies and measures to be taken to boost the performance of a company. It is also necessary to provide quality products or services as compared to your competitors. In today's market, businesses use very robust technologies and human resources to lead as a producer in the market. Measuring the performance of your company is done via many channels. Grasping opportunities in the market seems difficult unless having active performance against your competitors. This helps you realise what needs to be done today and how you plan for the future. The survival of your business a red line to every enterprise.

ii. Taking all measures into concentration will assist you to make better profits than expected. The prosperity of a company depends upon how you effectively and efficiently utilise resources and get a positive output from a financial year. Business performance remains a key focus to shareholders and stakeholders. Managerial decisions also play a key role in the performance of a business leading you towards profitability. On the other hand, if a company's performance is measured by tools available with the firm which do not help improve its

profitability ratio, then it needs to review and update its existing policies and reconsider other legal ways to boost its profits.

According to the study carried out by Monica Violeta & Sorin Nicolae (2008:1-12) on business performance, between profitability, return as well as growth, it provides reasons for the importance of managerial strategic decisions that helps the company to a worldwide performance. Hence, the purpose of the study was to evaluate the principle approaches regarding business performance for owners or shareholders. The study also highlighted some correlations between profitability performance, return and firm's growth that are beneficial for the managerial in strategic decisions that help the company an international performance and profitability. The result of the study indicates that profitability is a significant condition to make sure the success of a firm leads to an economic entity. It is, therefore, measured by getting a positive conclusion after having compared the financial effects together with the financial effort included. The level of profitability must be evaluated differently.

1.6.2. Profitability ratios and their significance in decision making

To evaluate the efficiency of a firm's activity objectively and the competitiveness as well the potentials of keeping the operations, it is important to assess and calculate the ratios in profitability. Hence, financial users can obtain very productive results when the profitability ratios of the current financial year are compared with the previous financial years.

In order to objectively evaluate the efficiency of a company's activity, its competitiveness and possibilities of continuity, it is crucial to calculate and evaluate the profitability ratios. Especially, a lot of useful information is obtained when comparing the profitability ratios of the financial year with the profitability ratios of the previous financial years, other similar companies and average rates of industry sectors' profitability, other same firms as well average rates of that particular industry's profitability. However, the question is being asked that how and which ratios shall be evaluated and calculated and named to get a result (Tamulevičienė, 2016: 53).

The main aim of the ratio analysis is to get rid of a large quantity of the data derived from the financial information to a manageable frame of relationships that could be compared with different standards and is possible to be analysed over time. Hence, financial experts and accounting experts have developed these ratios to examine profitability as well i.e. return on equity, return on assets and earnings per share. Same for liquidity ratios such as current ratio

and inventory turnover ratio etc. The statement of cash flows can be used to develop meaningful ratios and get a clear picture of the firm's profitability position (Grossman & Pearl, 1988: 13).

Ratios calculated and evaluated for profitability helps to measure the profitability position of the firm. Profitability ratios are used to understand whether the business is in a stable and profitable position or not. These ratios help financial users and shareholders to know how the company is performing. These ratios have a significant impact on decision making. Shareholders and financial users could get a quick overview of the business. These ratios are extremely useful both for debtors and creditors in case of borrowing loan or investors wish to invest in a company, the first idea that comes to their mind is whether the company is profitable. Based on this, investors decide to be part of the company. Return on assets (ROA) and Return on Equity (ROE) have also been included in this thesis to find out the profitability position of manufacturing and service companies that are trading at Borsa Istanbul. Meanwhile, these ratios let us know why companies are successful to maintain a good ratio and how they carry importance over their decisions. On the other hand, financial analysts can also explain thoroughly if a firm's profitability ratios are negative.

1.6.3. Relationship between Cash Flows and Profitability

There are numerous research studies on the relationship between cash flows and profitability conducted previously by researchers. This is very important to keep in mind that these are the two significant issues which are always the objective of the organisation to give priority over and over again. Profitability is something that is realised by the shareholders when they gain revenue from the activity of a business that exceeds the cost of a product, excluded taxes and pays off other liabilities. Therefore, if the business generates any profit, that directly goes to the owners of the business and get benefit from it from time to time. Hence, below are some studies conducted on the importance of this issue.

One of the organisational objectives of interest is cash flow and profitability that go side by side which have a relationship to one another. Therefore, if the position of the cash flow of a firm is healthy, it will result how liquidated the company is that is helping to maintain its operations which ultimately results to generate high revenue and become profitable and will further help the company to make trustable investments from the profits generated during the growth phase of the firm. If the position of cash flow is consistently positive, it will, therefore, facilitate maximum profits trends and will make excess cash to the company. Meanwhile, companies need to keep these objectives that are the strategic directions of the firm, the firm's

nature, the time period of its existence as well as influences tools of the environment across the business. For instance, government policies, competitions, consumers, customers and workforce. Hence, profits are also reflected by the cash flow forecast (Beaver et al., 1989:157-178 & Dechow, 1994:3-42).

Sufficient cash balance and figures of healthy profit are two important ideal situations for a business in order to be successful. The business, therefore, shall struggle to be profitable and generate cash. However, over these two terms, there is sometimes a big misperception because quite a lot of people ponder these are same terminologies being used visa-vis. However, it shall be noted that profit is not as similar as cash. There are such reasons as how come the profit seen in the P&L account might not be similar to the balance available in the firm's bank account that is to be spent. Hence, profit may be shown in a positive figure, but the balance of cash might be shown in a negative figure. Cash is said to be the main mechanism through which organisations run. If the management and control of the cash are not based on the standard requirement, then there is a possibility the firm face bankruptcy. Besides, it not meant that high profits mean that the firm is liquidated. The analysis of cash flows provides an insight into the activities of the core business, managerial decisions being taken on the firm's profitability and survival remain. For businesses, profit is regularly a dominant objective. On the other, if cash is not at the adequate level as expected, the growth of the firm will fall the company may face a threat to its sustainability in the market. Therefore, the flow of cash is extremely significant and critical for the survival and operations of the business whilst the company is generating a complete cash balance which will perpetually result in high profitability. From another perspective, cash is said to be a need whilst profit is our want (Guda, 2013: 3).

Having studied above a couple of studies on the said topic, we can understand how important it is to relate cash flows to business's profitability and linking to profit is found to be more crucial for both business owners, financial analysts and accountants. Further, revenue generated by the business upon carrying out any economic event increases cash which is shown in the profit and loss account as well as the statement of cash flows which results in profitability in case the firm is stable and operational activities are run according to plan.

2. CHAPTER
LITERATURE REVIEW AND RESEARCH METHODOLOGY

2.1. LITERATURE REVIEW

The literature review in this research has emphasised the importance of previous studies carried out by other researchers in the analysis of cash flow profiles of firms using the cash flow patterns method and the association of profiles with life-cycle stages and the traditional ratios is scarce, but some relevant ones were found and mentioned in the literature review. However, there is not a large volume of published studies describing the role of cash flow profiles of firms trading on the stock exchange or any sector comparisons has been made. Thus, this literature review highlights a few results and studies previously conducted by other researchers to link them to this study for distinguishing purpose. Meanwhile, a few similar studies were also found which pertain to the value relevance of cash flow-based information that specifically focus on the cash flow profiles of firms in different time phases of firms. These studies mainly concentrate on the association of operating cash flows with accounting earnings, returns and accruals. Hence, below are a few related studies the author has reviewed during this dissertation period.

One of the most recent studies that been has been carried out in Nigeria was to find out whether firms life cycle stages are following a random or sequential development pattern by the usage of their cash flow patterns. They are ascertaining the best life cycle stages for the companies located in Nigeria. They have analysed the cash flow patterns of the firms thematically based on the proxy of the development pattern and also determined the transition rates between developmental phases. The study found that companies that were at the introduction stage were quickly transmitted to the mature stage.

On the other hand, firms that were at the growth stage declıned rapidly to the shake-out stage. In the study, it is further found that the mature stage was most stable. Additionally, the percentage of declined firms was also revealed in the study that comprises 60% before transmitting to the mature and growth stages. Therefore, the developments of companies from one stage (life cycle) to another is random, not sequential. They have recommended companies situated in Nigeria experience their best life cycle at the mature stage and the research suggests that firms must apply the use of cash flow patterns to specify the life-cycle stages of their business which will enable them to implement strategies to maintain their companies at the targeted stage to avoid liquidation (Ekwueme et al., 2020).

Gup and his team also investigated the cash flow profiles of 1,745 firms by using the method of the patterns. They found that approximately 46% of the mentioned number of businesses had the cash flow of pattern two (+,-,-) which suggests mature and successful firms. Another almost 35% of the businesses were in pattern four (+, -, +) which are the indication for the growing business. On the other hand, just 7.39% of the firms of cash flows were in pattern three (+, +, -) which is a signal and association of restructuring companies. Another 7.34% of the firms' cash flows were in pattern 6 (-, -, +) which are supposed to be young, fast-growing firms. Lastly, they found cash flows of four remaining businesses which were in pattern 1,5,7 and 8, shake-out, declining stages (Gup et al., 1993).

In a similar study in various sectors conducted in Turkey, an assessment was done among 176 firms' statement of cash flows based on the regulations of TMS-7 which used the same cash flow pattern method by yearly, industry and asset size. Based on these variables, they found the cash patterns most for successful companies as 'Pattern 2 (+, -, -)" Successful Company, Pattern 4 (+, -, +) Growing Company, and respectively "Pattern 6" Fast-growing & young company". The study also highlighted the significance of profit as one of the most indispensable performance indicators for an enterprise. However, it is not considered how a business may be profitable, to keep running the operation of the business, they cannot generate cash to meet the obligations and as a result, the company faces bankruptcy. Additionally, enterprises or firms only continue their daily operations based on the availability of cash inflows and outflows. However, when they do not require cash to get their obligations fulfilled, their business will react to unpredicted or unexpected market opportunities or collapse and payments then they will require cash immediately. Providing this that businesses need cash from their main activities shows an important performance indicator as what businesses need information from which activities it provides cash and for which activities it uses this cash offer. Therefore, having prepared on an accrual basis in the financial analysis of businesses, businesses require to use statements of cash flows careful with other components of the financial statement (Karğin, 2012).

A study carried out by which finds out the value relevance of earnings, operating, financing and investing cash flows in four various life cycle stages i.e. start-up, growth, maturity and decline. The study also demonstrates the differences between life-cycle stages having used the firm value of definition. They divide the firm value into two parts: assets instead and

opportunities in growth. Based on the findings of Mayer's, in the life-cycle stage of early-stage, opportunities in the growth stage are a larger component of a company's value, whilst in later stages, assets become the largest component. Consequently, Black figures out that minimum one of the components of the statement of cash flows (operating, financing and investing) is useful each firm's life cycle stage. Black further elicits that, in start-up and decline stages of a life cycle, the cash flow from operating activities is expected to be negative, because firms confront financial difficulties and distress during these stages in the reimbursement of their liabilities. In contrast, cash flow from operations is expected to be positive both in growth and mature stages due to generating cash in these periods by the company. On the other hand, cash flow from the operating activities is expected to be positive both in the growth and mature stages because those firms wish to produce cash in these periods. Similarly, cash flow from the financing activities is likely to be positive in the early life cycle stage and is expected to turn out to indicate a negative sign in the later stage. Further, cash flow from investing activities is likely to be negative in the early stages whilst later stages will show a positive sign. In the study of Black, he includes earnings as an extra indicator other than components of cash flow and shows that, in the stages of start-up and decline life cycle, earnings are intended to be negative, whilst in the growth and mature stages, earnings will be positive. Therefore, the researcher makes a classification of life cycle stages based on the sales growth, dividend pay-out, capital expenditure as well as the age of companies (Bradshaw et al., 2012).

Steyn Bruwer and Hamman (2005) examined the frequencies of cash flow patterns for companies listed in the South African industry for a single financial period. The research also covers three various cumulative periods ending in 1993, 1996 and 2002. During the selected periods, the study found mostly positive signs for operating cash flows, negative cash flows for investing and financing activities respectively coming under the maturity stage of pattern 2. Some expectations were obtained and tested within certain characteristics linked to cash flow patterns and life-cycle theory. Hence, mature firms had the highest median among the cash flow patterns which occur for the net profit percentage more regularly. Companies that were at the growth stage, had the highest medians for the investment outflow, growth in the sales and total assets as well as accounts payable and inventories. The study further finds out that pattern 6 had the highest medians for inflows from the financing activities and total debts to the total assets. The study also concentrates on the net income and operating cash flow during the life-cycle stages of a company.

A research study that has been carried out on the cash flow analysis reveals that the ability of financial health depends on its ability to help generate cash flows from net operating which are adequate to cover the hierarchy of cash outflow. The study concentrates on a sample of 333 companies and calculated the standardised values for thirteen cash flow components between the period 1982-1986. The result indicates that components of cash flow vary transversely on size and industry group as a percentage of total cash flow. However, this research does not focus on the assessment of the cash flow profile of these companies neither there is any sectoral comparison made (Gentry et al., 1990).

Zordan (1998) conducted a research study on the assumption of cash flow ratios as a prediction of business failure. However, he has used cash flow ratios to figure out whether ratios can distinguish between failure and success of businesses. The study has used a sample of 108 unsuccessful and 108 successful both retails and wholesales firms whilst a corresponding of 324 failed manufacturing firms from 1990 to 1997. These firms are listed on the US stock exchange. Further, the research also made a comparison based on the accuracy of the predictability of failure and success in two models relevant to cash flow as well as accrual basis. The research reveals that the indication of cash flow predicts business unsuccessfulness for the wholesale, retail as well as manufacturing enterprises with a nearly 80% of accuracy rate. It has been noted that information on the statement of cash flow is vital for users. However, the study fails to acknowledge and does not specify the variance in business prediction between the prediction of failure model via cash flow and the analysis criteria is based on an accrual accounting basis.

Catanach (2000) presents interesting and insightful information for bankrupt firms. His study reveals firms that fall into insolvency is because of problems in their cash flow information which is reflected in the cash flow categories calculated via the statement of cash flows. In his important study, the result shows that firms could be survived with non-stop declining profits. However, will not be able to extend the life of their firms unless there is money left. The study is relevant to the financial sector and ours is based on the assessment of non-financial firms in various sectors. It would have been more interesting if the author had considered non-financial sectors.

Amuzu (2010) emphasises the importance and use of cash flow analysis in testing firms as a competitiveness tool. The author claims that analysis of cash flow statement is supposed to be more effective in the determination and competitiveness of an enterprise in the market

since it is a more dynamic inspection of real return on equity and return on assets. Further, the study has conducted thorough research on all cash flow ratios as a measure of performance of enterprises for the companies in emerging economies listed in Ghana Stock Exchange and the result of this was compared with those at the stock market in the US. This study only concentrates on the effectiveness and determination of business performance based on the preparation of cash flow statement. Further, the author has applied a unique use of cash flow analysis in the perspectives of emerging market and proposes that analysis of cash flow is a better performance as well as the usefulness for companies competing in the emerging market.

In a recent study conducted on cash flow ratio analysis, the authors have carried out their research on the use of cash flow ratios along with traditional financial ratios. The study aimed to demonstrate the strength of cash flow statement and used eight fundamental ratios together with ten traditional ratios in three areas. Liquidity, profitability and financial structure. The study covers 107 non-financial companies only in the manufacturing industry from seven various sub-sectors between the period 2008-017. The research reveals that firms are not good enough to generate adequate cash to keep operation and the quality of income was also observed to be low in those companies because of the values in cash quality in sales ratios and the quality in profit. However, the study only focuses on one specific industry which we cannot link to our current research. On the other hand, the author also found liquidity to be another concern. However, a sub-sector of non-metallic products was found to be the best values in terms of information based on cash flow (Güleç & Bektaş, 2019).

Beyazgül And Karadeniz (2019) examined the cash flow profiles of 29 football clubs, 4 football clubs in Turkey and 25 football clubs in Europe and made a comparative analysis to find out cash flow performances using the method of cash flow pattern between the years 2013-2018. Based on the result of the study, most football clubs were in pattern 2 “successful company”, pattern 6 “young-company” and pattern 4 “growing company”. The research also found that European football clubs had mostly positive cash flows from their operating activities and negative cash flows for investing and financing activities as “successful company” whilst football clubs in Turkey had positive cash flows from the operations in financing but operating and investing activities had negative cash flows which demonstrate “start-up or young company”. However, this study even did not use any cash flow or profitability ratio to investigate the profitability or cash flow ratios.

Another well-known and most pertinent study conducted by (Dickinson, 2011), the author tried to use cash flow patterns method by improving the evidence of the operational life-cycle. This research has covered those publicly traded firms whose market value is over one million dollars with their operations between the years 1989 and 2005. The study covers 48,369 firm-year observations. This study does not comprise businesses operating in the financial sector. The analysis of the study reveals that the use of cash flow patterns might avoid misclassification along to univariate the classification in operational life cycle such as the size, profitability as well as age of the firms. According to the result of the study, it revealed that evidence from cash flow patterns performs better than the evidence of life cycle which illustrates future profitability too. On the other hand, the research study also mentioned that the life cycle stages of the businesses were determined based on the cash flow patterns method which was not taken into consideration whilst shareholders make decisions. However, it also points out that it might be in favour of the shareholders or investors to take the matter into the account.

A more substantial approach taken in a study to analyse the table of statement of cash flow which possibly give more consistent result about the financial performance of enterprises. Hence, the study analysed the cash flow statements of a public construction company between the years 2006-2010 by utilising the horizontal analysis, ratio analysis, trend analysis as well as the method of cash flow patterns. The study finds out that the method of cash flow patterns along with other analysis of techniques provide more thorough and correct results. Besides, the author who analysed the company had the cash flow profile in pattern 2 which indicates successful business. However, in the year 2008, was not included for the same pattern (Karğin and Aktaş, 2011).

Kablan & Güvemli (2019) also carried out a similar study to analyse the cash flow profiles of tourism companies trading on Borsa Istanbul using the method of cash flow pattern. The analysis includes 600-firm year observations covering quarterly periods between the years 2012-2016. The result of the study concludes that tourism firms at BİST were at the maturity and growth stages. The cash flow profiles of those companies were specified as pattern 2 “successful businesses” pattern 4 “growing businesses and the last pattern was identified as pattern 6 as “start-up” businesses. The literature review in this study was well constructed based on the previous studies and found a couple of relevant researches. However, the author didn’t use any ratios about cash flow or profitability to get another productive output of the research.

The result of the study further reveals positive cash flows from the operating activities and negative cash flows from investing and financing activities of the firms. Based on the conclusion of the study, cash flow profiles of tourism companies were found to be in the maturity and growth stages for their business life-cycle.

(Tüfekçi, 2020) also conducted detailed research by analysing the cash flow profiles of 22 firms operating in BIST from two various sectors. The study also uses a similar method by looking at the signs of all activities of the cash flow statement of enterprises. Companies were selected from two different sectors. Sector one includes 12 companies of "Fabricated metal products, machinery, electrical equipment and transport vehicles" whilst the other sector includes 10 firms collected from "Textile, Wearing Apparel and Leather". The author has used three financial statements in the study i.e. the balance sheet, income statement and statement of cash flow of the firms between the years 1998 and 2002. The analysis was done by using one of the best methods for evaluating the performance success rankings of businesses called TOPSIS for separate determination of sector basis. CFS and CFP of each business were created separately. The study also indicates a comparative technique between performance rankings and cash flow profiles of each enterprise. The study determines the cash flow profile of both sectors were found to be in model 4 for most successful enterprises according to the profile of the business.

Farrell et al., (2009) carried out flawless research on small businesses cash flow patterns in 25 U.S. Cities. The study was conducted by JPMorgan Chase & Co. Institute. The study covers 45,000 firms having tracked their outcomes both in terms of profit and exit as a sample across the US cities from 2013 to 2017. The cohort sample let them observe the life cycle of firms of the same maturity from the time the owners opened their first account up to the point they eventually close their account with the mentioned bank. The authors used the de-identified transaction data from the deposit a/cs of small companies situated in 25 US cities to specify seven distinct cash flow patterns. The purpose of the study was to analyse the effects of both regular and irregular cash flow patterns to examine the survival and growth of small businesses in US cities. It has, in fact, three findings. Finding 1 reveals that firms with irregular cash flow patterns were more possibly to quit and they had slower revenue growth as well. Finding 2 states that firms with irregular cash flow patterns and unpredictably timed revenues and expenses are most likely to give up, but companies with erratic profits were found to be the largest revenue decline. Finding 3 suggests a significant point that firms having limited cash buffers as well as irregular cash flows were least probably to remain alive in the industry.

Therefore, cash flow patterns are very important like liquidity and accessibility to capital considered the determinants of small firms' survival and growth.

Kordestani et al., (2011) conducted their research and used components of the cash flow table to assess and predict the financial failure of firms. Therefore, the authors have investigated the statement of cash flows a total of 140 companies selected from the Tehran Stock Exchange (TSE). For their research, 70 firms were reliable and 70 were distressed firms and used their cash flow data between 1995 and 2008. Further, they examined the viability and prediction of financial distress during the periods. The study at the end finds out that the financial failures of businesses can be estimated according to the patterns of cash flow statement. The study further highlights that is a notable relationship between the first, third, sixth as well as seventh cash flow pattern and future financial failure. In the conclusion of the research, it is stated that cash flow patterns can be considered as a sign of the financial failure of a business. Hence, this interpretation and analysis could be very useful for both internal and external users.

A few others studies were found during the research in the literature review which related to value-relevance based on cash flow information which particularly focuses on the cash flow profiles of businesses in various time phases of the firms. These studies mainly concentrate on the association of cash flow from operating activities with accounting earnings, returns and accruals. Rayburn (1986), Barth et al., (1999) or Bartov et al., (2001) are the studies that investigate the relative significance and incremental value relevance of cash flows from operations, accruals, earnings, and returns. On the other hand, some of the research studies were found on the analysis of cash flow profiles with a patterns method and the association of profiles with life cycle stages in the literature. Kraus and Huefner (1972) used the concept of "cash-flow patterns" to determine the depreciation choice. Salamon (1982), Gordon and Hamer (1988) and Griner and Stark (1988) are other studies to use "cash recovery rate" concept to emphasise the power of cash flow-based information when assessing profitability and returns. Yet, these studies did not examine the signs of cash flow items to assign firm-year observations into specific profiles or patterns neither any traditional rations have been used for the comparison purpose or to determine the success or failure of businesses. However, it was important to mention during our literature review and link them to close relevance to this study.

Karadeniz (2017) also analysed the cash flow profiles of publicly held lodging firms with an international comparison. The study aimed to assess the performance of cash flows of

publicly held lodging companies based on the cash flow patterns method. The research was conducted comprehensively by using a sample of 207 publicly held lodging firms within the context. For an international comparison, the author has used 25 firms in America, 51 were used from the European region whilst 131 were analysed in the Asia-Pacific region considering 3 years from 2013 to 2015 and analysed the statement of cash flows for the selected lodging companies. The analysis was done by year, region and Turkey. Based on the result of the research, most cash flow patterns were found in model 2 indicating 'successful business', model 4 'growing company', and model 3 'restructuring or regressing businesses. The study gives information on the findings of average cash flow patterns distribution for the American region of 41% in model 2, 17% in model 3 and 25% in model 4. For the European region, the table indicates the average cash flow patterns for the lodging companies as 48%, 13% and 27% respectively with the same models i.e. 2,3,4. For the Turkey region, the study provides results as 44%, 19% and 22% whilst for the Asia-Pacific region, the average cash flow patterns were found to be 51%, 12% and 23% respectively.

Investigation on cash flow profiles in the context of life-cycle theory for publicly traded restaurants is another similar study conducted by Karadeniz et al., (2018) who analysed the cash flow profiles of 244 restaurants in 32 countries having considered the periods between 2011 and 2016 by using the cash flow patterns method. The study reveals most of the firms have positive cash flows from the operating activities in their statement of cash flows, negative cash flows from investing and financing activities. Based on the result of the study, most businesses were found in pattern 2 (successful business) and following pattern 2 (growing company). The research further reveals that according to the life-cycle theory of business, most companies were in the mature life cycle following the growth phase based on their cash flow profiles. On the other hand, the decline phase was found to be in the maturity stage between the years 2014 and 2015 whilst in the growth stage, the upward trend shows balance. The research reveals 61% of companies in model 2 were found as successful businesses in the year 2012. The success trend continues to next year as well having found 60% in the same pattern. But in 2011, the percentage declines slightly to 58% while 57% were found in 2016. The study, however, did not specifically point out why the highest rate of the firms was going down to the declining and restructuring stages and the economic condition of the restaurant businesses was deteriorating neither provided any further evidence to enlighten the reader of the trend from the success to the decline and restructuring stages.

To conclude this section of the thesis, the author identified several previous studies in the analysis of cash flow profiles in various sectors and different results were found. The overall literature review suggests that how significant it is to find out the cash flow management of businesses by looking at the profiles of cash flow statement and obtain a product result to figure out the reasons why businesses were slipping from successful stages to the decline stages or which profile/patterns firms were locating. Therefore, it was important to conduct a thorough literature review as to how previous studies had used tools or methods to determine the economic condition of the business, financial success or failure, impact of cash inflows and outflows on the overall operations of the firms or industry and predict their future survival in each particular sector. Some of the authors even had conducted international comparisons based on selecting a sample of various countries which provided a logical sense in such a technique. Therefore, the purpose of this section was to attempt to look at and provide valuable studies to the reader and more importantly to distinguish our study from the ones previously carried out in the same or relevant to this subject.

2.2. RESEARCH METHODOLOGY

The methods used in assembling data and information for this research is shown and justified in this chapter. The study applies a quantitative descriptive methodology to establish the relationship between cash flow patterns and traditional ratios and their level of significance. To make sure that the research is clearly linked and tailored to the reasons of the research topic, the work must be properly designed. The research objectives and hypothesis are formed in accordance with the theory of (Gup et., al. 1993) that is related to the research topic and other necessary literature. Consequently, there is a description of how the findings and analysis of the data shall be presented that will involve the rationale behind the selection of the specific method of collecting and analysing data.

Finally, the data is analysed through the IBM SPSS software version 25 and Excel programme and some statistical tools such as frequency calculations for cash flow distributions, life cycle stages and profiles of business were used. For building the relationship among variables, linear regression, multiple regression, significance tests correlations were performed to find out any significant relationship or inverse insignificant impact between the dependent variables and independent variables. In this case, the dependent variable is patterns and independent variable(s) are profitability & price-related ratios. Further, for some manual calculations and analysis, an excel programme was also used to get the result of the original data explained in this study.

2.3. RESEARCH SUBJECT AND PROBLEM

It is obviously known that the contributory factor of the collapse of most non-financial firms is the weaknesses of the firm's overall financial performance particularly their cash flow profiles. There could be many problems with cash flow management of firms in manufacturing and service industries for which thorough research is required to figure out possible solutions to the problems with a proper and scientific study by research in this area. This makes dealings in this area very risky and so it becomes so important for firms to manage their cash flow statements in this area to put in place effective policies to help minimise risky decisions. It is in this line that this study was conducted to determine how these firms are handling their cash flow profiles and what international standards are being followed to avoid facing bankruptcy and/or liquidation. The research was conducted based on the scientific work and together with its theoretical and social dimensions.

2.3. PURPOSE OF THE RESEARCH

The research topic that is selected to conduct this study was not much carried out by other researchers previously in Turkey for maximum sectors and firms whose stocks are trading on Borsa Istanbul. We additionally tested other factors which helped us understand the patterns of the firms, life cycle stages, their profiles and particularly firms in the unusual condition are researched deeply to suggest possible recommendations to manage their cash flow activities. On the other hand, this could also lead to financial students and employees experience in the banking industry with analysis of financial statements and statistics of firms particularly the cash flow profiles of both financial and non-financial firms.

Therefore, this made me conduct a productive study to understand and help to boost our knowledge about understanding the cash flow profiles of non-financial firms by looking at their financial reports for the fluctuation of cash flow activities. This study also helps us to learn more about Borsa Istanbul, the Turkish non-financial firms' cash flow profiles and the public disclosure platform (KAP in Turkish). After successful research in this area, it could also assist other researchers to enhance their knowledge about the sector comparisons among the Turkish firms and will motivate them to ponder for an alternative topic in this area to further strengthen research pertaining to cash flow management.

The results of the study clearly indicate a few considerable points and decisions must be made by firms in each sector to avoid risk in the future pertaining to each firm's cash flow management. The study also focused on the comparisons made among other sectors by looking at the cash flow profiles for a specified period, and it will have a positive result while attempted by the reader for understanding. The more the research is carried out on these firms' cash flow activities, the better the firms in these sectors will concentrate on their cash flow management, and they will undoubtedly take effective decisions in the future and will struggle to eliminate or minimise the future unexpected risk or avoid liquidation.

2.4. SCOPE OF THE RESEARCH

The scope of this research is to assess the cash flow profiles of Turkish non-financial firms trading on Borsa Istanbul and looking for the signs of the three components of the cash flow statement either positive or negative by distributing of firms for cash flow patterns and making sector comparisons as well as by building a relationship between cash flow patterns and some traditional financial rations. In the analysis section of the research, the method of cash

flow patterns of Gup & his team and life cycle theory of Bruwer and life cycle stages of (Dickinson, 2011) were applied each year (2015-19) to find out accurate results of the businesses, especially in each pattern.

The data was also used in the SPSS programme for a systematic result and findings of statistics. Therefore, the principal scope of this study was to look thoroughly at the signs of each component of the SCF to provide the best recommendations for all those firms in unusual conditions or transmitting to the declining and liquidation stages. Hence, the study covers a total of 224 firms and their annual cash flow statements that were obtained through their independent financial reports via Public Disclosure Forms located in various cities in the Republic of Turkey. The study is carried out only within the domestic firms for both manufacturing and service industries whose stocks were trading on Borsa Istanbul between the period 2015 and 2019.

2.5. OBJECTIVE OF THE RESEARCH

- The general objective of this study is to provide insights into the cash flow of Turkish non-financial firms and further to make sector comparisons by determining their cash flow patterns in each sector both in the manufacturing and service industries.
- The study to contribute to the existing literature in two ways. Firstly, we discuss the association between cash flow patterns and Life Cycle Theory in detail with the different methods in the literature. Secondly, since the study covers all Turkish non-financial firms whose cash flow profiles are accessible that operate on BIST between the dates of 2015 – 2019 revealing the cash flow profiles of these firms with a big data set and range will be considered.
- The fluctuation in cash flow profiles of the Turkish firms to be determined with their line of activity and active management of their financial performances.
- The economic condition and stability of the Turkish firms to be analysed based on deeply evaluating their cash flow profiles and comparing them with other sectors.
- Also, to determine the impact of weak management of cash flow activities in the related sectors and effective ways of pushing those stuck and unmovable firms to be researched.

- And finally, to examine relationships between traditional ratios and cash flow profiles of the selected firms.

2.6. SIGNIFICANCE OF THE STUDY

The importance of this study is to conduct a thorough analysis and assessment on the cash flow profiles of non-financial firms of the manufacturing and service industries trading on Borsa Istanbul including various sub-sectors such as energy, basic materials, industrials, cyclical consumer products and services, technology, textile, wearing and apparel, electricity, tourism etc. A very limited number of studies were found in this area. Therefore, this study focuses on different dimensions to find out the patterns of these firms particularly companies in an unusual situation or shake-out stage which later causes liquidation or failure in the future.

It is also important to understand the significance of the relationship between cash flow patterns and the financial ratios of these and the hypotheses which are created were elaborated. In this study, cash flows of 16 sectors were evaluated by examining the cash flow statements pertaining to operating activities, investing activities and financing activities. The industries which make up other sectors included 224 firms for the five-year period examined in the analysis.

This study will also assist other researchers to understand the comparison made among sectors and will help us a source to include it in their future proposed studies. This study will also provide significance to shareholders of companies, bank officials, economic, business and finance and accounting students with a clear picture of the study to boost their knowledge in this particular subject. It is expected that students pursuing a postgraduate qualification in the field of finance could directly benefit from this research in the future. The more the research is carried out on these firms' cash flow activities, the better the sector performs successfully, and they will repeatedly concentrate on their weaknesses, and all will put efforts to eliminate or minimize the future unexpected risk or liquidation. The study will also play a significant role in other sectors by evaluating and assessing their cash flow profiles which will lead to further research into other aspects of the topic under consideration or other relevant study topics.

2.7. DATA COLLECTION PROCEDURE

The secondary data collection method is used for the study and the data was collected from the independent financial annual reports of each firm individually for the signs of cash flow components through the Public Disclosure Platform (PDP) which is an electronic system

through which electronically signed notifications required by the capital markets and Borsa Istanbul regulations are publicly disclosed are studied for searching the non-financial firms with their cash flow profiles and mainly Cash Flow Life Cycle Stages process from the introduction stage to the decline stage are also applied. Some of the data was also collected from the Thomson Eikon Reuters DataStream from Anadolu University particularly ratios such as return on equity (ROE), return on assets (ROA), price to book value (PBV) and price to sales (P/S) between the period 2015-2019.

Note: We wanted to include the price to earnings (PE) ratio in the study as well. However, during the collection of ratios for all firms, this ratio was unavailable for most years i.e. 2015, 2016, 2019. As a result, it was excluded from the study. Further, as the sample data is for five consecutive years starting from 2015 to 2019, the analysis has been done yearly for each ratio and then jointly all to years with all ratios to see if the outputs from the regression analysis vary depending on selecting two or more variables.

As stipulated in the data collection procedure 3.6, the data for this research is gathered from secondary sources and uses quantitative descriptive methodology. Secondary data was collected from the independent annual financial reports of all firms from the Public Disclosure Platform's also known as (KAP) in Turkish by Borsa Istanbul that provides the content of each sector separately on the website. The data was obtained between the years 2015 and 2019. Ratios were collected both from the financial reports of firms as well as from Thomson Eikon Reuters DataStream used for further analysis and comparison in both Manufacturing and service industries that comprise a total of 16 sectors of 224 firms as the sample for the analysis. As the data was only collected from the secondary sources, no questionnaires were required to prepare and obtain results because it was unnecessary. Hence, it is expected that the sample size will represent the whole population in the study.

2.8. SIGNIFICANCE OF (ROE) RATIO IN COMPARISON OF CASH FLOW PATTERNS

A study conducted by (Kepçe, 2017:67) used the method of Gup and Samson's cash flow patterns in 1993. The research used correlation to find the significance level of the relationship considered cash flow patterns to correlate between cash flow patterns and return on equity (ROE). The study uses the method of Gup and Samson's cash flow patterns 1993 to characterize a business from a financial standpoint. The study uses this ROA as one of the financial ratios. The article found at 0,016 significance level of pattern group and ROE ratios are positively correlated. Although this regression or correlation is significant, its level is very

down. On the other hand, as the number of patterns increases from 1-8 (firms get mature and declining stage), its ROE increases. The researcher further explains that this is generally expected from a firm as the enterprise grows older as well mature. It shall have a higher return on its invested equity. The study focuses on 131 manufacturing companies listed on Borsa Istanbul covering the period between 2011-2015.

2.9. SIGNIFICANCE OF (ROA) RATIO IN COMPARISON OF CASH FLOW PATTERNS

In the previous study conducted by (Kepçe, 2017:67), the researcher used correlation method between cash flow models and return on assets (ROA) to find out if there is a significant correlation between cash flow patterns and ROA. The study uses the method of Gup and Samson's cash flow patterns 1993 to characterize a business from a financial standpoint. The study uses this ROA as one of the financial ratios. The result finds at 0.006 significance level of cash flow patterns and ROA ratio are positively correlated. To further describe this, as the pattern number goes up from 1-8 (firms get mature, then declining, shrinking, and dissolving stages), its ROA increases. The researcher further explains that this is generally expected from the enterprise as the firm grows older as well mature. It shall have higher return on its invested equity.

2.10. SIGNIFICANCE OF (PBV) RATIO IN COMPARISON OF CASH FLOW PATTERNS

Price to book value (PBV) per share is calculated by dividing the company's latest closing Price by its Book Value per share. Book Value per share is calculated by dividing Total Equity from the latest fiscal period by Current Total Shares Outstanding. It is also one of the significant financial ratios having considered from price comparison perspective. A security's price divided by its Book Value Per Share Actual. Book Value Per Share is a company's common stock equity as it appears on a balance sheet equal to total assets minus liabilities, preferred stock, and intangible assets such as goodwill, divided by the weighted average number of total shares outstanding for the year (Thomson Eikon Software, 04.04.2021).

"The price to book value ratio is important because it draws together the external and internal factors of price, completing the cycle of market and company analysis, the return on equity is the stockholder's vindication. The study of these factors may tell us something about P/B, or the price paid for book value" (Block, 1995:63).

2.11. SIGNIFICANCE OF (PS) RATIO IN COMPARISON OF CASH FLOW PATTERNS

Price to sales ratio is also one of the important traditional ratios because it is an evaluation ratio which compares a firm's stock price to its revenue. It indicates that the value

of the financial markets has been placed to consider each dollar of an enterprise's revenues or sales. This ratio is calculated by dividing the stock price divided by firm's sales per share.

A general usage of the price to sales ratio started to show up in the early 1980s. It was used to specify firms that were expected to be taken out due to the valuation of the low market. The calculation is done by dividing a company's last 12-month sales divided by the total number of outstanding shares. Later, the price of the market is then compared to the amount of sales per share. Meanwhile, the companies with the lowest price to sale ratios in any industry or sector could then be specified as presumably to make profits above average returns due to the valuation of the low market pertaining to sales (Vruwink et, al. 2007: 33).

Table 2.1. Sectors of the firms in the Sample

		As of 05.11.2020
No of Sectors	**MANUFACTURING INDUSTRY**	**No of Firms**
1	Food, Beverage and Tobacco	20
2	Chemicals, Petroleum Rubber and Plastic Products	27
3	Mining and Quarrying	1
4	Basic Metal	19
5	Fabricated Metal Products Machinery Electrical Equipment and Transportation Vehicles	28
6	Paper and Paper Products, Printing and Publishing	15
7	Non-Metallic Mineral Products	15
8	Textile, Wearing Apparel and Leather	18
9	Construction and Public Works	8
10	Consumer Trade	14
		165
	SERVICES INDUSTRY	
1	Electricity Gas and Water	7
2	Sports	4
3	Tourism: Restaurants and Hotels	7
4	Transportation and Storage	8
5	Technology	16
6	Information Technology and Telecommunication	17
16		**59**
	TOTAL NUMBER OF FIRMS	**224**

2.12. DATA ANALYSIS METHOD

Initially, the data was collected from the official website of BIST, and PDP based on the selection of sector-wise reaching to a total of sixteen sectors. The quantitative aspect of the data was first analysed by the use of Excel programme. The analysis of the data is based on the stated objective of the research the Excel programme for the percentages and the tables and for an accurate result and finds of the data, SPSS software was used, and the implementation of the regression analysis procedure was implemented at this stage of the dissertation. The presentation of the results is done by the use of tools such as pie charts and column graphs,

scatter diagrams etc together with frequency calculations, regressions analysis, significance tests were run to find the significant impact of relationships between cash flow patterns and profitability and/or price-related ratios among sectors and as a whole sample size.

2.13. RESEARCH HYPOTHESIS

H1: Cash flow patterns and traditional financial ratios have a significant relationship.

H0: Cash flow patterns and traditional financial ratios do not have a significant relationship.

2.14. LIMITATIONS

Financial data structure of financial and non-financial firms differ. Therefore, data from non-financial firms was evaluated in this study. Some of the firms' cash flow tables were not available for the public so the ones which were accessible were used for the analysis. The study is concentrated on non-financial Turkish firms in Turkey. This is because they are also having cash flow profiles and necessary research was required to be conducted with sector comparisons. As mentioned above, the study covered non-financial firms with their cash flow profiles for a specific period for the analysis in the Turkish market.

This study also stressed whether the cash flow profiles of these firms are at the required level of managing or not. In addition, the study is concerned with identifying the major reasons for best practices of all three activities of the cash flow statement of each firm i.e. operating activities, investing activities and financing activities and causes of declining or liquidation if any during the sector comparisons were attempted to understand.

3. CHAPTER
PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

This chapter provides thorough explanations about the presentation, analysis and interpretation of the data that is investigated, gathered and presented by obtaining results from the collected data in this dissertation for understanding purpose via tabular and graphical presentations such as bar graphs, linear graphs, pie graphs, simple charts, clustered bars, histograms, population pyramid and Scatter diagrams. The chapter also provides comprehensive information and interpretations on the statistics of the output such as frequency calculations of the cash flow patterns, profiles of businesses, and life cycle stages by distributing sample firms between the periods 2015-2019 with clear and understandable explanation under each table and/or figure.

The data was collected from the secondary source such as BIST, PDP, Refinitiv Eikon Reuters, and financial independent annual reports of the sample firms. The chapter also explains all the data that was used to get the output from various aspects. The study explains the result of 16 sectors for 224 sample firms during the stipulated period. The write-up, explanations and presentations of the data has been provided step by step as mentioned beneath until the end of the chapter.

- Firstly, the signs of cash flow components of 16 sectors Manufacturing & Service industries comprising a total of 224 sample firms indicating signs either positive or negative for the three activities of the cash flow statement (CFO, CFI, CFF) have been explained thoroughly following the presentation of each industry and sectors separately.
- Secondly, distributions of firms are carried out and explained by patterns and profiles in both industries to know the number of companies in each pattern, life cycle stages and profiles of business which are illustrated by tables and various charts from the output of the SPSS programme whilst sectoral comparisons have also been made.
- Thirdly, comparisons have also been made between both industries for determining the life cycle stages based on the study carried out by (Dickinson, 2011) from the “Introduction” stage to the “Decline” stage. Further, distributions of firms are presented yearly for determining cash flow profiles of sample firms in the study and comparisons are made between sectors and industries. This study also concentrates on the distribution of cash flow patterns based on the establishment date of the firms. The result is also provided to know if

the establishment date of firms had any relationship with the cash flow patterns and life cycle stages during this period.

- Fourth, relationships were built among the cash flow patterns, profiles and signs together with some traditional ratios such as ROE, ROA, P/BV and P/S of the selected sample size in this study. Relationships between the cash flow patterns and ratios were made by multiple linear regression and explained the output of each analysis. We used the regression analysis in this study for three reasons specifically.

  1) To model the relationship between x and y where "x" is the independent variable(s) Ratios and "y" the dependent variables Cash Flow Patterns

  2) to predict the target variable. In this case, the target variable is Patterns of the sample firms, 3) and to test the hypothesis. Furthermore, correlations were done on the sample size of the total population and each sector for various years in the analysis. For example, comparisons made sector by sector, yearly and all 16 sectors to understand if any linear relationship exists among the variables. Pearson's Correlation was also carried out in various sectors for various years to understand either positive or negative correlation as well as the level of significance and written up by APA style and some results are shown by Scatter diagrams for better understanding.
- Finally, some comparisons have also been made by the One-Sample T-Test among dependent and independent variables and concluding the chapter by providing its summary at the end.

3.1. POSITIVE OR NEGATIVE SIGNS OF COMPONENTS OF CFS

Under the sub-headings below, given tables describe the signs of cash flow components by distributing 224 firms in manufacturing and service industries comprising sixteen in each industry and a brief explanation is given on each component based on the output by using descriptive statistics under frequencies calculations.

3.1.1. Distribution of 224 firms for positive or negative signs of CFO

Table 3.1. Distribution of 224 firms for positive & negative signs of CFO yearly

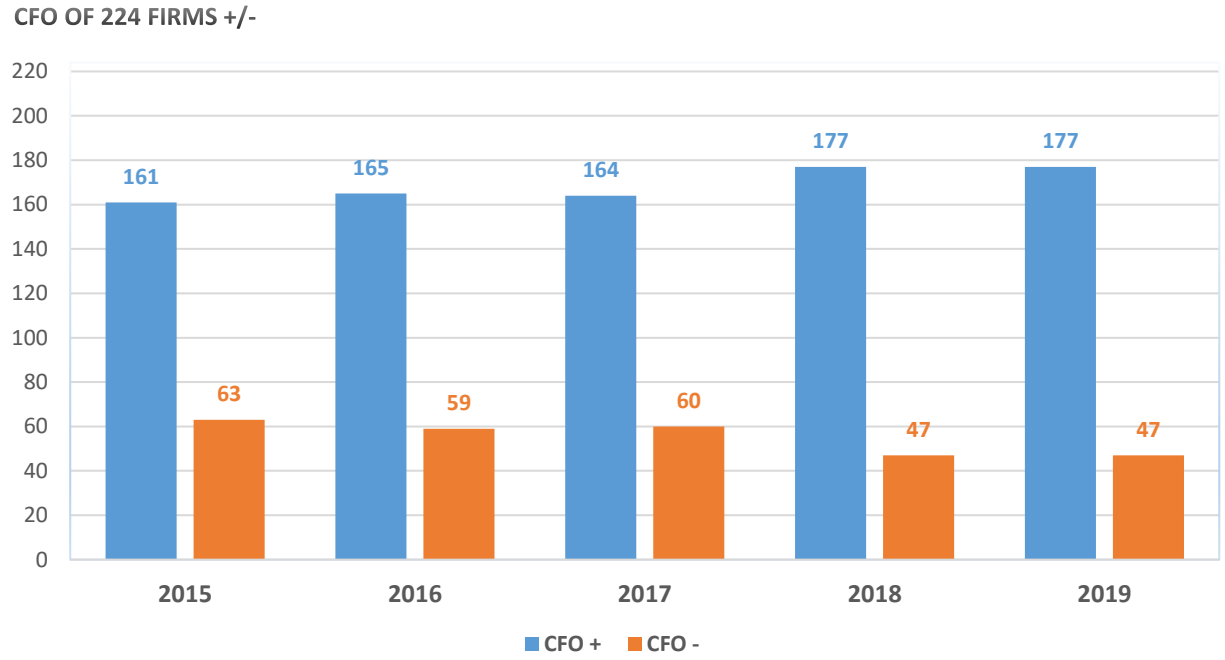
	2015	Percent	2016	Percent	2017	Percent	2018	Percent	2019	Percent
CFO +	161	71.9	165	73.7	164	73.2	177	79.0	177	79.0
CFO -	63	28.1	59	26.3	60	26.8	47	21.0	47	21.0
Total	224	100.0	224	100.0	224	100.0	224	100.0	224	100.0

Source: SPSS v.25 output

The above table tells us that the CFO for most of the firms were found to be positive (+) throughout the years. For example, in the year 2015, 71.9% of the companies had positive cash flows from their operating activities. This percentage has slightly increased by only 1.8% in the next FY 2016 whilst in the year 2017, it remained almost the same. However, in the last two years, most companies' CFO was found to be positive, and it shows the highest percentage compared to other years.

Hence, maintaining a positive balance for the first component of the CFS indicating companies were not out of cash and these businesses' liquid assets had increased allowing companies to meet their obligations, re-invest, and return money to shareholders also paid expenses which provided a buffer against the future financial challenges expected by the companies. We have shown the data in the table by graph charts, bar chart, pie chart etc.

Figure 3.1. Positive (+) and negative (-) signs of cash flow from operating activities (CFO) of companies at the at the end of FY between 2015-2019



3.1.2. Distribution of 224 firms for positive or negative signs of CFI

Table 3.2. Distribution of 224 firms for positive or negative signs of CFI yearly

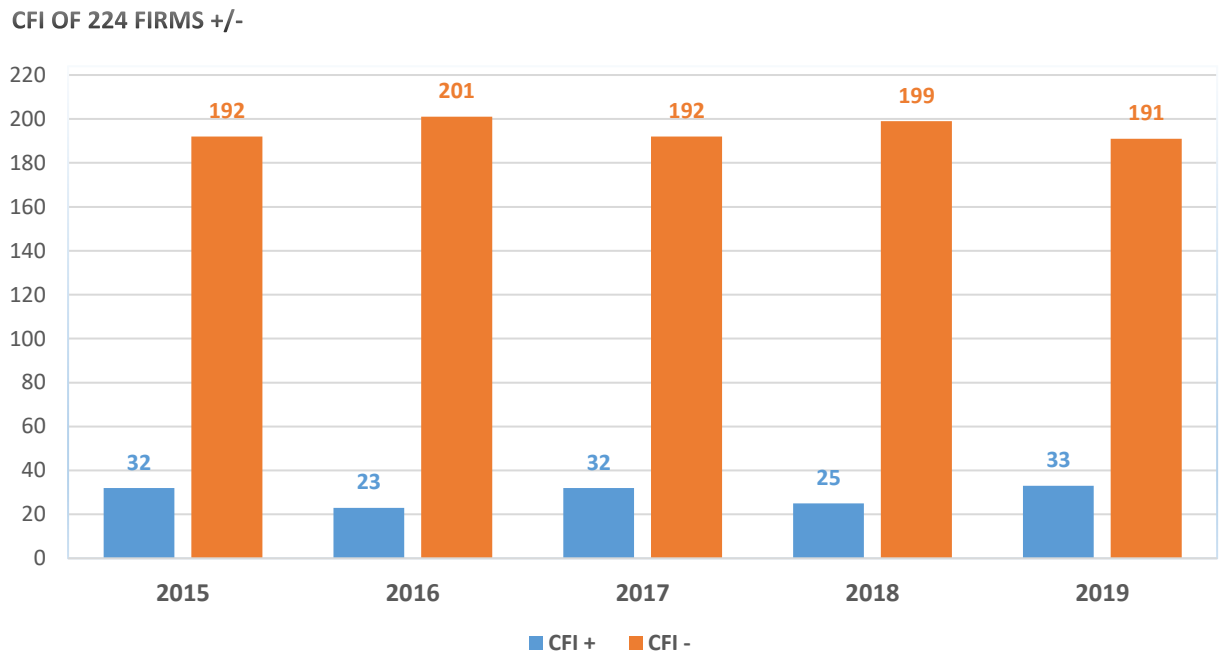
	2015	Percent	2016	Percent	2017	Percent	2018	Percent	2019	Percent
CFI +	32	14.3	23	10.3	32	14.3	25	11.2	33	14.7
CFI -	192	85.7	201	89.7	192	85.7	199	88.8	191	85.3
Total	224	100.0	224	100.0	224	100.0	224	100.0	224	100.0

Source: SPSS v.25 output

The above table tells us that CFI for most of the firms was found to be negative (-) throughout the years. For example, in the year 2015, 85.7% of the companies had negative cash flows from investing activities. This percentage has slightly increased by 4% in the next FY 2016 which is the highest percentage compared to other years. However, there no significant change in the last three years.

Hence, having held a negative balance for the investing activities at the end of the closing year shows companies were investing in future growth or the businesses might have purchased new equipment, buildings or short-term assets. However, if these firms had made poor decisions towards purchasing assets, then these signs might indicate a warning to the companies.

Figure 3.2. Positive (+) and negative (-) signs of cash flow from investing activities CFI of companies at the end of FY between 2015-2019



3.1.3. Distribution of 224 firms for positive or negative signs of CFF

Table 3.3. Distribution of 224 firms for positive or negative signs of CFF yearly

	2015	Percent	2016	Percent	2017	Percent	2018	Percent	2019	Percent
CFF +	110	49.1	94	42	104	46.4	97	43.3	76	33.9
CFF -	114	50.9	130	58	120	53.6	127	56.7	148	66.1
Total	224	100.0	224	100.0	224	100.0	224	100.0	224	100.0

Source: SPSS v.25 output

The above table states that CFF for most of the firms were found to be negative (-) throughout the stipulated period. For example, in the year 2015, 50.9% of the companies had negative cash flows from financing activities. This percentage has marginally increased by 7.1% in the next FY 2016. The following year 2017 shows a decline whilst the last two years reveal a major change improving from 56.7% (FY2018) to 66.1% (FY2019). The balances of the last year from the CFF of these firms indicate the highest percentage compared to these years.

Therefore, a negative figure hereby will show that these firms have paid out capital. For example, paying long term debt off or payment made to the shareholders. On the other hand, these negative balances also express concerns that companies were unable to pay their debts. Further, companies whose balances for CFF was negative at the end of each year also express that they had made additional borrowings from the financial institutions to meet their short-term liabilities and avoid liquidation. The same was investigated for the sample size and the perceptions against these firms were found to be similar as per the result from the data.

Figure 3.3. Positive (+) and negative (-) signs of cash flow from financing activities CFF of companies at the end of FY between 2015-2019

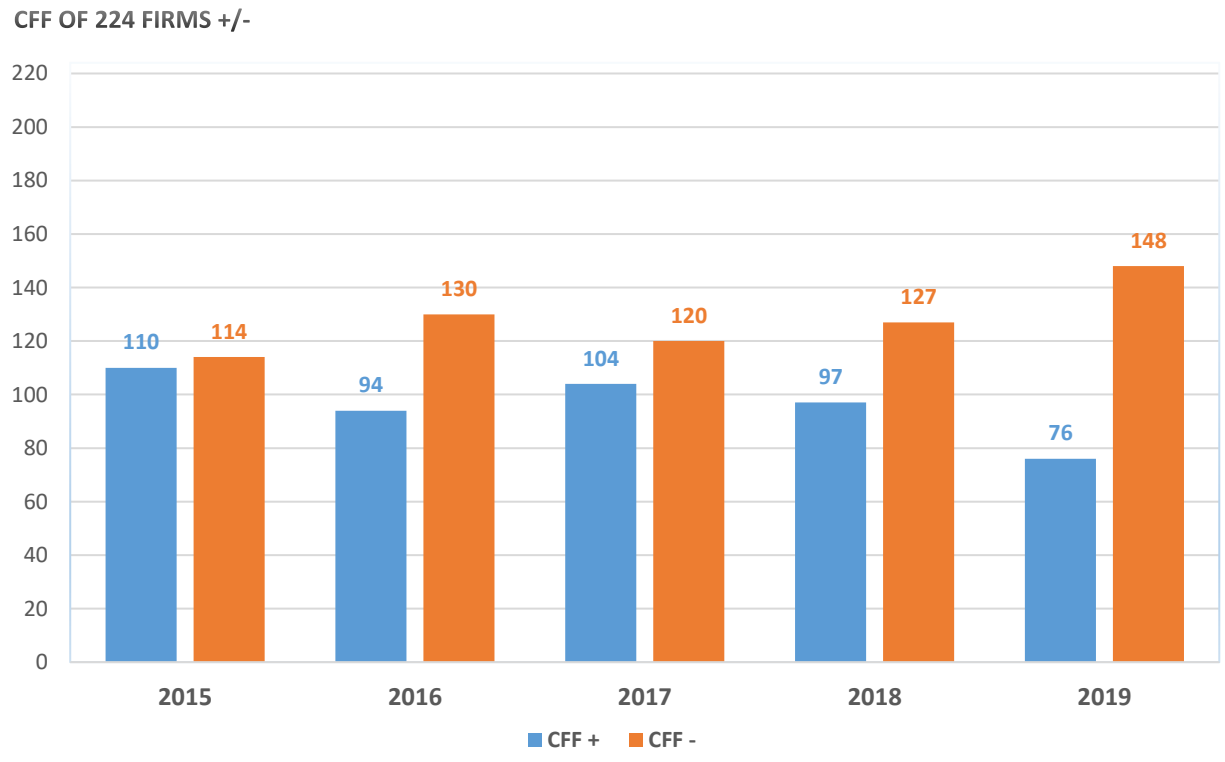


Figure 3.3 shows a normal distribution of cash flow patterns from 2015 to 2019. Cash flow from financing activities of most companies was found to be in the negative figure whilst the positive balances of firms also continue to go side by side with the negative balances. There is no major change was observed during the distribution of cash flow patterns in these firms. However, we will look from a different point of view during sectoral comparisons to see which sectors have the most positive and negative balance for each of the component of the CFS. The below table is indicating the balances either positive or negative for each sector.

Table 3.4. Positive & Negative signs for all sectors yearly for CFO, CFI and CFF

SECT	MANUFACTURING AND TRADE INDUSTRY	Balance	CFO					CFI					CFF				
			2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
S1	Food, Beverage and Tobacco	+	**12**	**15**	**13**	**15**	**13**	5	2	2	4	6	8	9	12	7	8
		-	8	5	7	5	7	**15**	**18**	**18**	**16**	**14**	**12**	**11**	**8**	**13**	**12**
S2	Chemicals, Petroleum Rubber and Plastic Products	+	**19**	**24**	**20**	**19**	**25**	3	27	27	2	2	16	9	19	14	9
		-	8	3	7	8	2	**24**	**0**	**0**	**25**	**25**	**11**	**18**	**8**	**13**	**18**
S3	Mining and Quarrying	+	**1**	**1**	**1**	**1**	**1**	0	0	1	1	1	0	0	0	0	0
		-	0	0	0	0	0	**1**	**1**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**1**
S4	Basic Metal	+	**17**	**15**	**13**	**14**	**13**	2	3	2	0	0	11	7	6	8	5
		-	2	4	6	5	6	**17**	**16**	**17**	**19**	**19**	**8**	**12**	**13**	**11**	**14**
S5	Fabricated Metal Products Machinery Electrical Equip Transportation Vehicals	+	**19**	**24**	**24**	**24**	**22**	3	3	5	1	5	15	12	12	15	8
		-	9	4	4	4	6	**25**	**25**	**23**	**27**	**23**	**13**	**16**	**16**	**13**	**20**
S6	Paper and Paper Products, Printing and Publishing	+	**8**	**13**	**12**	**12**	**12**	3	1	1	1	1	11	5	5	6	5
		-	7	2	3	3	3	**12**	**14**	**14**	**14**	**14**	**4**	**10**	**10**	**9**	**10**
S7	Non-Metallic Mineral Products	+	**14**	**14**	**12**	**12**	**10**	1	1	2	4	3	5	8	9	4	6
		-	1	1	3	3	5	**14**	**14**	**13**	**11**	**12**	**10**	**7**	**6**	**11**	**9**
S8	Textile, Wearing Apparel and Leather	+	**9**	**9**	**10**	**15**	**17**	5	4	4	3	2	10	11	9	12	9
		-	9	9	8	3	1	**13**	**14**	**14**	**15**	**16**	**8**	**7**	**9**	**6**	**9**
S9	Construction and Public Works	+	**6**	**5**	**6**	**5**	**4**	1	1	2	0	2	5	5	3	4	3
		-	2	3	2	3	4	**7**	**7**	**6**	**8**	**6**	**3**	**3**	**5**	**4**	**5**
S10	Consumer Trade	+	**11**	**10**	**13**	**12**	**12**	0	0	1	3	3	7	7	2	1	3
		-	3	4	1	2	2	**14**	**14**	**13**	**11**	**11**	**7**	**7**	**12**	**13**	**11**
		TOTAL	**165**	**165**	**165**	**165**	**165**	**165**	**165**	**165**	**165**	**165**	**165**	**165**	**165**	**165**	**165**
ECTOI	SERVICES INDUSTRY	BALANCE	CFO					CFI					CFF				
			2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
S11	Electricity Gas and Water	+	**5**	**2**	**4**	**4**	**6**	2	1	2	0	0	4	4	4	4	3
		-	2	5	3	3	1	**5**	**6**	**5**	**7**	**7**	**3**	**3**	**3**	**3**	**4**
S12	Sports	+	**2**	**2**	**3**	**3**	**3**	2	2	1	1	2	2	3	3	2	2
		-	2	2	1	1	1	**2**	**2**	**3**	**3**	**2**	**2**	**1**	**1**	**2**	**2**
S13	Tourism: Restaurants and Hotels	+	**5**	**3**	**4**	**6**	**6**	1	1	4	2	1	3	4	3	2	0
		-	2	4	3	1	1	**6**	**6**	**3**	**5**	**6**	**4**	**3**	**4**	**5**	**7**
S14	Transportation and Storage	+	**8**	**7**	**7**	**7**	**7**	1	2	3	1	1	1	3	3	3	2
		-	0	1	1	1	1	**7**	**6**	**5**	**7**	**7**	**7**	**5**	**5**	**5**	**6**
S15	Technology	+	**12**	**10**	**11**	**14**	**13**	1	1	1	1	2	7	3	7	8	7
		-	4	6	5	2	3	**15**	**15**	**15**	**15**	**14**	**9**	**13**	**9**	**8**	**9**
S16	Information Technology and Telecommunication	+	**13**	**11**	**12**	**15**	**14**	2	1	1	1	2	5	4	7	7	6
		-	4	6	5	2	3	**15**	**16**	**16**	**16**	**15**	**12**	**13**	**10**	**10**	**11**
		TOTAL	**59**	**59**	**59**	**59**	**59**	**59**	**59**	**59**	**59**	**59**	**59**	**59**	**59**	**59**	**59**
		G.TOTAL	**224**	**224**	**224**	**224**	**224**	**224**	**224**	**224**	**224**	**224**	**224**	**224**	**224**	**224**	**224**

CFO, CFI and CFF of most companies were found to be in "+- -*" said to be "Pattern 2"* for all sectors. Manufacturing industry, Fabricated Metal Products Machinery Electrical Equip Transportation Vehicles sector were found to contain the most number of firms for the stated pattern. Following the Chemicals, Petroleum Rubber and Plastic Products sector the second-highest sector having the pattern 2 and so one.

On the other hand, in Services industry Information Technology and Telecommunication sector were found to contain the most number of firms in pattern 2 following Technology sector and Transportation and Storage placing in the third. This means, that in all sectors, the study finds that pattern 2 "*successful company"* lies for almost all companies meaning these businesses had maintained their cash flow according to international standards and as per the method explained by (Gup et., all 1993) in their study for the cash flow patterns.

Beneath tables are separately provided and interpreted for the comparison purpose of both industries to understand the CFO is either positive or negative for each sector. These tables are presented yearly distributions of their signs for 165 firms and 59 firms.

1. Manufacturing Industry

Table 3.5. Distributions of 165 firms for positive or negative signs of all components

	2015	Percent	2016	Percent	2017	Percent	2018	Percent	2019	Percent
CFO +	116	70.3	130	78.8	123	74.5	128	77.6	128	77.6
CFO -	49	29.7	35	21.2	42	25.5	37	22.4	37	22.4
Total	165	100.0	165	100.0	165	100.0	165	100.0	165	100.0
CFI +	23	13.9	15	9.1	20	12.1	19	11.5	25	15.2
CFI -	142	86.1	150	90.9	145	87.9	146	88.5	140	84.8
Total	165	100.0	165	100.0	165	100.0	165	100.0	165	100.0
CFF +	88	53.3	73	44.2	77	46.7	71	43.0	56	33.9
CFF -	77	46.7	92	55.8	88	53.3	94	57.0	109	66.1
Total	165	100.0	165	100.0	165	100.0	165	100.0	165	100.0

Source: SPSS v.25 output

2. Service Industry

Table 3.6. Distributions of 59 firms for positive or negative signs of all components

	2015	Percent	2016	Percent	2017	Percent	2018	Percent	2019	Percent
CFO +	45	76.3	35	59.3	41	69.5	49	83.1	49	83.1
CFO -	14	23.7	24	40.7	18	30.5	10	16.9	10	16.9
Total	59	100.0	59	100.0	59	100.0	59	100.0	59	100.0
CFI +	9	15.3	8	13.6	12	20.3	6	10.2	8	13.6
CFI -	50	84.7	51	86.4	47	79.7	53	89.8	53	86.4
Total	59	100.0	59	100.0	59	100.0	59	100.0	59	100.0
CFF +	22	37.3	21	35.6	27	45.8	26	44.1	20	33.9
CFF -	37	62.7	38	64.4	32	54.2	33	55.9	39	66.1
Total	59	100.0	59	100.0	59	100.0	59	100.0	59	100.0

Source: SPSS v.25 output

3.2. FIRMS DISTRIBUTION FOR CASH FLOW PATTERNS

As we have explained in the introduction of this chapter, that the analysis was done over non-financial firms in two industries i.e. Manufacturing and Service. Under these two industries, there are several sectors included for the analysis in this research. Therefore, firstly the distributions of these firms will be shown via different charts which are the output from the statistics software under frequencies and chart building methods.

The presentation and analysis of this part are explained by two methods. Firstly, these firms are distributed for cash flow patterns based on the method of (Gup & et. al, 1993) which was taken as the basis for this study and (Dickinson, 2011) for life cycle stages. In the last step, the profiles of these businesses are expressed by showing some useful charts with brief explanations.

3.3. DISTRIBUTION OF FIRMS IN MANUFACTURING AND SERVICE INDUSTRIES

Table 3.7. Distributions of 224 firms in identifying firms' patterns

Variables	**One**	**Two**	**Three**	**Four**	**Five**	**Six**	**Seven**	**Eight**	
Patterns	+++	+--	++-	+-+	-++	--+	-+-	---	**Total**
Distribution of 224 firms (%)	0.4	44.6	7.1	23.2	2.7	16.5	2.7	2.7	**100.0**
Number of Firms Each Pattern	1	100	16	52	6	37	6	6	**224**

* The data is for five years 2015-2019 for manufacturing and service industries

Looking at the above calculations, the highest percentage is shown for pattern "Two" with 44.6% classified as *"Mature and Successful"* companies. The next highest percentage was found in pattern four with 23.2% classified as "*Young & fast-growing"* companies while the lowest share is found in companies that are classified as *a "Treasure Chest", "Shrinking and Dissolving"*. These are the terminologies used by Gup and his team for the companies in their article of research. In conclusion, we can say that Turkish manufacturing and service industries are mainly dominated by both *mature & successful companies* following *young and fast-growing firms* the second in the row.

3.3.1. Yearly distribution of cash flow items for patterns, life cycle stages & profiles of Manufacturing industry's firms

Table 3.8. Yearly distribution of firms for patterns, LCS & Profiles of Manufacturing industry

Patterns	Life Cycle Stages	Profiles	2015	Perct.	2016	Perct.	2017	Perct.	2018	Perct.	2019	Perct
Pattern 1	Shake-Out	Unusual Situation	3	1.8	0	-	1	0.6	1	0.6	0	-
Pattern 2	Mature	Successful Business	59	35.7	79	47.8	74	44.8	75	45.4	83	50.3
Pattern 3	Shake-Out	Restructuring Business	9	5.4	8	4.8	8	4.8	10	6.0	18	10.9
Pattern 4	Growth	Growing Business	45	27.2	44	26.6	40	24.2	42	25.4	27	16.3
Pattern 5	Decline	Declining Business	4	2.4	5	3.0	9	5.4	3	1.8	3	1.8
Pattern 6	Introduction	Young Business	36	21.8	24	14.5	27	16.3	25	15.1	26	15.7
Pattern 7	Decline	Liquidating Business	7	4.2	2	1.2	2	1.2	5	3.0	4	2.4
Pattern 8	Shake-Out	Unusual Situation	2	1.2	3	1.8	4	2.4	4	2.4	4	2.4
		Total	165	100.0	165	100.0	165	100.0	165	100.0	165	100.0

The above table 3.8 is the distribution of firms for findings patterns, life cycle stages and profiles of the companies in the manufacturing industry carried out yearly. The table indicates three main patterns, 2, 4 & 6. In all years, most companies were found in pattern 2. Surprisingly, the percentage each year continued to go up which reveals that companies in this industry were capable to manage their cash flow statement according to international principles. However, this trend does not apply to pattern 4. For example, in this stage in 2015, 27.2% of firms were found, but it did not continue to increase instead went down. However, the last financial year remained the same. Similarly, the same scenario applies to pattern 6 in which the movement began by the highest percentage of firms by going to the second-lowest percentage in the last financial year.

The result in this industry also finds that very few companies in other patterns which starts by highest and ends by the lowest percentage each year. It is, therefore, does not speculate any

deterioration to consider it seriously as other patterns are strong enough and resulted very positively throughout the stipulated period in the analysis. Overall, firms in this industry performed well according to the patterns distribution and life cycles stages.

3.3.2. Yearly distribution of cash flow items for patterns, life cycle stages & profiles of Service Industry

Table 3.9. Yearly distribution of companies for patterns, LCS & Profiles of Service Industry

Patterns	Life Cycle Stages	Profiles	2015	Perct.	2016	Perct.	2017	Perct.	2018	Perct.	2019	Perct
Pattern 1	Shake-Out	Unusual Situation	0	0.0	0	0.0	0	0.0	0	0.0	2	3.4
Pattern 2	Mature	Successful Firms	26	44.1	20	33.9	22	37.3	28	47.5	34	57.6
Pattern 3	Shake-Out	Restructuring Firms	7	11.9	3	5.1	8	13.6	4	6.8	4	6.8
Pattern 4	Growth	Growing Firms	11	18.6	12	20.3	11	18.6	17	28.8	9	15.3
Pattern 5	Decline	Declining Firm	0	0.0	2	3.4	1	1.7	1	1.7	1	1.7
Pattern 6	Introduction	Young Firms	11	18.6	7	11.9	14	23.7	8	13.6	8	13.6
Pattern 7	Decline	Liquidation	2	3.4	3	5.1	3	5.1	1	1.7	1	1.7
Pattern 8	Shake-Out	Unusual Situation	2	3.4	12	20.3	0	0.0	0	0.0	0	0.0
		Total	59	100.0	59	100.0	59	100.0	59	100.0	59	100.0

Table 3.9 above is shedding light on the similar distribution of cash flow patterns for life cycle stages and profiles of firms in the service industry yearly. The result finds three main patterns, 2, 4 & 6 same as the manufacturing industry. However, as the sample number of firms in this industry is less than 35%, the finds show fewer companies in each category. Further, as per the findings, most companies were found in pattern 2. Surprisingly, the percentage from 44.1% is dramatically going up to 57 % in the last year of the observations which indicates firms developed in this stage throughout the mentioned years. It is also an indication of improvement and development in this industry having said that companies attempted to manage their cash flow statements according to international principles. For pattern 4 and 6, this is not the case as it happened with the manufacturing industry. The distributions of cash flow patterns remain changeable each year with slightly going up and down throughout the mentioned periods in the table.

In conclusion, we can say that in the mentioned patterns, companies seemed to develop each year even by a big margin until the last year indicating they had also active management of their cash flow statements and kept eye on each item of the statement. For other patterns, fewer companies were found initially which decreased by looking at the last periods of the data.

3.3.3. Yearly distribution of 224 firms for cash flow patterns *(All 16 Sectors)*

According to the study of Gup and his team, the following result indicates the distributions of these firms from pattern 1 to pattern 8 in all years and likewise, comparisons have been made among these sectors.

Table 3.10. Distributions of 224 firms for Cash Flow Patterns

	2015	Percent	2016	Percent	2017	Percent	2018	Percent	2019	Percent
(+++) Pattern 1	3	1.3	0	0.0	1	0.4	1	0.4	2	0.9
(- -+) Pattern 2	85	37.9	99	44.2	95	42.4	103	46.0	117	52.2
(++-) Pattern 3	17	7.6	11	4.9	16	7.1	14	6.3	22	9.8
(+-+) Pattern 4	56	25.0	56	25.0	52	23.2	59	26.3	36	16.1
(-++) Pattern 5	4	1.8	7	3.1	10	4.5	4	1.8	4	1.8
(- -+) Pattern 6	47	21.0	31	13.8	41	18.3	33	14.7	34	15.2
(-+-) Pattern 7	8	3.6	5	2.2	5	2.2	6	2.7	5	2.2
(- - -) Pattern 8	4	1.8	15	6.7	4	1.8	4	1.8	4	1.8
Total	224	100.0	224	100.0	224	100.0	224	100.0	224	100.0

Source: SPSS v.25 output

Table 3.10 indicates yearly distributions of 224 firms for cash flow patterns by the method of (Gup et, al. 1993). As per the year observations of these firms, most companies were found to be in the category of *"Pattern 2" (- -+) i.e.* eighty-five companies were found in this pattern which is said to be "*Mature, successful company"* according to its pattern. From 2016 to 2019, the number of companies has continued to increase in this pattern. That means, firms had been developing their cash flows because they continued to grow rather than getting classified under other patterns. The highest figure was observed to be in the last FY 2019 indicating 117 firms with 52.2% compared to other previous years.

The second most companies found from the analysis are in "*Pattern 4" (+-+)* which is known to be "*Growing company".* To say that, in 2015, fifty-six firms were found to be in this pattern. Following the next year 2016, it remained the same. However, there is a slight decrease in the next FY 2017 with the increase in the second last year. Fortunately, the number has gone up to 36 in the last FY 2019. This change occurred because we are expecting that companies moved to pattern 2 and got classified as mature or successful companies which is a good sign to see among

these sectors and optimistic these enterprises will keep growing even during financial and economic distress in the Republic of Turkey.

Another pattern that indicates most companies were found is "*Pattern 6" (- - +) said to be "Young firms, Introduction"*. This pattern also shows a normal distribution of firms throughout the years as expected. For instance, in 2015, 47 companies were found to be in this pattern. Following the next year 2016, 31 companies were found which is showing a slight decrease until 2019. We are expecting these firms have developed to either "*Pattern 2"* or *"Pattern 3*. The remaining years indicate a very slight change. Meanwhile, most firms were found in the first year 2016 as stipulated above.

Figure 3.4. Line chart of five-year cash flow patterns trend for 224 firms' year-observations

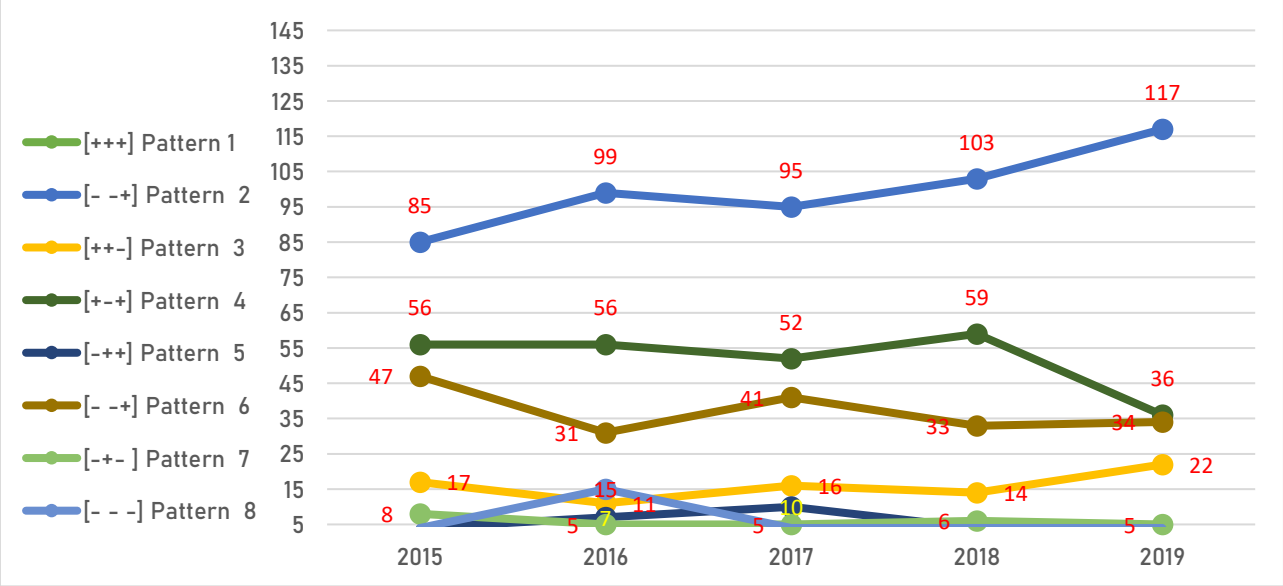


Figure 3.4 Line chart is presenting the normal distribution of firms for cash flow patterns between the years 2015-2019 in which pattern 2 dominates the most and continues to increase its number of firms in this pattern. On the other hand, in pattern 4, firms continued to develop until the year 2018 but dramatically declined in the next year 2019. In the above graph, most companies had maintained only four patterns i.e. (--+) pattern2, (+-+) pattern 4, (--+) pattern 6 and (++-) pattern 3. Other patterns were found to be fewer less active for the ending balances of their cash flow statements.

3.3.4. Assignment of Cash Flow Items for patterns, life cycle stages & profiles

As mentioned in the objective of this thesis, the study will also look at the life cycles stages of the firms yearly to find out which stage most companies had included according to the method applied by (Dickinson, 2011). Therefore, we present a summarised table that includes the number of firms in each category yearly by patterns, life cycle stages and profiles. The method of profiles is also explained in the literature review of this study. Therefore, it is also given significance to understand how many firms had each profile.

Below table is the result of both industries taken as the sample for distributions of 224 firms' year observations.

Table 3.11. Distributions of 224 firms for Life Cycle Stages & Profiles of Firms

Patterns	LCS	Profiles	2015	Perct.	2016	Perct.	2017	Perct.	2018	Perct.	2019	Perct.
P1 (+++)	Shake-Out	Unusual Firms	3	1.3	0	0.0	1	0.4	1	0.4	2	0.9
P2 (- -+)	Mature	Successful Firms	85	37.9	99	44.2	95	42.4	103	46.0	117	52.2
P3 (++-)	Shake-Out	Restructuring Firms	17	7.6	11	4.9	16	7.1	14	6.3	22	9.8
P4 (+-+)	Growth	Growing Firms	56	25.0	56	25.0	52	23.2	59	26.3	36	16.1
P5 (-++)	Decline	Declining Firms	4	1.8	7	3.1	10	4.5	4	1.8	4	1.8
P6 (- -+)	Introduction	Young Firms	47	21.0	31	13.8	41	18.3	33	14.7	34	15.2
P7 (-+-)	Decline	Liquidated Firms	8	3.6	5	2.2	5	2.2	6	2.7	5	2.2
P8 (- - -)	Shake out	Unusual Firms	4	1.8	15	6.7	4	1.8	4	1.8	4	1.8
		Total	224	100.0	224	100.0	224	100.0	224	100.0	224	100.0

As per Table 3.11, most companies in both industries were found to be "*Mature*" according to their "Life Cycle Stages" and "Successful Firms" according to their profile each year. Companies continued developing as per the percentage indicates. The highest is found to be in the year 2019.

The second most companies found in the life cycle stages and profiles of these firms are "*Growth"* according to the *LCS and "Growing Firms"* according to its profiles. From 2015 to 2018, the trend in these years was found to slightly increase and/or decrease. However, the last FY 2019 is showing a steep decline. As explained for the patterns, this sudden change may be due to

either moving these companies to the mature or growth stage. This fact is said based on the increment seen in *"Patten 2"* significantly jumping from 103 to 117.

The "*Introduction"* life cycle stage also revealing a considerable number of firms in all years. For instance, in 2015, 47 companies were found to be in the "*Introduction"* according to its life cycle stage and "*Young firms"* according to its profiles. Following the next year 2016, 31 companies were found to be in the stage which is gently decreasing until 2019. Once again, based on the thorough analysis of their cash flow statements, these firms have developed to get into the "*Mature"* or *"Growth"* stages whilst their profiles will remain to be *"Successful Firms"* and "*Growing Firms".* On the other hand, the stages and profiles of other firms are not found significantly to comment and further research as they are expected to improve their cash flow management in the future ahead.

3.4. COMPARISONS BETWEEN INDUSTRIES & SECTORS

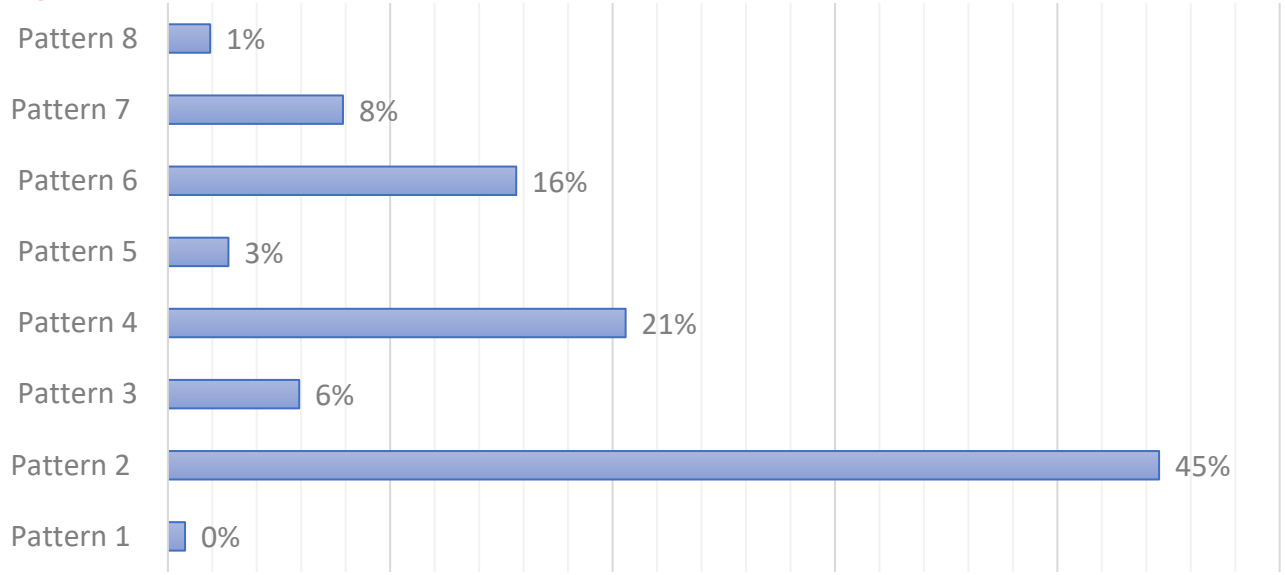
We have thoroughly conducted the distributions cash flow patterns in these firms for their life cycle stages and profiles yearly having considered all sectors into consideration. Now, the distributions of cash flow patterns among sectors are analysed by finding, analysing and presenting the output in these sectors. To mention again, the sample population for this study was composed of two industries categorised under sub-sectors for the analysis purpose. Industry one is comprised of 10 sectors whilst industry two is comprised of 6 sectors. Hence, comparisons are made to find out whether the distributions of cash flow patterns and sectors are normal or not.

3.4.1. Comparison between "Manufacturing" and "Service" Industries

Both industries under including its sectors are compared for the distribution of cash flow patterns and life cycle stages and the result is shown by each pattern percentage for the number of companies in each industry. The results are presented by the different charts.

3.4.1.1. Manufacturing Industry 165 Firms

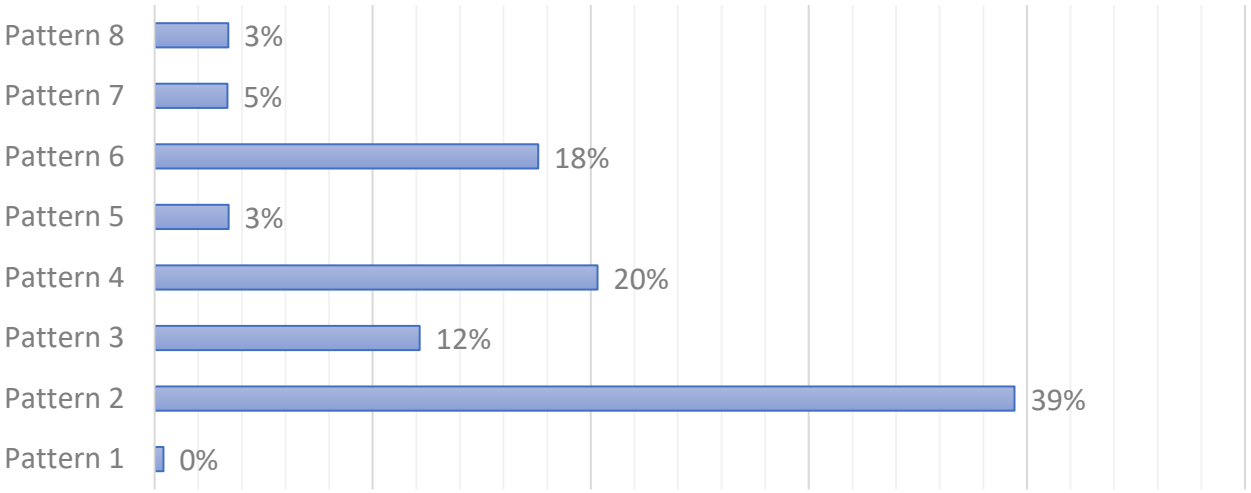
Figure 3.5. Bar graph of Manufacturing Industry for distribution of patterns 165 Firms



In the above figure 3.5, this industry represents "Manufacturing Companies". As shown in the clustered bar chart, 45% of the companies were found to be in the *pattern 2 "Successful business"* following the next pattern 4 representing "*Growing business"* while the third highest per cent i.e. 16% were found in *pattern 6.* On the other hand, *patterns 1,3,5,7 & 8* were found to carry little risk of deteriorating their operations as they will continue their operations to become successful businesses or continue to grow.

3.4.1.2. Service Industry 59 Firms

Figure 3.6. Bar graph of the Service Industry for distribution of patterns 59 Firms.



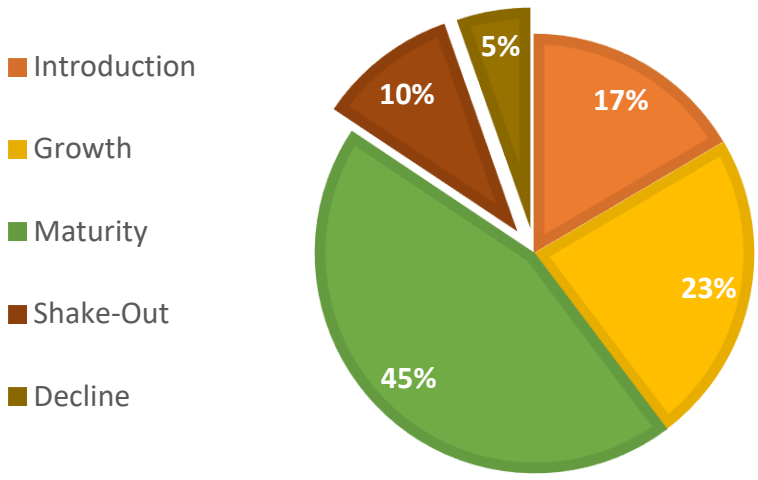
In the above Figure 3.6, the industry represents "Services" and includes 6 other sectors. As shown in the clustered bar chart, 39% of the companies were found to be in the "*pattern 2" "Successful business"* following the next pattern 20% in "*pattern 4"* representing "*Growing business"* while the third-highest percentage was found in "*pattern 6".* The data was distributed between the years 2015-2019 for the cash flow patterns. 12% of the businesses that were found in patterns 3 "Shake-Out" as an alarm in the service industry which must improve to recovery its position to either *pattern 2* or *pattern 4.* Hence, these companies will be separately identified their relevant sector and will be investigated to improve their cash flow management to avoid liquidation and perform well.

In conclusion, the manufacturing industry performed well than the service industry during the five-year analysis period by comparing pattern 2 of both industries. However, *pattern 4* and *pattern 6* remained almost the same as there is no big change between these two patterns. The difference in pattern 4 of both industries is only 6%. Consequently, it is observed that firms in all sectors performed well but for the other patterns, companies are expected to concentrate on their cash flow management as it has become extremely indispensable for the business today.

3.5. LIFE CYCLE STAGES OF THE FIRMS

According to the study of (Dickinson, 2011) for cash flow stages of firms, the following graphs are provided to reveal the results obtained for the distributions of 224 firm year-observations.

Figure 3.7. Pie chart for distributions of 224 firms yearly for Life Cycle Stages



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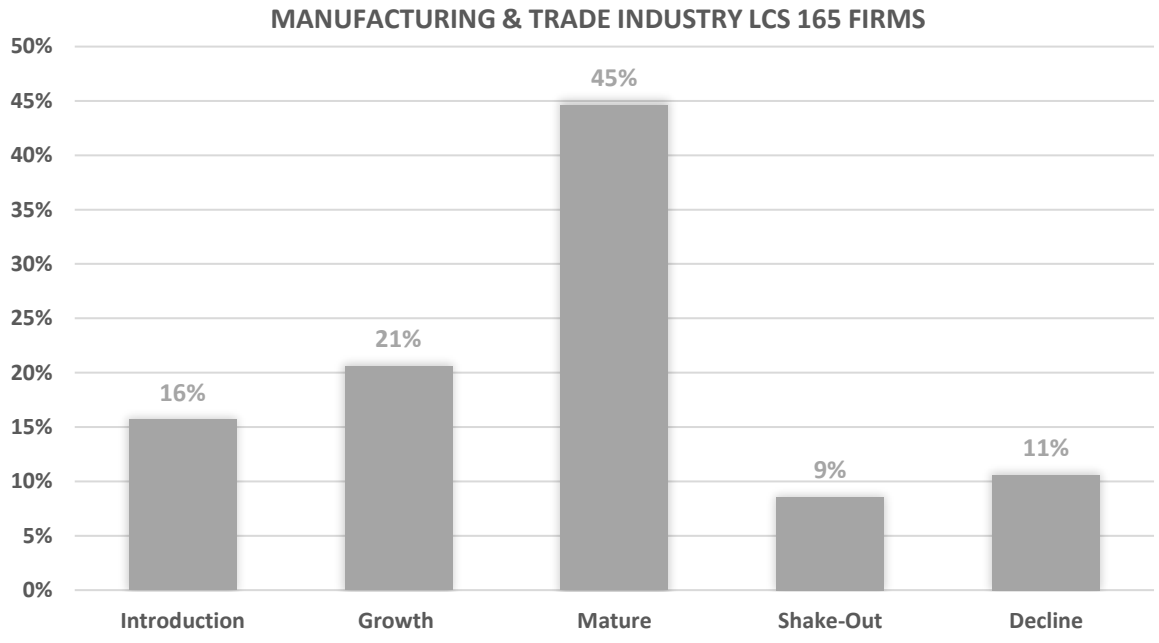
The pie chart above displays that during the distribution of 224 firms, the result reveals that 45% of the firms were in the "Maturity" stage the highest percentage compared to other cash flow life cycle stages. 23% of the firms were in the "Growth" stage whilst 17 % of the firms were in the "Introduction" stage. The other 15% are 'Shake-Out', and the "Decline" stages make only 0.17% of the other stages which sheds light on the weak management of keeping their cash flow statement throughout the periods. Some of these companies were found to have availed short- and long-term loans from the internal banks in Turkey.

The government is making every effort to support these small and medium enterprises in case anything happens either inside or globally. Further, the cash flow statements of all firms were thoroughly analysed and found that companies were adapting international accounting principles and Turkish Accounting Standards as well. On the other hand, shareholders also try to inject new capital to keep running the business and avoid being liquidated.

3.6. ASSESSMENT BETWEEN 'MANUFACTURING AND SERVICE INDUSTRIES FOR LIFE CYCLE STAGES OF FIRMS

3.6.1. Life Cycle Stages for the Manufacturing Industry

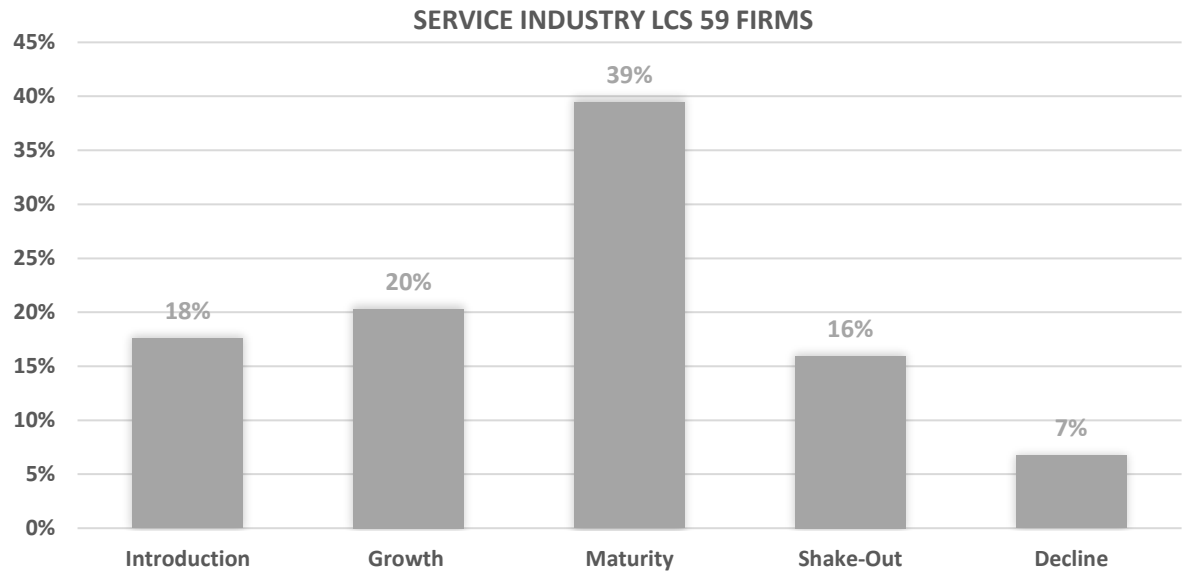
Figure 3.8. Bar graph for distributions of 165 firms in the Manufacturing industry for firms' Life Cycle Stages.



The clustered column above shows that 45% of the firms in this industry were in the "Mature" stage, the greatest number of firms found in this category. 21% of the firms were found in the "Growth" stage whilst 16% of the firms were found in the "Introduction" stage. This industry seems very productive, active and used international standards to keep their cash flow management as per the international standards and principles. The *"Shake-Out*" and "*Decline*" stages contain only 0.24% of the other stages. The data of the above bar graph with the number of firms in each stage is provided through Annex 17 on page 113.

3.6.2. Life Cycle Stages for the Service Industry

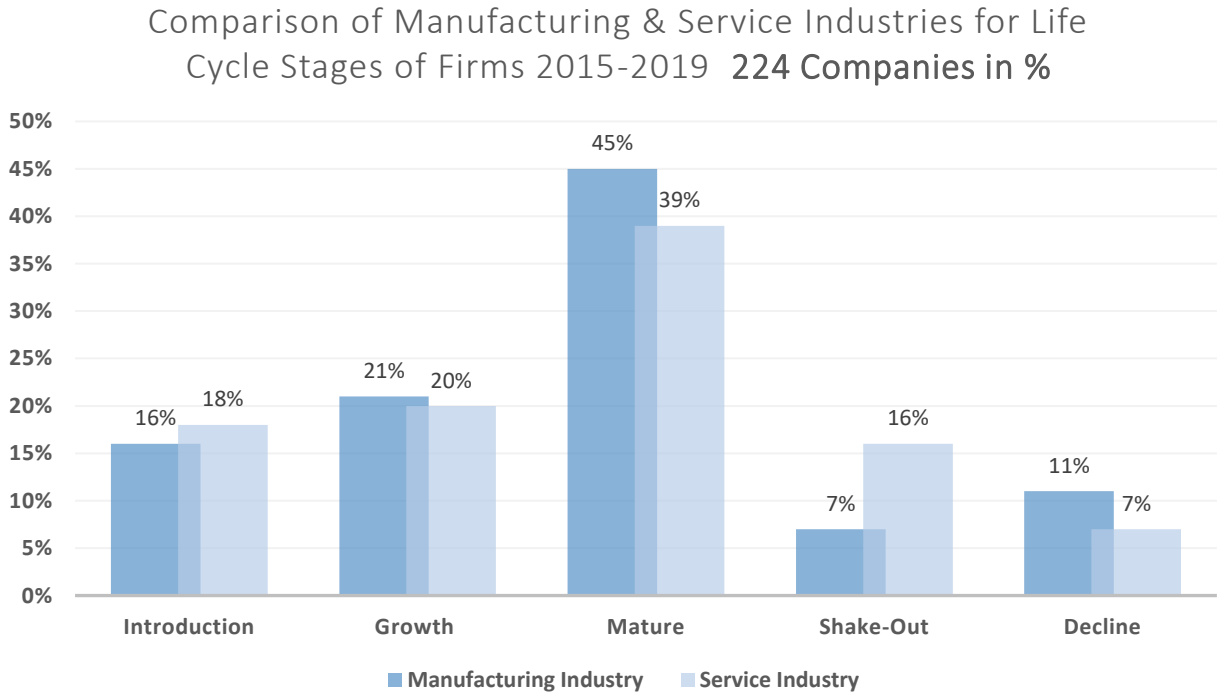
Figure 3.9. Bar chart for distributions of 59 firms in the Service industry for firms' Life Cycle Stages.



The bar graph above highlights that 39% of the firms in this industry were in the "Mature" stage similar to the manufacturing industry with only a slight difference of 6%. On the other hand, 20% of the firms were found in the "Growth" stage only less than 1% of the first industry whilst 18% of the firms were found in the "Introduction" stage that is more than 2% of the first industry. However, unfortunately, this industry contains 16% of the firms in the "Shake-Out" stage which attracts the researcher attention to research more and figure out solutions to these companies. Firms in the service industry also seem productive, active and attempted to maintain their cash flow statements as required but firms in the manufacturing industry properly maintained their cash flow statements. The "Shake-Out" and "Decline" is 30% of the other stages.

We are further looking that how 30% of the firms are weak and were found in the Shake-Out and Decline stage by making comparisons between the sectors in the service industry. The analysis was carried out using SPSS version 25. However, it was not possible to investigate the difference between the two industries using SPSS software. Therefore, only sector to sector comparisons was possible to perform to understand the reasons behind these companies' life cycle stage in the "Shake-out" and "Decline". The data of the above bar graph with the number of firms in each stage is provided through Appendix 18 on page 113.

Figure 3.10. Bar graph for comparison of Manufacturing and Service industries for firms' life cycle stage between the years 2015-2019.



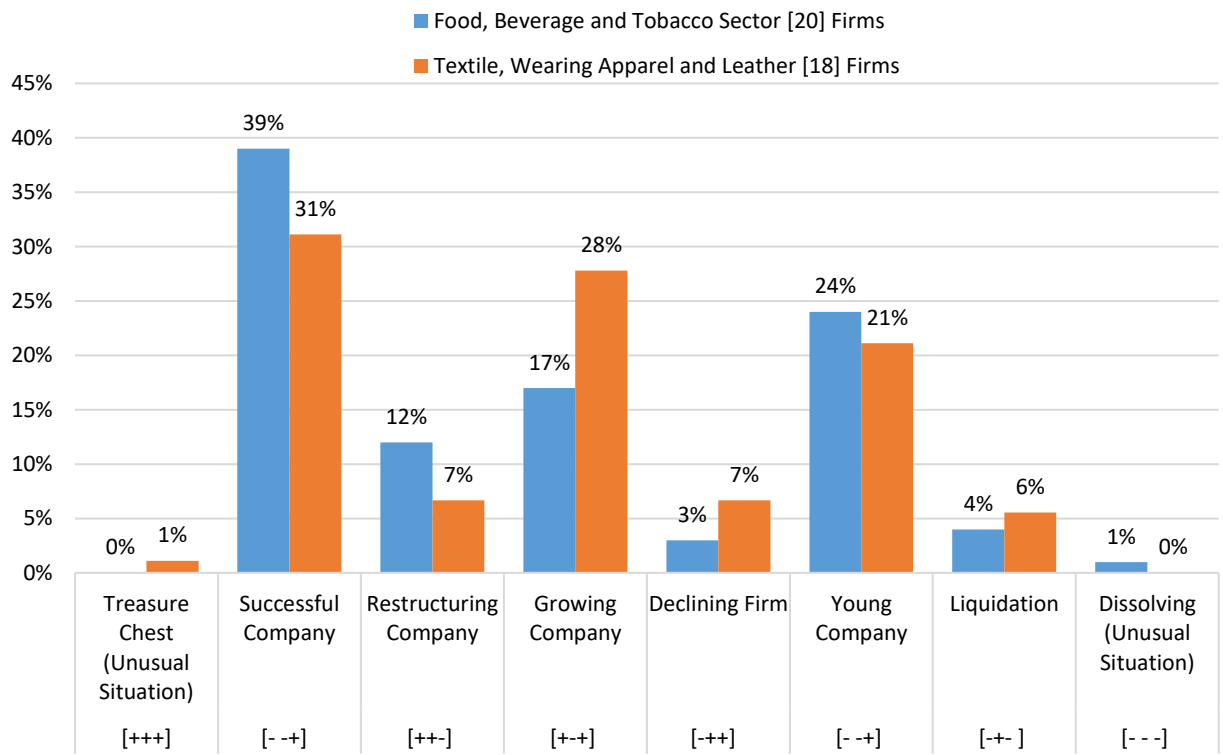
As shown in Figure 3.10, "*Growth*" and *"Mature*" stages of the selected firms for the manufacturing industry is crossing the service industry. It means during the selected period; the manufacturing industry's cash flow management and activities were maintained well. On the other hand, no significant difference was found in the "Introduction" stage of both industries. However, the most striking outcome was observed in the "*Shake-Out*" and "*Decline"* life cycle stages for the firms. This is an expected result as we were expecting the service industry to have good cash flows management than the manufacturing industry.

One piece of information expresses concern that firms under the service industry must adopt effective policies to recover back to the growth or mature stages. During the analysis of the firms under the service industry, there were some bad decisions taken which may have affected their cash flow statements. Therefore, comparing two industries somehow becomes difficult to figure out those specific companies whose cash flow statements were found in the "Shake-out" stage unless each sector in both industries is compared.

In the next step, we have done a sample comparison of various sectors for the cash flow patterns in both industries to understand the economic conditions and stability of the firms. The data of the above bar graph with the number of firms in each stage is provided through Appendix 19 on page 113**.**

3.6.3. Comparison of two sectors in the Manufacturing industry 01

Figure 3.11. Bar graph for comparison of "Food, Beverage & Tobacco" vs. the "Textile, Wearing Apparel and Leather" sectors for the cash flow patterns and profiles.



In the above bar graph 3.11, comparisons have been made between two sectors in the same industry between the years 2015-2019. According to the cash flow patterns and cash flow profiles,

the Food, beverage and tobacco sector has been found more functional, more successful in all patterns. However, it is observed that only in pattern 4, textile, wearing and leather sector was found better than the first sector. For instance, in the first sector, 17% of the firms were in the "*Growing Company"* while 28% of the companies were found in the second sector. Meanwhile, the highest percentage for both sectors was found in pattern 2 which is "*Successful Company".* As far as "*Young Company"* is concerned, there is a slight difference between both sectors. The main concern is for the "*Restructuring Company"* for both sectors which the study finds 12% for the food, beverage and tobacco sector compared to only 7% in the textile, wearing and leather sector.

3.6.4. Comparison of two sectors in the Manufacturing industry 02

Figure 3.12. Comparison of "Paper and Paper Products, Printing and Publishing" vs. the "Non-Metallic Mineral Products" sectors for the cash flow patterns and life cycle stages.

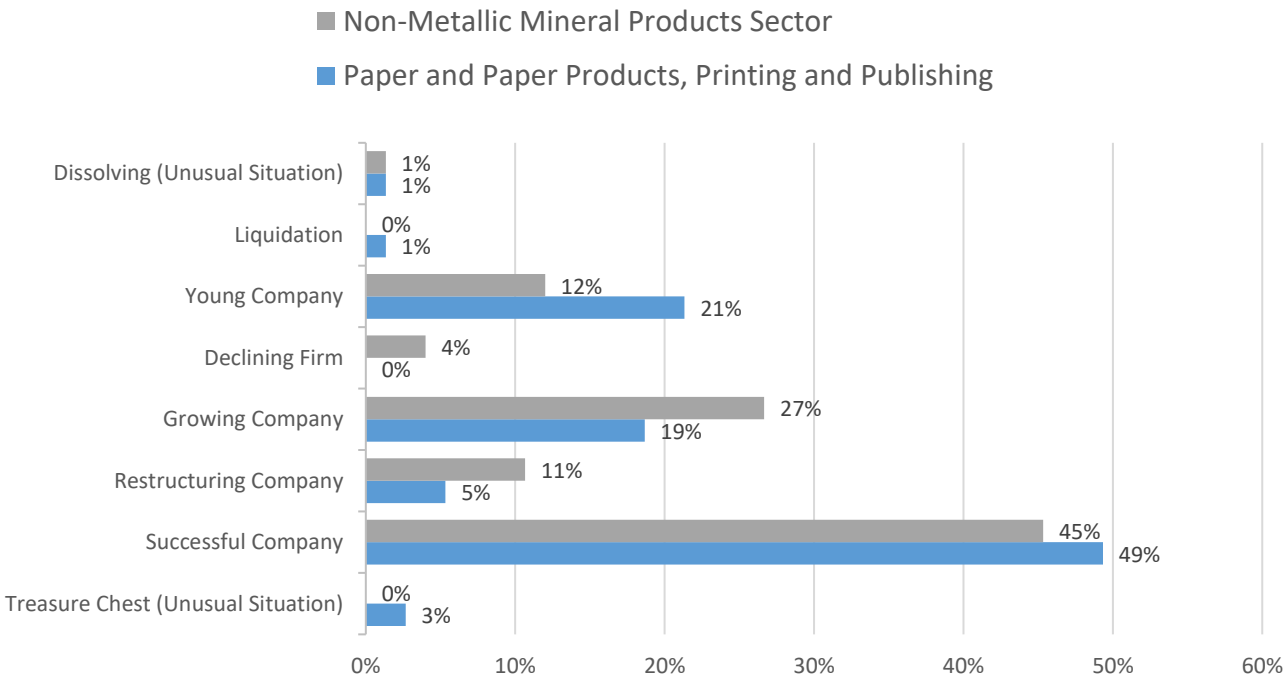


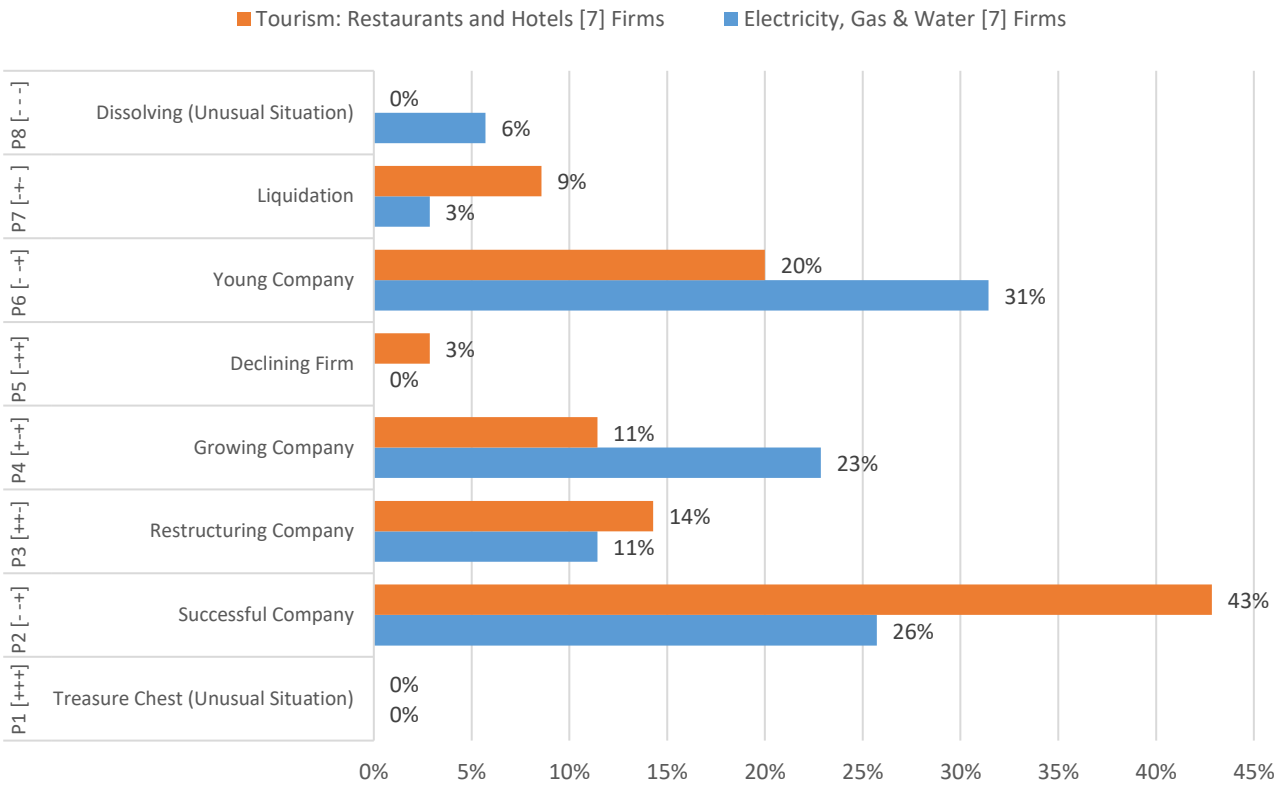
Figure 3.12 above illustrates the comparisons of two sectors in the manufacturing industry having the same number of companies with the distributions of firms for cash flow patterns and profiles of the business were analysed between the period 2015-2019. As shown in the figure, the result of both sectors has found most firms as "*Successful Company"* pattern 2 explained by (Bruwer and Hamman, 2005) as the life cycle theory for the firms with a slight difference of both sectors. However, the next profile that found most companies was "Growing Company" under

pattern 4 by 8% difference between both sectors indicating "Non-Metallic and Mineral Sector" performed better than "Paper, Printing & Publishing Products" sector.

Meanwhile, we also found another big difference between the "Young Companies" under pattern 6. Here, "Paper, Printing & Publishing Products" performed well by having 9% difference between both sectors. As a result, we can say that according to the distribution of firms for cash flow patterns, both sectors found were parallelly found "Successful Companies" and "Growing Stages".

3.6.5. Comparison results of two sectors in the Service industry

Figure 3.13. Comparison of "Tourism: Restaurants & Hotels" vs. the "Electricity, Gas & Water" sectors for the cash flow patterns and profiles.



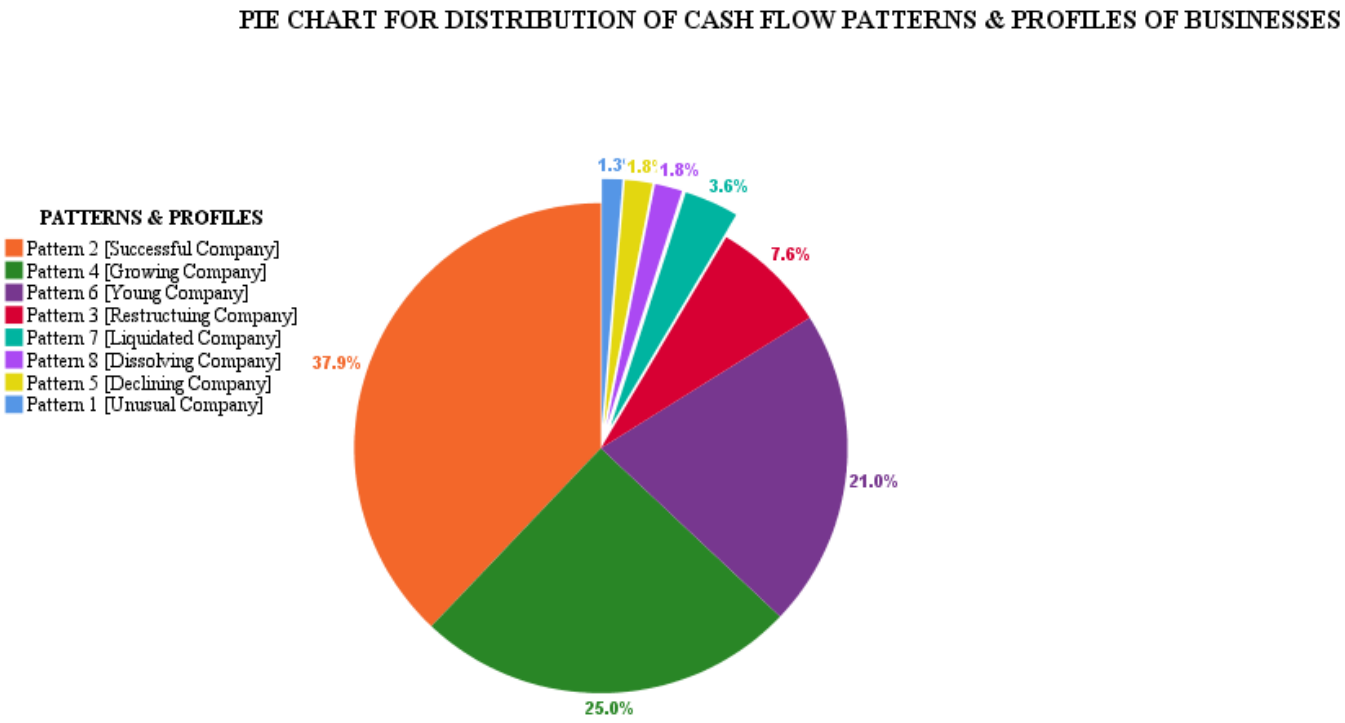
What stands out in this figure is the general distributions of cash flow patterns between two sectors to find out the profiles of the firms by the method of (Gup & et, al. 1993). As shown in the figure, 43% of the firms were found in pattern 2 which is representing "*Successful Company"* in the tourism sector whilst 26% were found in the electricity, gas and water sector. This is a key finding that tourism performed better than the electricity, gas and water sector. The current results

are significant in at least two respects. One is that Turkey is a destination of tourism for foreigners for many years. Therefore, most companies in the tourism sectors were found in the successful category.

The electricity, gas and water sector is generally performing well in this country, but as the economy is a little going down, people try to avoid consuming much than before. This difference is only for pattern 2. In "*Young"* and "*Growing"* cash flow profiles, EGW, performed better than tourism. We find the measurement of performance of these firms is based on the distributions of cash flow patterns by looking at the signs of cash flow components and get our result based on the method this study is based upon.

3.6.6. A comparison of two years (2015 vs 2019) pattern distributions in the manufacturing industry

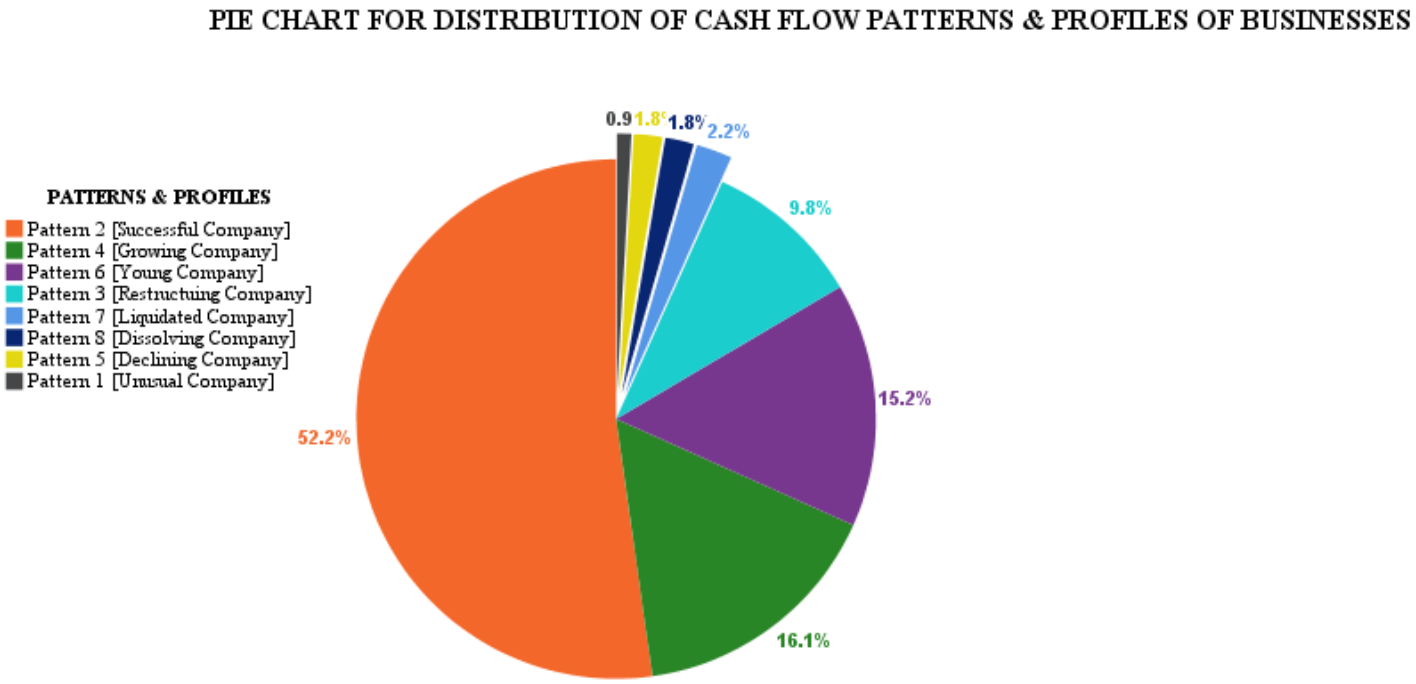
Figure 3.14. Pie chart for distributions of 224 firms' percentage in each pattern for cash flow profiles for the FY 2015



The above pie graph is the output from the SPSS indicating the distribution of firms for cash flow patterns in 224 sample firms to know the profiles of businesses for the year 2015. The figure shows **37.9%** of the companies were found in **pattern 2** which is "**Successful business".**

The next most firms that were found is **pattern 4 with 25%** which is "Growing business' while **20.9%** of the companies were found in **pattern 6** which is the "Introduction" stage. Other patterns are showing less than 10% of the companies under the shake-out and decline stages which will be taken into consideration by comparing the 2019 data.

Figure 3.15. Pie chart for distributions of 224 firms' percentage in each pattern for cash flow profiles for the FY 2019



The above pie chart is the output from the SPSS chart building carried out for patterns distribution of 224 firms for the year 2019. The figure shows 52.23% of the companies were found in pattern 2 which is said to be "Successful business". To compare with the figure of the year 2015, there is a 14.28% increase in this year's result. It means, companies in this pattern handled the management of their cash flow statement of all three components as per international and standard rules. Nonetheless, pattern 4 and 6 of this year's results are vice-versa showing a lower percentage than the year 2015. Surprisingly, there is almost 10% of the firms in "*Pattern 3"* which is the "*Shake-Out".* The patterns of these firms were found irregular and to specifically know who these companies are, the list is provided at the end of this thesis.

3.6.7. Sectoral Comparisons for Manufacturing Industry 165 firms

Table 3.12. Sectoral distributions of firms' cash flow patterns, life cycle stages & profiles of businesses in the Manufacturing Industry

Patterns (Gup et. al. 1993)	(Dickinson 2011)	Food, Beverage and Tobacco		Chemicals, Petroleum Rubber and Plastic Products		Mining and Quarrying		Basic Metal		Fabricated Metal Products Machinery Electrical Equipment and Transportation Vehicles*		Paper and Paper Products, Printing and Publishing**		Non-Metallic Mineral Products***		Textile, Wearing Apparel and Leather		Construction and Public Works		Consumer Trade		Total	
Profiles (Bruwer and Hamman, 2005)	**Life Cycle Stages**	**Obs.**	**Perc**	**Obs.**	**Perc**	**Obs.**	**Perc**	**Obs.**	**Perc**	**Obs.**	**Perc**	**Obs.**	**Perc**	**Obs.**	**Perc**	**Obs.**	**Perc**	**Obs.**	**Perc**	**Obs.**	**Perc**	**Obs.**	Perc
Pattern 6 [Young Company]	Introduction	5	24.0	4	16.3	0	0.0	2	12.6	4	12.9	3	21.3	2	12.0	4	21.1	2	25.0	2	11.4	28	15.7
Pattern 4 [Growing Company]	Growth	3	17.0	9	31.9	0	0.0	4	22.1	8	28.6	3	18.7	4	26.7	5	27.8	1	17.5	2	15.7	40	20.6
Pattern 2 [Successful Compahy]	Mature	8	39.0	12	43.7	0	40.0	10	51.6	13	45.7	7	49.3	7	45.3	6	31.1	3	40.0	8	60.0	74	44.6
Pattern 1 [Treasure Chest (Unusual Company] Pattern 3 [Restructuring Company] Pattern 8 [Dissolving (Unusual Situation)]	Shake-Out	3	13.0	2	6.7	0	0.0	2	8.4	2	7.1	1	9.3	2	12.0	1	7.8	1	10.0	2	11.4	15	8.6
Pattern 5 [Declining Firm] Pattern 7 [Liquidation]	Decline	1	7.0	0	1.5	1	60.0	1	5.3	2	5.7	0	1.3	1	4.0	2	12.2	1	7.5	0	1.4	9	10.6
		20	100.0	27	100.0	1	100.0	19	100.0	28	100.0	15	100.0	15	100.0	18	100.0	8	100.0	14	100.0	165	100.0

Source: Author

This combination of findings in the manufacturing industry regarding 10 sectors provides some support for the conceptual premise that the distribution of cash flow patterns among sectors is found to be normal. These results suggest that three patterns naming "Pattern 6,4,2" were found to be satisfactory. As seen in the above table, 44.6% of the firms were in "*Pattern 2"* containing 74 firms said to be "*Successful businesses"* or "*Mature"*. On the other hand, 20.6% of the firms were found in "*Pattern 4"* representing "*Growing businesses" or in the "Growth" stage whilst 15.7% of the firms were seen in "Pattern 6" indicating they were "Young Companies"* or in the "*Introduction"* stage.

Unfortunately, these findings are rather difficult to interpret to certify firms found under other patterns were due to weak management of cash and business operations. However, based on the results, the percentage is reaching only 9% and 11% for these companies.

3.6.8. Sectoral Comparisons for Service Industry 59 Firms

Table 3.13. Sectoral distribution of firms in the Service industry for patterns, LCS & profiles of business

Patterns (Gup et. al. 1993)	(Dickinson 2011)	Electricity Gas and Water		Sports		Toursim: Restaurants and Hotels		Transportation and Storage		Technology		Information Technology and Telecommunication		Total	
Profiles (Bruwer and Hamman, 2005)	**Life Cycle Stages**	**Obs.**	**Perct.**	**Obs.**	**Perct.**	**Obs.**	**Perct.**	**Obs.**	**Perct.**	**Obs.**	**Perct.**	**Obs.**	**Perct.**	**Obs.**	**Perct.**
Pattern 6 [Young Company]	Introduction	2	31.4	1	20.0	1	20.0	0	5.0	2	15.0	2	14.1	10	17.6
Pattern 4 [Growing Company]	Growth	2	22.9	1	25.0	1	11.4	2	20.0	4	23.8	3	18.8	12	20.3
Pattern 2 [Successful Compahy]	Mature	2	25.7	1	15.0	3	42.9	4	55.0	7	46.3	9	51.8	26	39.4
Pattern 1 [Treasure Chest (Unusual Company] Pattern 3 [Restructuring Company] Pattern 8 [Dissolving (Unusual Situation)]	Shake-Out	1	17.1	1	25.0	1	14.3	1	15.0	2	11.3	2	12.9	8	15.9
Pattern 5 [Declining Firm] Pattern 7 [Liquidation]	Decline	0	2.9	1	15.0	1	11.4	0	5.0	1	3.8	0	2.4	3	6.7
		7	100.0	4	100.0	7	100.0	8	100.0	16	100.0	17	100.0	59	100.0

Source: Author

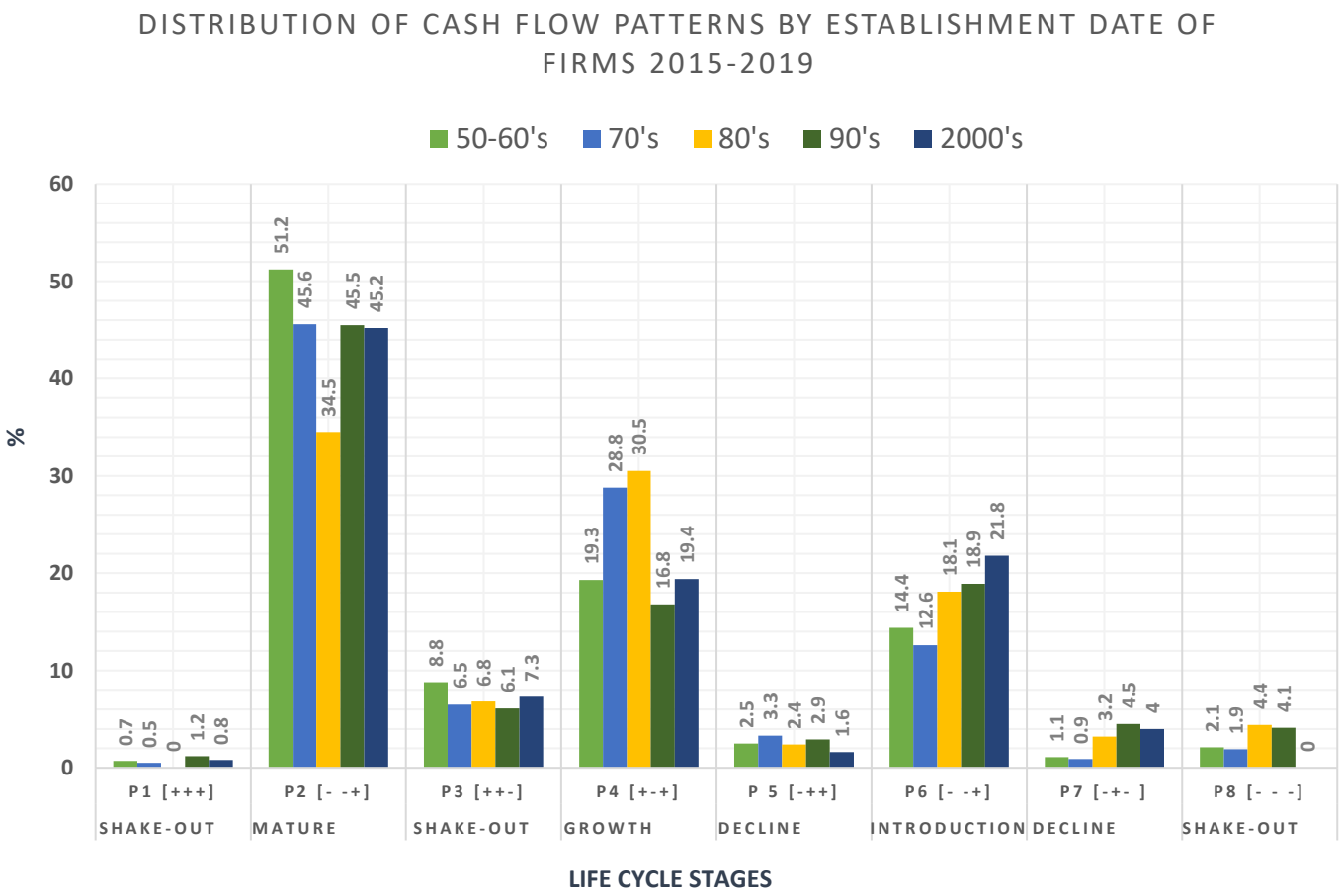
The result of this table is expressing very normal distributions of cash flow patterns among these sectors. This combination of findings in the service industry containing 06 sectors provides some support for the conceptual premise that is like the manufacturing industry.

These findings suggest that three patterns naming "Pattern 6,4,2" were found to be similar to the manufacturing industry as provided on the previous page. The result of this analysis indicates that 39% of the firms were in "*Pattern 2"* containing 26 firms as said to be "*Successful or Mature businesses"*. However, 21% of the firms were found in "*Pattern 4"* representing "*Growing businesses" or in the "Growth" stage whilst 16% of the firms were observed in "Pattern 6" indicating "Young Companies"* or having been categorised in the "*Introduction"* stage as per the life cycle stages of the business.

Comparison of two industries' results reveals that the manufacturing industry was performing well than the service industry, but it is difficult to conclude on these final words, there could be other reasons as to how this industry's output was not satisfactory compared to the first industry. On the other hand, the service industry in Turkey is functioning well in all sectors but this requires time to further develop and by acquiring customers satisfaction.

3.6.9. Analysis based on the establishment date of firms via bar chart presentation

Figure 3.16. Distributions of cash flow patterns, life cycle stages and profiles for all sectors based on firms' establishment between 2015-2019



The purpose of this analysis is to know whether the establishment dates of the firms had any relationship with the distribution cash flow patterns. A major advantage of this analysis was to figure out if companies kept changing their patterns, life cycle stages or profiles between the years 2015-2019. These firms were firstly specified according to their date of establishments beginning from 50-60s to 2000s and then signs of cash flow components were distributed for five years period. This type of analysis and assessment is being conducted for the first time in such type of study and has been found very useful to get a productive output from the research.

Firstly, looking at "*Pattern 2" "Mature Stage" was* found for firms that have been established from 50s to 2000s. The second most companies had established is the "*Growth Stage"* stage and following the "*Introduction Stage"*. For instance, in 50-60s, mature companies were found by 51.2%, but in the 70s it was found to be 8.8% whilst that increased to the next life cycle stage by 19.3%. Now, if we consider the trendline based on the series 50-

60s to 2000s, the line will show a decrease by less percentage which means that companies that were in the mature stage did not fall under decline or shake-out stages and remained mature.

The graph only finds one error of deviation for the companies in the 2000s is that in the growth stage, 19.4% companies were found, but then this percentage declined to the pattern 6 which is the introduction stage of the companies. Overall, companies did not fall under unusual or declining situations while looking at their establishment dates. However, the study also finds firms that were established in the 2000s onwards, slipped from the "*Mature"* stage to the "*Decline"* and "*Shake-Out"* stages. Mostly these companies were young and did not have adequate experience of being in the market as a result they either did not follow proper standard operating procedures or failed to operate to compete with competitors.

3.7. RELATIONSHIP BETWEEN TRADITIONAL RATIOS AND CASH FLOW PATTERNS

Before applying linear regression analysis, significance tests (One-Sample t-tests) and other required calculations have been done at the beginning of this chapter such as frequency calculations for signs of cash flow components, distribution of cash flow patterns, life cycle stages and profiles of the sample firms have been thoroughly explained by presenting bar charts, pie charts, tables etc. Now, the remaining required methods will explain the statistical analysis using the SPSS programme by understanding where cash flow patterns and these sample ratios have any relationship and their level of significance. Therefore, we will use these statistical tools to find out the relationship between patterns and traditional ratios such as return on assets (ROE), return on equity (ROA), price to book value (PBV) and price to sales ratio (PS) and results will be interpreted and presented by various graphic charts and tables and so on.

Note: We wanted to include price to earnings (P/E) ratio in the study as well. However, during the collection of ratios for all firms, this ratio was unavailable for most years i.e. 2015, 2016, 2019. As a result, it was excluded from the study. Further, as the sample data is for five consecutive years starting from 2015 to 2019, the analysis has been done yearly for a couple of years for each stipulated ratio and then jointly for all years with all ratios to understand if cash flow patterns have any relationship have with the sample ratios and their level of significance and variance and will discuss the interpretations of the estimates of different regression parameters.

Table 3.14. Rules specified to the SPSS program for performing statistical analysis.

SIGNS	SPSS RULE	PATTERNS	LIFE CYCLE STAGES	PROFILES
(+++)	**111**	**Pattern 1 = Unusual Situation**	**Shake-Out**	**Unusual Firms**
(+- -)	122	Pattern 2 = Mature & Successful	Maturity	Successful Firms
(++-)	112	Pattern 3 = Restructuring	Shake-Out	Restructuring Firms
(+-+)	121	Pattern 4 = Growing, Expanding	Growth	Growing Firms
(-++)	211	Pattern 5 = Unusual Situation	Decline	Declining Firms
(- -+)	221	Pattern 6 = Young, Fast-growing	Introduction	Young Firms
(-+-)	212	Pattern 7 = Unusual Situation	Decline	Liquidated Firms
(- - -)	222	Pattern 8= Unusual Situation	Shake out	Unusual Firms

To find and assess the strength of relationship between return on equity (ROE) and cash flow patterns, we used multiple linear regressions. Therefore, the dependent variable (DV) is "Patterns", and the independent variables (IV)/constants are the sample financial ratios mentioned below. We consider below formula/regression model for the linear regression.

$\hat{y} = b_0 + b_1x + b_2x_2 + \ldots\ldots + b_4x_4 + e$ Multiple Linear Regressions

$\hat{y}$: dependent variable **Cash Flow Patterns**
b_0: is the y-intercept which is constant.
b_1: is x's slope or coefficient/line.
x: independent variable(s) **Ratios (ROE, ROA, P/BV, PS)**
e: is the error term

3.7.1. Multiple Linear Regression analysis for Cash Flow Patterns & ratios of all sectors for the year 2015

Multiple linear regression analysis was run on cash flow patterns and ratios to find the relationship and their significance for the 2015-year firms' observations. The dependent variable (DV) is "Patterns 2015 and independent variables are all ratios jointly for finding a relationship or correlation among the variables. The analysis is specifically aimed to find whether these traditional ratios carry a significant relationship to cash flow patterns or have any correlation with cash flow patterns in this specific year. Hence, the dependent variable "Patterns 2015 was regressed on predicting variables and interpretation of the result is provided below together with tables. Below are the multiple linear regression Model Summary, ANOVA and Coefficient tables to reach our conclusions of the analysis.

Table 3.15. Multiple Linear Regression Model Summary for Patterns 2015 & sample ratios 2015

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.233[a]	.054	.037	43.853

a. Predictors: (Constant), PS ratio 2015, ROE 2015, PBV 2015, ROA 2015

3.25a. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24271.057	4	6067.764	3.155	.015[b]
	Residual	421153.496	219	1923.075		
	Total	445424.554	223			

a. Dependent Variable: Patterns 2015

b. Predictors: (Constant), PS ratio 2015, ROE 2015, PBV 2015, ROA 2015

3.25b. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	149.619	3.858		38.783	.000
	ROE	.019	.078	.018	.248	.804
	ROA	-.937	.281	-.242	-3.330	.001
	PBV	.874	.973	.060	.898	.370
	PS	.169	1.295	.009	.131	.896

a. Dependent Variable: Patterns 2015

Interpretation of the Result:

The multiple linear regression analysis was run to obtain results if cash flow patterns of the year 2015 had any significant relationship with these ratios. The results reveal that there is a positive relationship among the variables but not statistically significant except ROA 2015 ratio since the p-value is less than .05. The significant value of the dependent variable Patterns 2015 is also less than .05, so its relationship /correlation with other ratios except for return on assets is not statistically significant. Moreover, $R^2=.054$ depicts that the model explains 5.4% of the variance in patterns between the variables.

3.7.2. Multiple Linear Regression analysis for Cash Flow Patterns & ratios of all sectors for the year 2016

Multiple linear regression analysis was run on cash flow patterns and ratios to find the relationship and their significance for the 2016-year firms' observations. The dependent

variable (DV) is "Patterns 2016 and independent variables are all ratios jointly for finding a relationship or correlation among the variables. The analysis is specifically aimed to find whether these traditional ratios carry a significant relationship to cash flow patterns or have any correlation with cash flow patterns in this specific year. Hence, the dependent variable "Patterns 2016 was regressed on predicting variables and interpretation of the result is provided below together with tables. Below are the multiple linear regression Model Summary, ANOVA and Coefficient tables to reach our conclusions of the analysis.

Table 3.16. Multiple Linear Regression Model Summary for Patterns 2016 & sample ratios 2016

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.275[a]	.076	.059	41.958

a. Predictors: (Constant), PS ratio 2016, ROA 2016, PBV 2016, ROE 2016

3.26a. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31520.853	4	7880.213	4.476	.002[b]
	Residual	385544.504	219	1760.477		
	Total	417065.357	223			

a. Dependent Variable: Patterns 2016

b. Predictors: (Constant), PS ratio 2016, ROA 2016, PBV 2016, ROE 2016

3.26b. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	145.651	3.693		39.440	.000
	ROE	.008	.009	.063	.965	.336
	ROA	-1.017	.273	-.245	-3.732	.000
	PBV	.915	.980	.061	.933	.352
	PS	1.342	.817	.107	1.643	.102

a. Dependent Variable: Patterns 2016

Interpretation of the Result:

The multiple linear regression analysis was used to obtain results if cash flow patterns of the year 2016 had any significant relationship with these ratios. The results reveal that there is a positive relationship among the variables but **not** statistically significant except ROA 2016 ratio since the p-value is less than .05. The significant value of the dependent variable Patterns 2016 is also less than .05, so its relationship /correlation with other ratios except for return on

assets is not statistically significant. Moreover, R^2=.076 depicts that the model explains 7.6% of the variance in patterns between the variables.

3.7.3. Multiple Linear Regression analysis for Cash Flow Patterns & ratios of all sectors for the year 2017

Multiple linear regression analysis was carried out on cash flow patterns and ratios to find the relationship and the level of significance for the 2017-year firms' observations. The dependent variable (DV) is "Patterns 2017 and independent variables are all ratios jointly for finding a relationship or correlation among the variables. Hence, the dependent variable "Patterns 2017" was regressed on predicting variables and interpretation of the result is provided below together with tables. Below are the multiple linear regression Model Summary, ANOVA and Coefficient tables to reach our conclusions of the analysis.

Table 3.17. Multiple Linear Regression Model Summary for Patterns 2017 & sample ratios 2017

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.137[a]	.019	.001	43.610

a. Predictors: (Constant), PS ratio 2017, ROE 2017, PBV 2017, ROA 2017

27a. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8020.852	4	2005.213	1.054	.380[b]
	Residual	416500.576	219	1901.829		
	Total	424521.429	223			

a. Dependent Variable: Patterns 2017

a. Predictors: (Constant), PS ratio 2017, ROE 2017, PBV 2017, ROA 201

3.27b. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	149.188	3.906		38.192	.000
	ROE	.032	.045	.051	.721	.472
	ROA	-.663	.332	-.142	-1.996	.047
	PBV	-.089	.230	-.026	-.388	.698
	PS	.560	1.327	.028	.422	.674

a. Dependent Variable: Patterns 201

Interpretation of the Result:

The multiple linear regression analysis was used to assess the relationship between the cash flow pattern and the financial ratios. The results reveal that there is a positive relationship among the variables but not statistically significant as the p-value is greater than .05 for all predictors. Moreover, R^2=*.019* depicts that the model explains 19% of the variance in patterns between the variables. Hence, there is no significant relationship between the dependent variable Patterns and independent variables Ratios.

3.7.4. Multiple Linear Regression analysis for Cash Flow Patterns & ratios of all sectors for the year 2018

Multiple linear regression analysis was run on cash flow patterns and ratios to find the relationship and their significance for the 2018-year firms' observations. The dependent variable (DV) is "Patterns 2018 and independent variables are all ratios jointly for finding the relationship or correlation among the variables. The analysis is specifically aimed to find whether these traditional ratios carry a significant relationship to cash flow patterns or have any correlation with cash flow patterns in this specific year. Hence, the dependent variable "Patterns 2018" was regressed on predicting variables and interpretation of the result is provided below together with tables. Below are the multiple linear regression Model Summary, ANOVA and Coefficient tables to reach our conclusions of the analysis.

Table 3.18. Multiple Linear Regression Model Summary for Patterns 2018 & sample ratios 2018

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.235[a]	.055	.038	39.446

a. Predictors: (Constant), PS ratio 2018, ROE 2018, ROA 2018, PBV 2018

3.28a. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19945.628	4	4986.407	3.205	.014[b]
	Residual	340759.367	219	1555.979		
	Total	360704.996	223			

a. Dependent Variable: Patterns 2018

b. Predictors: (Constant), PS ratio 2018, ROE 2018, ROA 2018, PBV 2018

3.28b. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	142.822	3.168		45.079	.000
	ROE	.026	.016	.107	1.627	.105
	ROA	-.659	.215	-.202	-3.066	.002
	PBV	-.081	.124	-.043	-.652	.515
	PS	1.018	1.327	.050	.767	.444

a. Dependent Variable: Patterns 2018

Interpretation of the Result:

The multiple linear regression analysis was applied to obtain results from the analysis of whether cash flow patterns of the year 2018 had any significant relationship with these ratios. The results reveal that there is a positive relationship among the variables, but the regression model is not statistically significant except the ROA 2018 ratio since the p-value is less than .05 while the p-values of other predictors are greater than .05. So the relationship /correlation of patterns with other ratios except for return on assets is not statistically significant. Moreover, $R^2=.055$ depicts that the model explains 5.5% of the variance in patterns between the variables.

3.7.5. Multiple Linear Regression analysis between Cash Flow Patterns and ratios for sectors in the year 2019

Multiple linear regression was used on cash flow patterns and ratios to find the relationship and their significance for the 2019-year firms' observations. The dependent variable (DV) is “Patterns 2019 and independent variables are the sample ratios collectively used for finding a relationship or correlation among the variables. The analysis is specifically aimed to find whether these traditional ratios carry a significant relationship to cash flow patterns in this specific year. Hence, the dependent variable “Patterns 2019 was regressed on predicting variables and interpretation of the result is written up below together with tables. Below are the multiple linear regression Model Summary, ANOVA and Coefficient tables to reach our conclusions of the analysis.

Table 3.19. Multiple Linear Regression Model Summary for Patterns 2019 & sample ratios 2019

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.302[a]	.091	.074	38.955

a. Predictors: (Constant), PS ratio 2019, ROE 2019, PBV 2019, ROA 2019

3.29a. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33249.262	4	8312.316	5.478	.000[b]
	Residual	332332.292	219	1517.499		
	Total	365581.554	223			

a. Dependent Variable: Patterns 2019

b. Predictors: (Constant), PS ratio 2019, ROE 2019, PBV 2019, ROA 2019

3.29b. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	139.490	3.219		43.329	.000
	ROE 2019	-.040	.022	-.121	-1.813	.071
	ROA 2019	-.737	.285	-.172	-2.586	.010
	PBV 2019	.822	.466	.114	1.766	.079
	PS ratio 2019	.970	.415	.151	2.337	.020

a. Dependent Variable: Patterns 2019

Interpretation of the Result:

The multiple linear regression analysis was applied to obtain results from the analysis if cash flow patterns of the year 2019 had any significant relationship with these ratios. The results reveal that there is a positive relationship among the variables but not statistically significant except ROA 2019 ratio and PS ratio 2019 since the p-values are less than .05. Moreover, R^2=*.091* depicts that the model explains 9.1% of the variance in patterns between the variables.

3.7.6. Summary of Multiple Regression Analysis for ROE & ROA, PBV & PS ratios (IV) 2015-2019

Dependent Variables	Independent Variables	Coefficient	Standard Error	R Square	F	parameter estimates (b1)	p-value
Cash Flow Patterns, 2015	ROE, 2015	.073	3.046	.006	1.331	-.084	.250
Cash Flow Patterns, 2016	ROE, 2016	.009	2.898	.001	.212	.004	.645
Cash Flow Patterns, 2017	ROE, 2017	.042	2.930	.000	.008	.004	.930
Cash Flow Patterns, 2018	ROE, 2018	.016	2.696	.011	2.531	.025	.113
Cash Flow Patterns, 2019	ROE, 2019	.022	2.671	.030	6.852	-.058	.009

Dependent Variables	Independent Variables	Coefficient	Standard Error	R Square	F	parameter estimates (b1)	p-value
Cash Flow Patterns, 2015	ROA, 2015	.254	3.069	.051	11.825	-.872	.001
Cash Flow Patterns, 2016	ROA, 2016	.271	2.923	.056	13.228	-.986	.000
Cash Flow Patterns, 2017	ROA, 2017	.311	3.324	.015	3.367	.-570	.068
Cash Flow Patterns, 2018	ROA, 2018	.215	2.792	.038	8.870	-.640	.003
Cash Flow Patterns, 2019	ROA, 2019	.282	2.864	.038	8.693	-.830	.004

Dependent Variables	Independent Variables	Coefficient	Standard Error	R Square	F	parameter estimates (b1)	p-value
Cash Flow Patterns, 2015	PBV, 2015	.971	3.554	.001	.143	.368	.705
Cash Flow Patterns, 2016	PBV, 2016	1.010	3.462	.004	.969	.994	.326
Cash Flow Patterns, 2017	PBV, 2017	.230	3.020	.001	.165	-.093	.685
Cash Flow Patterns, 2018	PBV, 2018	.125	2.715	.003	.705	-.105	.402
Cash Flow Patterns, 2019	PBV, 2019	.477	3.042	.007	1.562	.597	.213

Dependent Variables	Independent Variables	Coefficient	Standard Error	R Square	F	parameter estimates (b1)	p-value
Cash Flow Patterns, 2015	PS, 2015	1.307	3.499	.000	.000	-.018	.989
Cash Flow Patterns, 2016	PS, 2016	.838	3.180	.012	2.647	1.364	.105
Cash Flow Patterns, 2017	PS, 2017	1.325	3.598	.000	.070	.350	.792
Cash Flow Patterns, 2018	PS, 2018	1.352	3.084	.001	.311	.754	.578
Cash Flow Patterns, 2019	PS, 2019	.427	2.834	.022	4.917	.948	.028

3.7.7. Summary of Regression Coefficients for all ratios collectively each year

Regression Coefficient for all ratios collectively (IV)				
	Coefficient	t	parameter estimates (b)	p-value
Cash Flow Patterns, 2015				.000
ROE, 2015	.078	.248	.019	.804
ROA, 2015	.281	-3.330	-.937	.001
PBV, 2015	.973	.898	.874	.730
P/S, 2015	1.295	.131	.169	.896
R Square	*.054*		*ANOVA*	*.015*

Regression Coefficient for all ratios collectively (IV)				
	Coefficient	t	parameter estimates (b1)	p-value
Cash Flow Patterns, 2016				.000
ROE, 2016	.009	.965	.008	.336
ROA, 2016	.273	-3.732	-1.017	.000
PBV, 2016	.980	.933	.915	.352
P/S, 2016	.817	1.643	1.342	.102
R Square	.076		*ANOVA*	*.002*

Regression Coefficient for all ratios collectively (IV)				
	Coefficient	t	parameter estimates (b1)	p-value
Cash Flow Patterns, 2017				.000
ROE, 2017	.045	.721	.032	.472
ROA, 2017	.332	-1.996	-.663	.047
PBV, 2017	.230	-.388	-.089	.698
P/S, 2017	1.327	.422	.560	.674
R Square	.019		ANOVA	.380

Regression Coefficient for all ratios collectively (IV)				
	Coefficient	t	parameter estimates (b1)	p-value
Cash Flow Patterns, 2018				.000
ROE, 2018	.016	1.627	.026	.105
ROA, 2018	.215	-3.066	-.659	.002
PBV, 2018	.124	-.652	-.081	.515
P/S, 2018	1.327	.768	1.018	.444
R Square	*.055*		*ANOVA*	*.014*

Regression Coefficient for all ratios collectively (IV)				
	Coefficient	t	parameter estimates (b1)	p-value
Cash Flow Patterns, 2019				.000
ROE, 2019	.022	-1.813	-.040	.071
ROA, 2019	.285	-2.586	-.737	.010
PBV, 2019	.466	1.766	.822	.790
P/S, 2019	.415	2.337	.970	.200
R Square	*.091*		*ANOVA*	*.000*

3.7.8. One-Sample T-test Statistics for the P/S ratio in the year 2019

The one-sample t-test is used in a very specific situation when we want to compare sample data to a population but specifically, is used when we do not know the population variance. In this case, we consider the Manufacturing industry which is comprised of 165 firms sample size. Now in this analysis, we will test the variables either choosing dependent or independent variable by specifying the test value of 1.5. We want to test the hypothesis that the population mean of firms in the patterns is different from the price to sales (P/S) ratio.

Table 3.20. One-Sample Statistics for Price to Sales Ratio for the year 2019

	N	Mean	Std. Deviation	Std. Error Mean
P/S ratio	165	1.6605	3.64496	.28376

3.31a. One-Sample Test

	Test Value = 1.5					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
P/S ratio	.566	164	.572	.16055	-.3997	.7208

Interpretation of the output:

The One-Sample t-test was performed on price to sale ratio for the year 2019 for the sample size of the Manufacturing industry. According to the output from the analysis, the test value was specified as 1.5 which is much closer to the mean of the one-sample statistics. On the other hand, the t-value is .566 while the *p-value* is more than .05. Therefore, it is not significant, so our sample is just like the population. Having looked at the confidence interval, 95% of the confidence interval (CI) includes 0, so the means are not different in this result.

3.7.9. One-Sample T-test Statistics for the PBV ratio in the year 2015

A one-sample t-test was run on the price to book value ratio for the total sample size of 224 firms sample size for the year 2015. We are testing the variables either choosing dependent or independent by specifying the test value of 1.5 similar to the above test. We want to test the hypothesis that the population mean of firms in this ratio is different from the sample size of the price to book value ratio. The output is given below.

Table 3.21. One-Sample Statistics of Price to Book value for the year 2015

	N	Mean	Std. Deviation	Std. Error Mean
PBV 2015	224	1.9746	3.08755	.20630

3.34a. One-Sample Test

Test Value = 1.5

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
PBV 2015	2.301	223	.022	.47460	.0681	.8811

Interpretation of the output:

The One-Sample t-test was run on price to book value ratio for the year 2015 for the sample size of 224 firms of both manufacturing and service industries. The hypothesised population means was set to 1.5 in the test value box. According to the result of the analysis, the test value is much closer to the mean of the one-sample statistics indicating just a .047% difference. On the other hand, the t-value is 2.301 which is greater than the critical value from the *t* distribution (two-tailed test) table (2.306) meaning the means are different. Further, the *p-value* is greater than .05, so the findings are not statistically significant. Having referred to the confidence interval, the means are found to be different.

3.7.10. Results of the Analysis

The main purpose of this study was to conduct an assessment on the cash flow profiles of Turkish non-financial firms whose stocks were trading on Bursa Istanbul to investigate the signs of cash flow components in order to identify patterns of the firms. This study includes two industries, manufacturing and service including a total of 16 sectors having 224 firms sample size. The manufacturing industry comprises 165 firms whereas the service industry comprises 59 firms. Some of the main sectors are Food, Beverages & Tobacco, Textile Wearing & Apparel, Technology, Energy, Water & Electricity, Sports, Basic Metals etc. A five-year period between 2015-2019 was taken into consideration for the analysis purpose.

The method of this research is on the basis of the study by (Gup et, al. 1993). In addition, it also concentrates on the life cycle stages of firms previously conducted by (Dickinson, 2011) and profiles of businesses conducted by (Bruwer and Hamman, 2005). The research also focuses on industrial and sectoral comparisons. The data was collected from the secondary source from the independent financial annual reports through the public disclosure platform. This study also includes profitability and price-related ratios for the purpose of regression analysis.

The profitability ratios return on equity (ROE) and return on assets (ROA) whereas the price-related ratios are price to book value (PBV) and price to sales (P/S). Some statistical tools were used on the data to assess the significance of relationship between the cash flow patterns and the financial ratios by the SPSS programme version 25 such as regression analysis, correlations, analysis of variance (ANOVA) and significance tests. Patterns were used as the dependent variable (DV) while ratios were used as the independent variables during the analysis.

Hence, the results reveal that CFO for most of the firms was found to be positive (+) throughout the selected period. For example, the average positive (+) CFO of the firms was 75.36% while the average negative (-) CFO was 24.64%. The study also finds the average percentage of the negative (-) CFI was 87.04% whilst the positive (+) CFI was found at 12.96%. CFF, the third component of the cash flow statement, was also found to have an average percentage of 42.94% positive (+) CFF while its negative (-) signs were found to be 57.06% throughout the period.

The results for the distributions & profiles of firms in each pattern are not found to be normal distribution as stipulated in the hypothesis of this study. For instance, 44.6% of the sample firms are at the "Maturity Stage and/or Successful Business" representing (+ - -) "Pattern 2" whilst 23.2% of the firms are at the "Growth Stage and/or Growing Business" representing (+-+) "Pattern 4". The third most numbers of companies found was in (- - +) "Pattern 6" with 16.5% representing the "Introduction and/or Young Business" and finally the other patterns (Patterns 1,3,5,7 & 8) comprising a total of 15.6% were found to be in the "Shake-Out Stages and/or Unusual Situation" & "Declining and/or Liquidating Business".

The results of the simple and multiple linear regressions analysis reveal the traditional financial ratios selected as a sample such as ROE, ROA, PBV & P/S have generally both positive and negative linear relationships with the cash flow patterns of the sample firms including the level of significance being either significant or not significant. Further, results from the multiple linear regression analysis for the cash flow patterns and ROE, ROA, PBV & P/S ratios show positive relationship but not statistically significant for all years separately and collectively.

The results from the one-sample t-tests for the P/S ratio in the year 2019 indicate the rejection of the null hypothesis and the population was just like the sample. Findings from the last one-sample t-test analysis for the price to book value ratio also reveals the rejection of the null hypothesis and the findings were not statistically significant.

CONCLUSIONS & RECOMMENDATIONS

Based on the evaluation of the cash flow patterns of the sample firms trading on Borsa Istanbul in the manufacturing and service industries, have an average rate of 85% successful and mature profiles according to the method used in this research. It reveals firms' stability, profitable, mature and successful business. However, a number of firms whose cash flow patterns are unsatisfactory represent only 10-15% in the unusual conditions or rare cases. These firms are mostly in the manufacturing industry whereas the service industry has less percentage in the unusual situation.

During the assessment of cash flow components of the sample firms, the firms in all sectors follow the indirect method of preparing the cash flow statement which is according to the recommendations of the international accounting principles. From the thorough inquiry on these companies, it is expected these firms will not liquidate or bankrupt as they have their government support during a financial crisis subject to fulfilling the requirements to get full support from the relevant authorities.

Further, the industrial and sectoral comparisons do not have much fluctuation for a single year and collectively all years during the distributions of firms for cash flow patterns and life cycle stages. The fluctuation in cash flow profiles of the Turkish firms has different circumstances based on the line of activity they are engaged in. Some of the firms were found to continue their operations despite having weak profiles of cash flow statements for a couple of years in a row but bounced back to the normal situation in the next years.

The economic condition and stability of the Turkish non-financial firms are flawless even by doing sector comparisons. The distributions of cash flow patterns in these firms are not normal. For instance, after our deep inquiry and investigation on the three components of the cash flow statement on the sample firms, the study finds three patterns (Patterns 2, 4 & 6) having most companies in accordance with the method used by Gup and his team. Therefore, it is concluded that the distribution of firms in each pattern is not normal.

However, in the sectoral distributions of firms for cash flow patterns, the study finds the distributions of firms are same among sectors. For example, sectoral distribution of firms in each pattern finds (Patterns 2, 4 & 6). Therefore, we can learn from this inquiry that cash flow patterns among sectors are similar. Further, according to the ending balances of cash flow from operating activities (CFO), the study finds an average of 75% of the firms in positive balance.

87% of the firms have negative (CFI) while 57% of the companies are found to have positive CFF whereas 34% are found to be in the negative balance.

The results from the multiple linear regression analysis reveal that Price-Based ratios (PBV and P/S) give significant outputs from the regression analysis while Profitability-Based ratios (ROE and ROA) do not. This indicates that market-based performance has a significant effect on cash flow profiles and their management. So the research finds profitability ratios very unsatisfactory whereas ratios related to price to sales are found satisfactory and at the required level but not for firms whose patterns are found unusual and rare and struggling to survive the operations of the business.

The second component of the cash flow statement for most firms found to be in negative balance which is an alarm if these firms had made poor decisions in terms of using cash to acquire assets, then these signs might indicate a warning to the companies. Cash flow from financing activities may also express concerns that companies were unable to pay their debts by borrowing long-terms loans from banks or financial institutions. It indicates two things either paying off long-term debts or payment made to the shareholders who had made additional borrowings from the financial institutions to meet their short-term liabilities and avoid liquidation. It is, therefore, recommended that shareholders should not approach financial institutions/banks for getting credit limit or long-term debts arranged upon small financial crisis because they must handle such situations by collecting their accounts receivables and reduce expenses. If required, they may resale a small portion of the assets to fulfil their immediate demand.

Firms in the manufacturing industry should handle their cash flow activities properly and effectively as the research finds 19% of firms in the unusual or financial trouble condition whereas firms in the service industry have only 8 companies with unusual or shake-out conditions which may bounce back to the normal pattern unless their cash flow statement is managed and controlled properly. The government or shareholders of private firms must seek financial consultancy to make the situation better.

Firms having unusual conditions in all sectors should follow strict guidelines and international accounting practices to manage their cash flow profiles at the required level together with adherence to policies and laws placed by the relevant authorities in the Republic of Turkey. Though the risk of these firms is not high, it is recommended that their operational situation could deteriorate at any time unless concentrating on the effective management of their cash flow activities.

Firms whose cash flow management was found unsatisfactory comprises a total of 15% of the sample data in all sectors. It is expected that based on further research, these firms could reduce to a minimum percentage by improving their cash flow management and proper decisions. The speedup of operations is a good sign, but the collection of cash receivables must be prioritised to help these firms pay their short-term liabilities. The author suggests banks and other lending authorities may arrange credit facilities and help them in the financial crisis which will avoid business liquidation and financial distress in the country.

The improvement in the cash flow patterns is observed mostly in Pattern 2 throughout the selected period for the sample firms. However, other patterns seem less improvement which could lead to other financial trouble in the future. Hence, it is suggested that firms in both industries must follow regularity authorities to stay alive in the business because the economic condition of these firms may deteriorate and unfortunately could lead liquidation stage.

Firms in the service industry seem to manage their cash flow profiles less effectively than the firms in the manufacturing industry. Therefore, they must adopt effective policies to bounce back to the growth or mature stages.

Based on the analysis of the ratios of the sample firms, companies whose ratios were not satisfactory or at the required level should improve and concentrate on this issue particularly profitability ratios to keep them at the required level. Some firms even had a very unexpected negative return on equity ratio and return on assets ratio which is a matter of concern and the focus on ratios must not be neglected by these firms.

Market based ratios were found to have statistically significant relationship but not for those firms whose cash flow patterns were irregular. Therefore, it is recommended to look upon the maintenance of these ratios as well because they are trading their stocks on the stock exchange.

Finally, further research in this area is recommended by focusing on a large scale by considering the cash flow profiles of firms, other financial ratios, and sectors comparisons could be made outside Turkey to evaluate the financial performance of companies between countries. Therefore, it is possible to conduct further research in this area.

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APPENDIX

PATTERN	CFO	CFI	CFF	FIRM'S CONDITION
Pattern 1	+	+	+	UNUSUAL, RARE CASE
Pattern 2	+	-	-	SUCCESSFUL, STABLE, MATURE, PROFITABLE
Pattern 3	+	+	-	UNUSUAL, RESTRUCTURING, DECLINING
Pattern 4	+	-	+	GROWING, EXPANDING
Pattern 5	-	+	+	UNUSUAL, SHRINKING
Pattern 6	-	-	+	YOUNG, FAST-GROWING
Pattern 7	-	+	-	SHRINKING, LIQUIDATION
Pattern 8	-	-	-	UNUSUAL, FINANCIAL TROUBLE

Appendix 1.

1. GIDA, İÇECEK / Food, Beverage and Tobacco

20 FIRMS					2015			2016			2017			2018			2019		
S.NO	CODE	COMPANY TITLE	ESTABLISHMENT	SCF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	AEFES	ANADOLU EFES BİRACILIK VE MALT SANAYİİ A.Ş.	02.02.1966	YES	+	-	-	+	-	-	+	-	+	+	-	-	+	-	-
2	AVOD	A.V.O.D. KURUTULMUŞ GIDA VE TARIM ÜRÜNLERİ A	04.01.2003	YES	-	-	+	+	-	-	-	-	+	-	-	+	+	-	-
3	BANVT	BANVİT BANDIRMA VİTAMİNLİ YEM SANAYİİ A.Ş.	15.05.1968	YES	+	+	-	+	-	-	+	-	-	+	-	-	+	-	-
4	CCOLA	COCA-COLA İÇECEK A.Ş.	30.05.1990	YES	+	-	-	+	-	-	+	-	+	+	-	-	+	-	-
5	KENT	KENT GIDA MADDELERİ SANAYİİ VE TİCARET A.Ş.	22.02.1956	YES	+	-	-	-	-	-	+	-	-	+	-	-	+	-	+
6	KERVT	KEREVİTAŞ GIDA SANAYİ VE TİCARET A.Ş.	17.04.1972	YES	+	-	+	+	-	+	+	-	+	+	+	-	+	+	-
7	KNFRT	KONFRUT GIDA SANAYİ VE TİCARET A.Ş.	02.01.1991	YES	+	-	-	+	-	+	+	-	-	+	-	+	+	-	-
8	KRSTL	KRİSTAL KOLA VE MEŞRUBAT SANAYİ TİCARET A.Ş.	09.10.1996	YES	-	+	-	+	-	+	-	-	+	-	-	+	-	-	+
9	MERKO	MERKO GIDA SANAYİ VE TİCARET A.Ş.	13.12.1982	YES	-	-	+	+	-	-	+	-	-	+	-	-	-	+	+
10	OYLUM	OYLUM SINAİ YATIRIMLAR A.Ş.	01.01.1969	YES	-	-	+	+	-	+	-	-	+	+	-	-	-	-	+
11	PENGD	PENGUEN GIDA SANAYİ A.Ş.	08.02.1988	YES	-	+	-	-	-	+	-	+	+	-	+	-	-	-	+
12	PETUN	PINAR ENTEGRE ET VE UN SANAYİİ A.Ş.	11.12.1981	YES	+	-	-	+	+	-	+	-	-	+	-	-	+	+	-
13	PINSU	PINAR SU VE İÇECEK SANAYİ VE TİCARET A.Ş.	24.03.1982	YES	+	-	+	-	-	+	-	-	+	+	-	+	+	-	-
14	PNSUT	PINAR SÜT MAMULLERİ SANAYİİ A.Ş.	21.03.1973	YES	+	-	-	+	-	-	+	-	+	+	-	-	+	+	-
15	TATGD	TAT GIDA SANAYİ A.Ş.	03.10.1967	YES	+	+	-	+	-	-	+	-	-	+	-	-	-	-	+
16	TKURU	TAZE KURU GIDA SANAYİ VE TİCARET A.Ş.	30.04.2009	YES	-	-	+	-	-	+	-	+	+	-	+	-	-	-	+
17	TUKAS	TUKAŞ GIDA SANAYİ VE TİCARET A.Ş.	13.02.1962	YES	-	-	+	+	-	+	-	-	+	+	-	+	+	-	-
18	TBORG	TÜRK TUBORG BİRA VE MALT SANAYİİ A.Ş.	11.07.1967	YES	+	-	-	+	-	-	+	-	-	+	-	+	+	+	-
19	ULUUN	ULUSOY UN SANAYİ VE TİCARET A.Ş.	08.01.1991	YES	-	-	+	-	-	+	+	-	+	-	-	+	-	-	+
20	ULKER	ÜLKER BİSKÜVİ SANAYİ A.Ş.	23.02.1970	YES	+	+	-	+	+	-	+	-	-	+	+	-	+	+	-

Appendix 2.

2. KİMYA, PETROL, PLASTİK / Chemicals, Petroleum Rubber and Plastic Products

27 FIRMS					2015			2016			2017			2018			2019		
S.NO	CODE	COMPANY TITLE	DATE OF ESTABLISHMENT	SCF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	ACSEL	ACISELSAN ACIPAYAM SELÜLOZ SANAYİ VE TİCARE	12.04.1973	YES	-	-	+	+	-	-	+	-	+	+	+	-	+	-	-
2	AKSA	AKSA AKRİLİK KİMYA SANAYİİ A.Ş.	18.11.1968	YES	+	-	+	+	-	-	+	-	+	+	-	+	+	-	-
3	ALKIM	ALKİM ALKALİ KİMYA A.Ş.	02.10.1963	YES	+	+	-	+	-	-	+	-	-	+	-	-	+	-	-
4	AYGAZ	AYGAZ A.Ş.	15.12.1961	YES	+	-	+	+	-	-	+	-	-	+	+	-	+	+	-
5	BAGFS	BAGFAŞ BANDIRMA GÜBRE FABRİKALARI A.Ş.	31.03.1970	YES	+	-	+	+	-	-	+	-	-	+	-	-	+	-	-
6	BRKSN	BERKOSAN YALITIM VE TECRİT MADDELERİ ÜRETİM	05.09.2000	YES	-	-	+	+	-	-	+	-	-	+	-	+	+	-	+
7	BRISA	BRİSA BRIDGESTONE SABANCI LASTİK SANAYİ VE T	28.02.1974	YES	+	-	+	+	-	+	+	-	+	+	-	-	+	-	-
8	DEVA	DEVA HOLDİNG A.Ş.	22.08.1958	YES	+	-	-	+	-	-	+	-	+	+	-	+	+	-	-
9	DYOBY	DYO BOYA FABRİKALARI SANAYİ VE TİCARET A.Ş.	06.04.1979	YES	+	-	-	+	-	+	+	-	-	-	-	+	+	-	-
10	EGGUB	EGE GÜBRE SANAYİİ A.Ş.	20.05.1974	YES	-	-	+	+	-	-	+	-	+	+	-	-	-	+	+
11	EGPRO	EGE PROFİL TİCARET VE SANAYİ A.Ş.	13.01.1981	YES	+	-	+	+	-	+	-	-	-	+	-	-	+	-	-
12	GEDZA	GEDİZ AMBALAJ SANAYİ VE TİCARET A.Ş.	01.05.1982	YES	+	-	-	+	-	+	+	-	+	-	-	+	+	-	+
13	GOODY	GOODYEAR LASTİKLERİ T.A.Ş.	01.09.1961	YES	+	-	-	+	-	-	+	-	+	-	-	+	+	-	-
14	GUBRF	GÜBRE FABRİKALARI T.A.Ş.	25.12.1952	YES	-	-	+	+	-	-	+	-	-	-	-	+	+	-	-
15	HEKTS	HEKTAŞ TİCARET T.A.Ş.	28.02.1959	YES	+	-	-	+	-	-	-	-	+	-	-	+	+	-	+
16	IZFAS	İZMİR FIRÇA SANAYİ VE TİCARET A.Ş.	21.09.1993	YES	-	-	+	-	-	+	-	-	+	+	-	-	+	-	-
17	MRSHL	MARSHALL BOYA VE VERNİK SANAYİİ A.Ş.	13.12.1965	YES	+	-	-	+	-	-	+	-	+	-	-	+	+	-	-
18	OZRDN	ÖZERDEN PLASTİK SANAYİ VE TİCARET A.Ş.	03.03.2000	YES	+	+	-	+	-	-	-	-	+	+	-	+	-	-	+
19	PETKM	PETKİM PETROKİMYA HOLDİNG A.Ş.	25.08.1986	YES	+	-	+	+	-	-	+	-	-	+	-	+	+	-	+
20	POLTK	POLİTEKNİK METAL SANAYİ VE TİCARET A.Ş.	-	YES	+	-	+	-	-	+	+	-	+	-	-	-	+	-	-
21	RTALB	RTA LABORATUVARLARI BİYOLOJİK ÜRÜNLER İLAÇ	13.05.1996	YES	+	-	+	+	-	-	+	-	+	-	-	-	+	-	+
22	SANFM	SANİFOAM SÜNGER SANAYİ VE TİCARET A.Ş.	17.10.1990	YES	-	+	+	+	-	-	+	-	+	+	-	-	+	-	+
23	SASA	SASA POLYESTER SANAYİ A.Ş.	08.11.1966	YES	+	-	-	+	-	-	+	-	+	+	-	+	+	-	+
24	SEKUR	SEKURO PLASTİK AMBALAJ SANAYİ A.Ş.	05.02.1997	YES	+	-	-	-	-	+	-	-	+	+	-	+	+	-	-
25	SEYKM	SEYİTLER KİMYA SANAYİ A.Ş.	01.01.1991	YES	+	-	+	+	-	+	-	-	+	+	-	-	+	-	-
26	TMPOL	TEMAPOL POLİMER PLASTİK VE İNŞAAT SANAYİ TİC	31.07.2007	YES	-	-	+	+	-	+	-	-	+	+	-	+	+	-	-
27	TUPRS	TÜPRAŞ-TÜRKİYE PETROL RAFİNERİLERİ A.Ş.	18.11.1983	YES	-	-	-	+	-	-	+	-	+	+	-	-	+	-	-

Appendix 3.

3. MADENCİLİK / Mining and Quarrying

01 COMPANY					2015			2016			2017			2018			2019		
S.NO	CODE	COMPANY TITLE	DATE OF ESTABLISHMENT	SCF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	PRKME	PARK ELEKTRİK ÜRETİM MADENCİLİK SANAYİ VE T	18.03.1994	YES	+	-	-	+	-	-	-	+	-	-	+	-	-	+	-

Appendix 4.

4. METAL ANA / Basic Metal

19 FIRMS					2015			2016			2017			2018			2019		
S.NO	CODE	COMPANY TITLE	DATE OF ESTABLISHMENT	SCF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	BRSAN	BORUSAN MANNESMANN BORU SANAYİ VE TİCARE	12.07.1958	YES	+	+	-	-	-	-	-	+	+	-	-	+	+	-	+
2	BURCE	BURÇELİK BURSA ÇELİK DÖKÜM SANAYİİ A.Ş.	03.02.1968	YES	-	-	+	-	-	-	-	-	+	+	-	-	+	-	-
3	BURVA	BURÇELİK VANA SANAYİ VE TİCARET A.Ş.	30.11.1998	YES	+	-	+	-	+	+	+	-	-	+	-	-	-	-	-
4	CELHA	ÇELİK HALAT VE TEL SANAYİİ A.Ş.	23.03.1962	YES	+	-	-	+	-	-	+	-	-	-	-	+	+	-	-
5	CEMAS	ÇEMAŞ DÖKÜM SANAYİ A.Ş.	08.03.1976	YES	+	-	+	-	+	+	+	-	-	+	-	-	-	-	-
6	CEMTS	ÇEMTAŞ ÇELİK MAKİNA SANAYİ VE TİCARET A.Ş.	12.02.1970	YES	+	-	+	+	-	+	-	+	+	+	-	-	+	-	-
7	CUSAN	ÇUHADAROĞLU METAL SANAYİ VE PAZARLAMA A.Ş	20.09.1978	YES	+	-	-	+	-	+	-	-	-	+	-	+	-	-	-
8	DMSAS	DEMİSAŞ DÖKÜM EMAYE MAMÜLLERİ SANAYİ A.Ş.	13.06.1974	YES	+	-	+	+	-	+	+	-	-	+	-	-	+	-	-
9	DOKTA	DÖKTAŞ DÖKÜMCÜLÜK TİCARET VE SANAYİ A.Ş.	23.08.1973	YES	+	-	+	+	-	+	-	-	+	+	-	-	+	-	+
10	ERBOS	ERBOSAN ERCİYAS BORU SANAYİİ VE TİCARET A.Ş.	26.03.1974	YES	+	-	-	+	-	-	+	-	-	+	-	+	-	-	+
11	EREGL	EREĞLİ DEMİR VE ÇELİK FABRİKALARI T.A.Ş.	11.05.1960	YES	+	-	-	+	-	-	+	-	-	+	-	-	+	-	-
12	ISDMR	İSKENDERUN DEMİR VE ÇELİK A.Ş.	12.11.1968	YES	+	-	-	+	-	-	+	-	-	+	-	-	+	-	-
13	IZMDC	İZMİR DEMİR ÇELİK SANAYİ A.Ş.	01.11.1975	YES	+	-	+	+	-	-	+	-	-	-	-	+	+	-	-
14	KRDMA	KARDEMİR KARABÜK DEMİR ÇELİK SANAYİ VE TİCA	20.02.1995	YES	+	-	+	+	-	-	+	-	-	+	-	-	+	-	-
15	KRDMB	KARDEMİR KARABÜK DEMİR ÇELİK SANAYİ VE TİCA	20.02.1995	YES	+	-	+	+	-	-	+	-	-	+	-	-	+	-	-
16	KRDMD	KARDEMİR KARABÜK DEMİR ÇELİK SANAYİ VE TİCA	20.02.1995	YES	+	-	+	+	-	-	+	-	-	+	-	-	+	-	-
17	OZBAL	ÖZBAL ÇELİK BORU SANAYİ TİCARET VE TAAHHÜT A	10.07.1995	YES	-	+	-	+	+	-	+	-	-	-	-	+	-	-	+
18	SARKY	SARKUYSAN ELEKTROLİTİK BAKIR SANAYİ VE TİCA	03.05.1972	YES	+	-	-	+	-	-	-	-	+	+	-	+	+	-	-
19	TUCLK	TUĞÇELİK ALÜMİNYUM VE METAL MAMÜLLERİ SAN	01.03.1988	YES	+	-	+	+	-	+	+	-	+	-	-	+	-	-	+

Appendix 5.

5. METAL EŞYA, MAKİNA / Fabricated Metal Products Machinery Electrical Equipment and Transportation Vehicles

28 FIRMS					2015			2016			2017			2018			2019		
S.NO	CODE	COMPANY TITLE	DATE OF ESTABLISHMENT	SCF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	ASUZU	ANADOLU ISUZU OTOMOTİV SANAYİ VE TİCARET A.	26.06.1980	YES	-	-	+	+	-	+	+	-	-	-	-	+	+	-	-
2	ARCLK	ARÇELİK A.Ş.	21.01.1955	YES	+	-	-	+	-	-	+	-	+	+	-	+	+	-	-
3	BNTAS	BANTAŞ BANDIRMA AMBALAJ SANAYİ TİCARET A.Ş.	18.04.1986	YES	+	-	+	-	-	+	+	-	+	+	-	+	+	-	+
4	BFREN	BOSCH FREN SİSTEMLERİ SANAYİ VE TİCARET A.Ş.	17.09.1975	YES	+	-	-	+	-	-	+	-	-	+	-	-	+	-	-
5	DITAS	DİTAŞ DOĞAN YEDEK PARÇA İMALAT VE TEKNİK A.	21.02.1972	YES	+	-	+	+	-	+	+	-	-	+	-	-	+	-	-
6	EGEEN	EGE ENDÜSTRİ VE TİCARET A.Ş.	13.08.1964	YES	+	-	+	+	-	-	+	-	-	+	-	-	+	-	-
7	EMKEL	EMEK ELEKTRİK ENDÜSTRİSİ A.Ş.	31.01.1969	YES	-	-	+	-	-	+	-	-	+	+	-	+	+	-	-
8	FMIZP	FEDERAL-MOGUL İZMİT PİSTON VE PİM ÜRETİM TES	24.02.1967	YES	+	-	-	+	-	-	+	+	-	+	-	-	+	-	-
9	FROTO	FORD OTOMOTİV SANAYİ A.Ş.	07.07.1959	YES	+	-	-	+	-	-	+	-	-	+	-	-	+	-	-
10	GEREL	GERSAN ELEKTRİK TİCARET VE SANAYİ A.Ş.	20.08.1985	YES	-	+	+	+	-	+	-	+	+	+	-	+	+	-	+
11	IHEVA	İHLAS EV ALETLERİ İMALAT SANAYİ VE TİCARET A.Ş	21.11.1995	YES	-	+	-	+	-	-	+	-	-	-	+	-	-	-	+
12	JANTS	JANTSA JANT SANAYİ VE TİCARET A.Ş.	16.06.1977	YES	+	-	-	+	-	-	+	-	-	+	-	-	+	-	-
13	KARSN	KARSAN OTOMOTİV SANAYİİ VE TİCARET A.Ş.	16.09.1966	YES	-	-	+	+	+	-	+	-	+	+	-	+	-	+	-
14	KATMR	KATMERCİLER ARAÇ ÜSTÜ EKİPMAN SANAYİ VE TİC	09.10.1985	YES	+	+	-	-	-	+	-	-	+	-	-	+	-	-	+
15	KLMSN	KLİMASAN KLİMA SANAYİ VE TİCARET A.Ş.	07.01.1969	YES	+	-	-	+	-	+	+	+	-	+	-	+	-	+	+
16	MAKTK	MAKİNA TAKIM ENDÜSTRİSİ A.Ş.	25.10.1957	YES	-	-	+	+	+	-	+	-	-	+	-	-	+	+	-
17	OTKAR	OTOKAR OTOMOTİV VE SAVUNMA SANAYİ A.Ş.	23.01.1963	YES	-	-	+	+	-	-	+	-	+	+	-	-	+	-	-
18	PARSN	PARSAN MAKİNA PARÇALARI SANAYİİ A.Ş.	06.03.1968	YES	+	-	+	+	-	+	+	-	+	+	-	+	+	-	-
19	SAFKR	SAFKAR EGE SOĞUTMACILIK KLİMA SOĞUK HAVA T	-	YES	+	-	+	+	-	-	+	-	+	+	-	+	+	-	-
20	SAYAS	SAY YENİLENEBİLİR ENERJİ EKİPMANLARI SANAYİ V	27.08.2004	YES	-	-	+	-	+	-	+	+	-	+	-	-	+	+	-
21	SILVR	SİLVERLİNE ENDÜSTRİ VE TİCARET A.Ş.	08.11.1994	YES	-	-	-	+	-	+	+	-	-	+	-	+	+	-	+
22	TOASO	TOFAŞ TÜRK OTOMOBİL FABRİKASI A.Ş.	01.10.1968	YES	+	-	+	+	-	-	+	-	-	+	-	-	+	-	-
23	TMSN	TÜMOSAN MOTOR VE TRAKTÖR SANAYİ A.Ş.	23.09.2003	YES	+	-	+	+	-	+	+	-	-	-	-	+	-	-	+
24	PRKAB	TÜRK PRYSMİAN KABLO VE SİSTEMLERİ A.Ş.	20.01.1964	YES	+	-	-	+	-	-	-	+	+	+	-	+	-	-	+
25	TTRAK	TÜRK TRAKTÖR VE ZİRAAT MAKİNELERİ A.Ş.	29.07.1954	YES	+	-	-	+	-	-	+	-	-	+	-	+	+	-	-
26	ULUSE	ULUSOY ELEKTRİK İMALAT TAAHHÜT VE TİCARET A	08.04.1985	YES	+	-	-	+	-	-	+	-	-	+	-	-	+	+	-
27	VESBE	VESTEL BEYAZ EŞYA SANAYİ VE TİCARET A.Ş.	13.11.1997	YES	+	-	-	+	-	+	+	-	+	+	-	-	+	-	-
28	VESTL	VESTEL ELEKTRONİK SANAYİ VE TİCARET A.Ş.	04.03.1983	YES	+	-	+	+	-	+	+	-	+	+	-	+	+	-	-

Appendix 6.

6. ORMAN, KAĞIT, BASIM / Paper and Paper Products, Printing and Publishing

15 FIRMS					2015			2016			2017			2018			2019		
S.NO	CODE	COMPANY TITLE	DATE OF ESTABLISHMENT	SCF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	ALKA	ALKİM KAĞIT SANAYİ VE TİCARET A.Ş.	30.06.1999	YES	+	+	+	+	-	-	+	-	-	+	-	-	+	-	-
2	BAKAB	BAK AMBALAJ SANAYİ VE TİCARET A.Ş.	05.02.1973	YES	+	-	+	+	-	+	+	-	-	+	-	+	+	-	-
3	DOBUR	DOĞAN BURDA DERGİ YAYINCILIK VE PAZARLAMA	21.07.1988	YES	+	+	-	+	-	-	-	-	-	+	-	-	+	-	-
4	DGKLB	DOĞTAŞ KELEBEK MOBİLYA SANAYİ VE TİCARET A.	20.08.1935	YES	+	-	-	+	-	-	+	-	-	-	-	+	+	-	-
5	DURDO	DURAN DOĞAN BASIM VE AMBALAJ SANAYİ A.Ş.	22.09.1975	YES	+	-	-	+	-	-	+	-	-	+	-	+	+	-	+
6	GENTS	GENTAŞ DEKORATİF YÜZEYLER SANAYİ VE TİCARET	17.11.1972	YES	+	-	-	+	-	+	+	-	+	+	-	-	+	-	-
7	HURGZ	HÜRRİYET GAZETECİLİK VE MATBAACILIK A.Ş.	15.12.1960	YES	+	+	+	+	-	-	+	+	-	+	+	-	+	-	-
8	IHGZT	İHLAS GAZETECİLİK A.Ş.	15.08.2000	YES	-	-	+	+	-	-	+	-	-	-	-	+	-	+	-
9	KAPLM	KAPLAMİN AMBALAJ SANAYİ VE TİCARET A.Ş.	25.12.1975	YES	-	-	+	-	-	+	+	-	-	+	-	-	+	-	+
10	KARTN	KARTONSAN KARTON SANAYİ VE TİCARET A.Ş.	27.06.1967	YES	-	-	+	+	-	-	+	-	-	+	-	-	+	-	-
11	TIRE	MONDİ TİRE KUTSAN KAĞIT VE AMBALAJ SANAYİ A	30.05.1974	YES	+	-	+	+	-	+	+	-	+	+	-	+	+	-	-
12	OLMIP	OLMUKSAN INTERNATIONAL PAPER AMBALAJ SAN	20.08.1958	YES	-	-	+	+	-	-	-	-	+	-	-	+	+	-	+
13	PRZMA	PRİZMA PRES MATBAACILIK YAYINCILIK SANAYİ VI	01.01.1978	YES	-	-	+	-	-	+	+	-	+	+	-	-	-	-	+
14	SAMAT	SARAY MATBAACILIK KAĞITÇILIK KIRTASİYECİLİK	08.07.2010	YES	-	-	+	+	-	-	-	-	+	+	-	-	+	-	-
15	VKING	VİKİNG KAĞIT VE SELÜLOZ A.Ş.	05.08.1969	YES	-	-	+	+	+	-	+	-	-	+	-	-	-	-	+

Appendix 7.

7. TAŞ, TOPRAK / Non-Metallic Mineral Products

15 FIRMS					2015			2016			2017			2018			2019		
S.NO	CODE	COMPANY TITLE	DATE OF ESTABLISHMENT	SCF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	AFYON	AFYON ÇİMENTO SANAYİ T.A.Ş.	11.04.1990	YES	+	-	+	-	-	+	-	+	+	+	+	-	+	+	-
2	AKCNS	AKÇANSA ÇİMENTO SANAYİ VE TİCARET A.Ş.	17.09.1974	YES	+	-	-	+	-	-	+	-	-	+	-	-	+	+	-
3	BTCIM	BATIÇİM BATI ANADOLU ÇİMENTO SANAYİİ A.Ş.	05.09.1966	YES	+	-	+	+	-	+	+	-	+	+	-	-	-	-	+
4	BSOKE	BATISÖKE SÖKE ÇİMENTO SANAYİİ T.A.Ş.	14.07.1966	YES	+	-	+	+	-	+	-	-	+	+	-	+	-	-	+
5	BUCIM	BURSA ÇİMENTO FABRİKASI A.Ş.	14.07.1966	YES	+	-	-	+	-	+	+	-	+	+	-	-	+	-	+
6	CMBTN	ÇİMBETON HAZIRBETON VE PREFABRİK YAPI ELEMA	22.11.1985	YES	+	-	-	+	-	+	+	-	+	-	+	+	+	-	-
7	CMENT	ÇİMENTAŞ İZMİR ÇİMENTO FABRİKASI T.A.Ş.	07.08.1950	YES	+	-	-	+	-	-	+	-	-	-	+	+	-	-	+
8	CIMSA	ÇİMSA ÇİMENTO SANAYİ VE TİCARET A.Ş.	31.08.2009	YES	+	-	+	+	-	+	+	-	+	+	-	-	+	-	-
9	EGSER	EGE SERAMİK SANAYİ VE TİCARET A.Ş.	09.09.1972	YES	+	-	-	+	-	+	+	-	-	+	-	-	+	-	-
10	GOLTS	GÖLTAŞ GÖLLER BÖLGESİ ÇİMENTO SANAYİ VE TİC	09.02.1969	YES	+	-	-	+	-	-	-	-	+	+	+	-	-	-	+
11	KONYA	KONYA ÇİMENTO SANAYİİ A.Ş.	12.12.1954	YES	+	-	-	+	-	-	+	-	-	+	-	-	+	-	-
12	KUTPO	KÜTAHYA PORSELEN SANAYİ A.Ş.	26.02.1965	YES	+	-	-	+	-	-	+	-	-	+	-	-	+	-	-
13	NUHCM	NUH ÇİMENTO SANAYİ A.Ş.	04.08.1966	YES	+	-	-	+	-	-	+	-	+	+	-	-	+	-	-
14	OYAKC	OYAK ÇİMENTO FABRİKALARI A.Ş.	02.06.1969	YES	+	+	-	+	+	-	+	+	-	-	-	-	+	+	-
15	USAK	UŞAK SERAMİK SANAYİ A.Ş.	21.09.1972	YES	-	-	+	+	-	+	+	-	+	+	-	+	-	-	+

Appendix 8.

8. TEKSTİL DERİ / Textile, Wearing Apparel and Leather

18 FIRMS					2015			2016			2017			2018			2019		
S.NO	CODE	COMPANY TITLE	DATE OF ESTABLISHMENT	SCF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	ATEKS	AKIN TEKSTİL A.Ş.	02.09.1966	YES	+	-	-	+	-	-	-	-	+	+	-	+	-	-	+
2	ARSAN	ARSAN TEKSTİL TİCARET VE SANAYİ A.Ş.	22.06.1984	YES	-	+	-	+	+	-	+	-	+	+	-	+	+	-	+
3	BLCYT	BİLİCİ YATIRIM SANAYİ VE TİCARET A.Ş.	07.07.2000	YES	+	-	+	+	-	+	+	+	-	+	-	-	+	-	-
4	BRMEN	BİRLİK MENSUCAT TİCARET VE SANAYİ İŞLETMESİ A	02.11.1966	YES	-	+	-	-	+	+	-	+	+	+	+	+	+	-	-
5	BOSSA	BOSSA TİCARET VE SANAYİ İŞLETMELERİ T.A.Ş.	25.03.1951	YES	-	+	+	+	-	+	-	-	+	+	-	+	+	-	-
6	DAGI	DAGİ GİYİM SANAYİ VE TİCARET A.Ş.	01.01.1984	YES	+	-	+	-	+	-	-	+	-	-	-	+	+	-	-
7	DERIM	DERİMOD KONFEKSİYON AYAKKABI DERİ SANAYİ Y	04.09.1975	YES	-	+	+	-	-	+	-	-	+	+	+	-	+	-	+
8	DESA	DESA DERİ SANAYİ VE TİCARET A.Ş.	29.01.1982	YES	-	-	+	-	-	+	+	-	+	+	-	-	+	-	-
9	HATEK	HATEKS HATAY TEKSTİL İŞLETMELERİ A.Ş.	01.01.1973	YES	-	-	+	-	-	+	+	-	-	-	-	+	+	-	-
10	KRTEK	KARSU TEKSTİL SANAYİİ VE TİCARET A.Ş.	25.05.1973	YES	+	-	+	-	-	+	+	-	-	+	-	-	+	-	+
11	KORDS	KORDSA TEKNİK TEKSTİL A.Ş.	17.08.1973	YES	+	-	-	+	-	-	+	-	-	+	-	+	+	-	+
12	LUKSK	LÜKS KADİFE TİCARET VE SANAYİİ A.Ş.	03.07.1972	YES	+	-	+	-	+	+	+	-	-	+	-	-	+	-	+
13	MEGAP	MEGA POLİETİLEN KÖPÜK SANAYİ VE TİCARET A.Ş.	10.08.2005	YES	-	+	-	+	-	+	-	-	+	-	+	+	+	-	+
14	MNDRS	MENDERES TEKSTİL SANAYİ VE TİCARET A.Ş.	18.01.1984	YES	-	-	+	-	-	+	-	-	+	+	-	+	+	-	+
15	RODRG	RODRİGO TEKSTİL SANAYİ VE TİCARET A.Ş.	28.12.1997	YES	-	-	+	-	-	+	-	-	+	+	-	+	+	-	+
16	SKTAS	SÖKTAŞ TEKSTİL SANAYİ VE TİCARET A.Ş.	24.02.1971	YES	+	-	-	+	-	-	+	+	-	+	-	-	+	+	-
17	YATAS	YATAŞ YATAK VE YORGAN SANAYİ VE TİCARET A.Ş	09.09.1987	YES	+	-	-	+	-	-	+	-	-	+	-	+	+	-	-
18	YUNSA	YÜNSA YÜNLÜ SANAYİ VE TİCARET A.Ş.	15.06.1973	YES	+	-	-	+	-	-	+	-	-	+	-	+	+	+	-

Appendix 9.

9. İNŞAAT / Construction and Public Works

08 FIRMS					2015			2016			2017			2018			2019		
S.NO	CODE	COMPANY TITLE	DATE OF ESTABLISHMENT	SCF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	ANELE	ANEL ELEKTRİK PROJE TAAHHÜT VE TİCARET A.Ş.	12.03.1986	YES	+	-	-	+	-	+	+	-	-	-	-	+	+	-	+
2	EDIP	EDİP GAYRİMENKUL YATIRIM SANAYİ VE TİCARET A	31.12.1971	YES	+	-	+	+	-	-	+	-	-	+	-	-	+	-	-
3	ENKAI	ENKA İNŞAAT VE SANAYİ A.Ş.	27.02.1958	YES	+	-	-	+	-	-	+	-	-	+	-	-	+	+	-
4	KUYAS	KUYUMCUKENT GAYRİMENKUL YATIRIMLARI A.Ş.	19.10.2005	YES	-	-	+	-	-	+	-	-	+	+	-	+	-	-	+
5	ORGE	ORGE ENERJİ ELEKTRİK TAAHHÜT A.Ş.	01.01.1974	YES	+	+	+	+	-	+	+	-	-	-	-	+	-	-	+
6	SANEL	SAN-EL MÜHENDİSLİK ELEKTRİK TAAHHÜT SANAYİ	04.05.2005	YES	+	-	-	-	-	+	+	-	+	+	-	-	+	-	-
7	YAYLA	YAYLA ENERJİ ÜRETİM TURİZM VE İNŞAAT TİCARET	31.12.1983	YES	-	-	+	+	-	-	+	+	-	-	-	+	-	-	-
8	YYAPI	YEŞİL YAPI ENDÜSTRİSİ A.Ş.	04.10.1979	YES	+	-	+	-	+	+	-	+	+	+	-	-	-	+	-

Appendix 10.

10. TİCARET / Consumer Trade

14 FIRMS					2015			2016			2017			2018			2019		
S.NO	CODE	COMPANY TITLE	DATE OF ESTABLISHMENT	SCF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	ADESE	ADESE ALIŞVERİŞ MERKEZLERİ TİCARET A.Ş.	01.01.1991	YES	+	-	+	-	-	+	+	-	-	+	-	-	-	-	+
2	BIMAS	BİM BİRLEŞİK MAĞAZALAR A.Ş.	31.05.1995	YES	+	-	-	+	-	-	+	-	-	+	-	-	+	-	-
3	BIZIM	BİZİM TOPTAN SATIŞ MAĞAZALARI A.Ş.	23.03.2001	YES	+	-	-	+	-	-	+	-	-	+	+	-	+	+	-
4	CRFSA	CARREFOURSA CARREFOUR SABANCI TİCARET MER	09.09.1991	YES	-	-	+	-	-	+	+	-	+	+	+	-	+	-	-
5	DOAS	DOĞUŞ OTOMOTİV SERVİS VE TİCARET A.Ş.	19.11.1999	YES	-	-	+	+	-	+	+	-	-	+	-	-	+	+	-
6	INTEM	İNTEMA İNŞAAT VE TESİSAT MALZEMELERİ YATIRIM	01.08.1978	YES	+	-	+	+	-	+	-	-	-	-	+	-	-	-	+
7	MAVI	MAVİ GİYİM SANAYİ VE TİCARET A.Ş.	13.01.1994	YES	+	-	-	+	-	-	+	-	-	+	-	-	+	-	-
8	MGROS	MİGROS TİCARET A.Ş.	19.03.2008	YES	+	-	-	+	-	-	+	-	-	+	-	-	+	+	-
9	PSDTC	PERGAMON STATUS DIŞ TİCARET A.Ş.	30.04.2001	YES	+	-	+	-	-	+	+	+	+	+	-	-	+	-	-
10	SELEC	SELÇUK ECZA DEPOSU TİCARET VE SANAYİ A.Ş.	29.12.1970	YES	-	-	+	+	-	-	+	-	-	+	-	-	+	-	+
11	SOKM	ŞOK MARKETLER TİCARET A.Ş.	11.08.1999	YES	+	-	+	+	-	-	+	-	-	+	-	+	+	-	-
12	TKNSA	TEKNOSA İÇ VE DIŞ TİCARET A.Ş.	03.03.2000	YES	+	-	-	-	-	-	+	-	-	+	-	-	+	-	-
13	TGSAS	TGS DIŞ TİCARET A.Ş.	21.05.1999	YES	+	-	-	+	-	+	+	-	-	-	-	-	+	-	-
14	VAKKO	VAKKO TEKSTİL VE HAZIR GİYİM SANAYİ İŞLETMEL	03.06.1960	YES	+	-	-	+	-	+	+	-	-	+	-	-	+	-	-

SERVICE INDUSTRY SAMPLE FIRMS 59

Appendix 11.

1. ELEKTRİK / Electricity Gas and Water

07 FIRMS					2015			2016			2017			2018			2019		
S.NO	CODE	COMPANY TITLE	DATE OF ESTABLISHMENT	SCF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	AKENR	AKENERJİ ELEKTRİK ÜRETİM A.Ş.	12.05.1989	YES	+	+	-	+	+	-	+	+	-	+	-	-	+	-	-
2	AKSEN	AKSA ENERJİ ÜRETİM A.Ş.	12.03.1997	YES	-	-	+	-	-	+	+	+	-	-	-	+	+	-	-
3	AKSUE	AKSU ENERJİ VE TİCARET A.Ş.	18.11.1985	YES	-	+	-	-	-	-	-	-	+	-	-	+	+	-	+
4	AYEN	AYEN ENERJİ A.Ş.	15.08.1990	YES	+	-	+	-	-	-	-	-	+	-	-	+	+	-	+
5	ENJSA	ENERJİSA ENERJİ A.Ş.	21.12.2011	YES	+	-	+	+	-	+	+	-	-	+	-	-	+	-	-
6	ODAS	ODAŞ ELEKTRİK ÜRETİM SANAYİ TİCARET A.Ş.	28.09.2010	YES	+	-	+	-	-	+	-	-	+	+	-	+	-	-	+
7	ZOREN	ZORLU ENERJİ ELEKTRİK ÜRETİM A.Ş.	21.06.1993	YES	+	-	-	-	-	+	+	-	+	+	-	-	+	-	-

Appendix 12.

2. SPOR / Sport

04 FIRMS					2015			2016			2017			2018			2019		
S.NO	CODE	COMPANY TITLE	DATE OF ESTABLISHMENT	SCF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	BJKAS	BEŞİKTAŞ FUTBOL YATIRIMLARI SANAYİ VE TİCARET A.Ş	18.07.1995	YES	+	+	-	+	+	-	+	+	-	+	-	-	+	-	-
2	FENER	FENERBAHÇE FUTBOL A.Ş.	10.06.1998	YES	-	-	+	-	+	+	-	-	+	-	+	+	+	+	-
3	GSRAY	GALATASARAY SPORTİF SINAİ VE TİCARİ YATIRIMLAR A	26.11.1997	YES	+	+	-	+	-	+	+	-	+	+	-	-	+	-	+
4	TSPOR	TRABZONSPOR SPORTİF YATIRIM VE FUTBOL İŞLETMECİL	25.03.1994	YES	-	-	+	-	-	+	+	-	+	+	-	+	-	+	+

Appendix 13.

3. TURİZM / Tourism: Restaurants and Hotels

07 FIRMS					2015			2016			2017			2018			2019		
S.NO	CODE	COMPANY TITLE	DATE OF ESTABLISHMENT	SCF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	AYCES	ALTIN YUNUS ÇEŞME TURİSTİK TESİSLER A.Ş.	01.06.1973		+	-	+	-	-	+	-	-	+	+	-	-	+	-	-
2	MAALT	MARMARİS ALTINYUNUS TURİSTİK TESİSLER A.Ş.	17.02.1986		+	+	-	+	-	-	+	+	-	+	+	-	-	+	-
3	MARTI	MARTI OTEL İŞLETMELERİ A.Ş.	08.03.1967		+	-	-	+	-	-	+	+	-	-	+	-	+	-	-
4	PKENT	PETROKENT TURİZM A.Ş.	01.03.1977		+	-	-	-	-	+	+	+	-	+	-	+	+	-	-
5	TEKTU	TEK-ART İNŞAAT TİCARET TURİZM SANAYİ VE YATIRIML	06.10.1987		-	-	+	-	-	+	+	-	+	+	-	+	+	-	-
6	ULAS	ULAŞLAR TURİZM YATIRIMLARI VE DAYANIKLI TÜKETİM	07.10.0985		+	-	-	-	+	+	-	+	-	+	-	-	+	-	-
7	UTPYA	UTOPYA TURİZM İNŞAAT İŞLETMECİLİK TİCARET A.Ş.	01.01.1990		-	-	+	+	-	-	-	-	+	+	-	-	+	-	-

Appendix 14.

4. ULAŞTIRMA / Transportation and Storage

08 FIRMS					2015			2016			2017			2018			2019		
S.NO	CODE	COMPANY TITLE	DATE OF ESTABLISHMENT	SCF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	BEYAZ	BEYAZ FİLO OTO KİRALAMA A.Ş.	24.08.1993		+	+	-	-	+	-	-	+	+	+	-	-	-	-	+
2	CLEBI	ÇELEBİ HAVA SERVİSİ A.Ş.	04.01.1983		+	-	-	+	-	-	+	-	-	+	-	+	+	-	-
3	DOCO	DO & CO AKTIENGESELLSCHAFT	30.06.1998		+	-	-	+	+	-	+	-	-	+	-	-	+	-	-
4	GSDDE	GSD DENİZCİLİK GAYRİMENKUL İNŞAAT SANAYİ VE TİCA	28.08.1992		+	-	-	+	-	+	+	-	-	+	+	-	+	-	-
5	PGSUS	PEGASUS HAVA TAŞIMACILIĞI A.Ş.	12.01.1990		+	-	-	+	-	-	+	+	-	+	-	-	+	-	-
6	RYSAS	REYSAŞ TAŞIMACILIK VE LOJİSTİK TİCARET A.Ş.	24.04.1989		+	-	+	+	-	+	+	-	+	-	-	+	+	-	+
7	TLMAN	TRABZON LİMAN İŞLETMECİLİĞİ A.Ş.	-		+	-	-	+	-	-	+	-	+	+	-	-	+	+	-
8	THYAO	TÜRK HAVA YOLLARI A.O.	29.02.1956		+	-	-	+	-	+	+	+	-	+	-	+	+	-	-

Annex 15.

5. TEKNOLOJİ / Technology

16 FIRMS					**2015**			**2016**			**2017**			**2018**			**2019**		
S.NO	**CODE**	**COMPANY TITLE**	**DATE OF ESTABLISHMENT**	**SCF**	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	ALCTL	ALCATEL LUCENT TELETAŞ TELEKOMÜNİKASYON A.Ş.	14.09.1983		-	-	-	-	-	-	+	-	+	+	+	-	+	-	-
2	ARENA	ARENA BİLGİSAYAR SANAYİ VE TİCARET A.Ş.	18.09.1991		+	-	-	-	-	-	+	-	-	+	-	-	+	+	+
3	ARMDA	ARMADA BİLGİSAYAR SİSTEMLERİ SANAYİ VE TİCARET A	16.03.1993		+	-	+	-	-	-	-	-	+	+	-	-	+	-	-
4	ASELS	ASELSAN ELEKTRONİK SANAYİ VE TİCARET A.Ş.	**14.11.1975**		+	-	+	+	-	-	+	-	-	+	-	+	+	-	+
5	DGATE	DATAGATE BİLGİSAYAR MALZEMELERİ TİCARET A.Ş.	05.06.1992		-	-	+	+	-	-	+	-	-	+	-	+	-	-	+
6	DESPC	DESPEC BİLGİSAYAR PAZARLAMA VE TİCARET A.Ş.	04.01.1995		+	-	-	-	-	-	-	-	+	+	-	-	-	-	+
7	ESCOM	ESCORT TEKNOLOJİ YATIRIM A.Ş.	27.05.1994		+	-	-	-	+	-	+	-	-	+	-	-	+	-	-
8	FONET	FONET BİLGİ TEKNOLOJİLERİ A.Ş.	01.01.1997		+	-	-	+	-	-	+	-	-	+	-	-	+	-	-
9	INDES	İNDEKS BİLGİSAYAR SİSTEMLERİ MÜHENDİSLİK SANAYİ	10.07.1989		-	-	+	+	-	-	+	-	-	+	-	+	-	-	+
10	KFEIN	KAFEİN YAZILIM HİZMETLERİ TİCARET A.Ş.	26.08.2005		+	+	-	+	-	-	-	+	-	+	-	+	+	-	+
11	KAREL	KAREL ELEKTRONİK SANAYİ VE TİCARET A.Ş.	27.11.1986		-	-	+	+	-	+	-	-	+	-	-	+	+	-	+
12	KRONT	KRON TELEKOMÜNİKASYON HİZMETLERİ A.Ş.	03.03.2005		+	-	-	+	-	-	+	-	-	+	-	+	+	-	-
13	LINK	LİNK BİLGİSAYAR SİSTEMLERİ YAZILIMI VE DONANIMI S.	07.01.1985		+	-	+	+	-	+	+	-	+	+	-	+	+	-	-
14	LOGO	LOGO YAZILIM SANAYİ VE TİCARET A.Ş.	05.03.1986		+	-	-	+	-	+	+	-	+	+	-	-	+	-	-
15	NETAS	NETAŞ TELEKOMÜNİKASYON A.Ş.	31.03.1967		+	-	+	-	-	-	+	-	-	-	-	+	+	+	-
16	PKART	PLASTİKKART AKILLI KART İLETİŞİM SİSTEMLERİ SANAY	13.10.2000		+	-	-	+	-	-	-	-	+	+	-	-	+	-	-

Appendix 16.

6. BİLİŞİM ve İLETİŞİM / Information Technology and Telecommunication

17 FIRMS					**2015**			**2016**			**2017**			**2018**			**2019**		
S.NO	**CODE**	**COMPANY TITLE**	**DATE OF ESTABLISHMENT**	**SCF**	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF	CFO	CFI	CFF
1	ALCTL	ALCATEL LUCENT TELETAŞ TELEKOMÜNİKASYON A.Ş.	**14.09.1983**		-	-	-	-	-	-	+	-	+	+	+	-	+	-	-
2	ARENA	ARENA BİLGİSAYAR SANAYİ VE TİCARET A.Ş.	18.09.1991		+	-	-	-	-	-	+	-	-	+	-	-	+	+	+
3	ARMDA	ARMADA BİLGİSAYAR SİSTEMLERİ SANAYİ VE TİCARET A	16.03.1993		+	-	+	-	-	-	-	-	+	+	-	-	+	-	-
4	DGATE	DATAGATE BİLGİSAYAR MALZEMELERİ TİCARET A.Ş.	05.06.1992		-	-	+	+	-	-	+	-	-	+	-	+	-	-	+
5	DESPC	DESPEC BİLGİSAYAR PAZARLAMA VE TİCARET A.Ş.	**04.01.1995**		+	-	-	-	-	-	-	-	+	+	-	-	-	-	+
6	ESCOM	ESCORT TEKNOLOJİ YATIRIM A.Ş.	27.05.1994		+	-	-	-	+	-	+	-	-	+	-	-	+	-	-
7	FONET	FONET BİLGİ TEKNOLOJİLERİ A.Ş.	01.01.1997		+	-	-	+	-	-	+	-	-	+	-	-	+	-	-
8	INDES	İNDEKS BİLGİSAYAR SİSTEMLERİ MÜHENDİSLİK SANAYİ	10.07.1989		-	-	+	+	-	-	+	-	-	+	-	+	-	-	+
9	KFEIN	KAFEİN YAZILIM HİZMETLERİ TİCARET A.Ş.	26.08.2005		+	+	-	+	-	-	-	+	-	+	-	+	+	-	+
10	KAREL	KAREL ELEKTRONİK SANAYİ VE TİCARET A.Ş.	27.11.1986		-	-	+	+	-	+	-	-	+	-	-	+	+	-	+
11	KRONT	KRON TELEKOMÜNİKASYON HİZMETLERİ A.Ş.	03.03.2005		+	-	-	+	-	-	+	-	-	+	-	+	+	-	-
12	LINK	LİNK BİLGİSAYAR SİSTEMLERİ YAZILIMI VE DONANIMI S.	07.01.1985		+	+	-	+	-	+	+	-	+	+	-	+	+	-	-
13	LOGO	LOGO YAZILIM SANAYİ VE TİCARET A.Ş.	05.03.1986		+	-	-	+	-	+	+	-	+	+	-	-	+	-	-
14	NETAS	NETAŞ TELEKOMÜNİKASYON A.Ş.	31.03.1967		+	-	+	-	-	-	+	-	-	-	-	+	+	+	-
15	PKART	PLASTİKKART AKILLI KART İLETİŞİM SİSTEMLERİ SANAY	13.10.2000		+	-	-	+	-	-	-	-	+	+	-	-	+	-	-
16	**TCELL**	**TURKCELL İLETİŞİM HİZMETLERİ A.Ş.**	05.10.1993		+	-	-	+	-	+	+	-	-	+	-	-	+	-	-
17	**TTKOM**	**TÜRK TELEKOMÜNİKASYON A.Ş.**	30.06.1994		+	-	-	+	-	-	+	-	-	+	-	-	+	-	-

Appendix 17: Distribution of firms for Life Cycle Stages in the **Manufacturing** industry with number of firms & Percentage

AVERAGE FIVE YEARS LIFE CYCLE STAGES & PATTERNS OF THE FIRMS 2015-2019			
LIFE CYCLE STAGE	**NO OF FIRMS**	**PERCT.**	**PATTERNS**
Introduction	**28**	**16%**	**Pattern 6 (-,-,+)**
Growth	**40**	**21%**	**Pattern 4 (+,-,+)**
Mature	**74**	**45%**	**Pattern 2 (+,-,-)**
Shake-Out	15	9%	Patterns 1,3,8 (+,+,+), (+,+,-), (-,-,-)
Decline	9	11%	Patterns 5 & 7 (-,+,+) , (-,+,-)
	165	**100%**	

Annex 18: Distribution of firms for Life Cycle Stages in the **Service** industry with number of firms & Percentage

AVERAGE SUMMARY BASED ON LIFE CYCLE STAGES OF FIVE YEARS' OBSERVATION (2015-2019)			
LIFE CYCLE STAGE	**NO OF FIRMS**	**PERCT.**	**PATTERNS**
Introduction	**10**	**18%**	**Pattern 6 (-,-,+)**
Growth	**12**	**20%**	**Pattern 4 (+,-,+)**
Maturity	**26**	**39%**	**Pattern 2 (+,-,-)**
Shake-Out	8	16%	Patterns 1,3,8 (+,+,+), (+,+,-), (-,-,-)
Decline	3	7%	Patterns 5 & 7 (-,+,+) , (-,+,-)
	59	**100%**	

Appendix 19: Distribution of firm for Life Cycle Stages for **both industries' firms** with number of firms & Percentage

AVERAGE SUMMARY BASED ON LIFE CYCLE STAGES OF FIVE YEARS' OBSERVATIONS (2015-2019)			
LIFE CYCLE STAGE	**NO OF FIRM**	**PERCT.**	**PATTERNS**
Introduction	**37**	**17%**	**Pattern 6 (-,-,+)**
Growth	**52**	**23%**	**Pattern 4 (+,-,+)**
Maturity	**100**	**45%**	**Pattern 2 (+,-,-)**
Shake-Out	23	**10%**	Patterns 1,3,8 (+,+,+), (+,+,-), (-,-,-)
Decline	12	**5%**	Patterns 5 & 7 (-,+,+) , (-,+,-)
	224	**100%**	