



NEAR EAST UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
DEPARTMENT OF BANKING AND FINANCE
BANKING AND ACCOUNTING PROGRAM

**THE IMPACT OF COMPANY FUNDAMENTALS ON
COMMON STOCK PRICES: EVIDENCE FROM
COMPANIES LISTED ON THE AMMAN STOCK
EXCHANGE**

YOUSEF AMER TAHAT

MASTER'S THESIS

NICOSIA

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THESIS SUPERVISOR
ASSOC. PROF. DR. TURGUT TÜRSOY

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2019

ACCEPTANCE

We as the jury members certify " The Impact Of Company Fundamentals On Common Stock Prices: Evidence From Companies Listed On The Amman Stock Exchange" prepared by Yousif Tahat defended on 19 June 2019 has been found satisfactory for the award of degree of Master.

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DECLARATION

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Date: 19th of June 2019

Signature:

Name and Surname: Yousif Tahat

DEDICATION

I begin with the name of Allah, the most merciful and gracious, Praise and Glory to him, for giving me strength, courage and exuberant determination to complete this part of educational journey. It is a pleasure to thank the many extraordinary people who made this thesis possible.

My greatest gratitude goes to my family and friends that made all of this possible. Thanks to my parents and my brother for always supporting my choices and giving me that little guidance I need from time to time. I also would like to give a special thanks to my mum who has helped and offered me a great support during entire study and research journey.

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ABSTRACT

THE IMPACT OF COMPANY FUNDAMENTALS ON COMMON STOCK PRICES: EVIDENCE FROM COMPANIES LISTED ON THE AMMAN STOCK EXCHANGE

The study sought to examine the effects of company fundamentals on stock prices of manufacturing companies in Jordan. The study was executed by employing the fundamental theory of stock prices, the Gordon-Shapiro Growth Model and the random walk theory as theoretical bases. The study was carried out using data from the year 2010 to 2018 collected from 9 manufacturing companies in Jordan. The data was used to estimate panel models with respect to the fixed and random effects models. The established findings showed that the fixed effect model is best suitable to explain the effects of company fundamentals on stock prices of manufacturing companies in Jordan. The results also showed that an increase in market price per share and total debts have a negative effect on volatile changes in stock prices. Changes in earnings per share, total assets and Tobin's Q were noted to be causing an increase in volatile changes in stock prices of manufacturing companies in Jordan. Recommendations were made that manufacturing firms need to engage in strategies that maximise their firm value, maintain good investor relations and positive investor sentiments.

Keywords: Company fundamentals, earnings per share, market price per share, stock prices, stock price volatility, Tobin's Q, total debt.

ÖZ

ŞİRKET TEMELLERİNİN HİSSE BEDELİ ÜZERİNDEKİ ETKİSİ: AMMAN BORSASIDA İŞLEM GÖREN ŞİRKETLERDEN KANITLAR

Bu çalışma Ürdün'deki şirket esaslarının imalatçı firmaların hisse senedi fiyatları üzerindeki etkilerini incelemeyi amaçlamıştır. Çalışma, temel hisse senedi fiyatları teorisi, Gordon-Shapiro Büyüme Modeli ve tesadüfi hareket teorisi teorik temeller olarak gerçekleştirildi. Çalışma 2010-2018 yılları arasında Ürdün'deki 9 imalatçı şirketten toplanan verileri kullanarak gerçekleştirildi. Veriler, panel modellerini sabit ve rastgele etki modellerine münasebeten tahmin etmek için kullanıldı. Belirlenen bulgular, sabit etki modelinin Ürdün'deki şirket esaslarının imalatçı firmaların hisse senedi fiyatları üzerindeki etkilerini açıklamak için en uygun yöntem olduğunu göstermiştir. Sonuçlar ayrıca hisse başına piyasa fiyatındaki bir artışın ve toplam borçların hisse senedi fiyatlarındaki oynak değişimleri olumsuz yönde etkilediğini göstermiştir. Hisse başına kazanç, toplam varlık ve Tobin'in Q'daki değişiklikler Ürdün'deki imalatçı firmaların hisse senedi fiyatlarındaki dalgalı değişikliklere neden olduğu belirtildi. Üretici firmaların firma değerlerini en üst düzeye çıkaran, iyi yatırımcı ilişkilerini sürdürdüğü ve olumlu yatırımcı duyarlılıklarını koruyan stratejilere girmeleri gerektiği konusunda önerilerde bulunulmuştur.

Anahtar Kelimeler: Şirket esasları, hisse başına kazanç, hisse başına piyasa fiyatı, hisse bedeli, hisse senedi fiyatlarındaki oynaklık, Tobin'in Q'u, toplam borç.

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ABBREVIATIONS

ADF:	Augmented Dickey-Fuller
AFE:	Arab Federation of Exchanges
ASE:	Ammani Stock Exchange
BVS:	Book Value per Share
DVS:	Dividend Value Stocks
DW:	Durbin Watson
EPC:	Economic Policy Council
EPS:	Earnings Per Share
FEM:	Fixed Effect Model
FDI:	Foreign Direct Investment
FF:	Fama and Finch
GLS:	General Least Squares
GDP:	Gross Domestic Product
JSC:	Jordan Securities Commission
MPS:	Market Price per Share
n.d:	No Date
PP:	Phillips Perron
REM:	Random Effect Model
ROE:	Return on Equity
ROI:	Return on Interest
SDC:	Securities Depository Center
SPV:	Stock Price Volatility
TA:	Total Assets
TBQ:	Tobin Q
TD:	Total Debt

INTRODUCTION

Background of the study

Stock prices are one of the key macroeconomic indicators whose changes provide key information about present and future financial and economic situations. One of the key areas which stock markets can be used to provide essential information is risk. Markowitz (1952) considered that changes in stock prices are a reflection of the riskiness related to a particular firm and or possibly the entire financial system or economy (through the stock market index).

Meanwhile, debate concerning changes and drivers of stock market is still ongoing and both contrasting and similar ideas are being established. Much of this is centred on the need to justify considerations that there are anomalies surrounding the determination of stock prices (Bhattarai, 2014). Much of the anomalies have to a large extent ignored the influence of financial reporting even though there exist both theoretical and empirical ideas justifying the existence of a relationship between the two. For instance, Nicholas and James (2004) highlighted that there are theoretical insights which link changes in stock prices to financial reporting. This idea dates way back to the 60s with the likes of Beaver (1968) indicating that the value of shares can be determined using information provided by earnings. Other studies went on to extend the same ideas and postulated that information stock prices are determined by a number of fundamental aspects. Basu (1977) considered price earnings ratio to be a key element that influences changes in stock prices; Stattman (1980) pointed out market equity ratio.

With regards to stock prices, different studies have managed to establish different kinds of relationships with the likes of Okafor and Mgbame (2011) establishing that stock prices are related to macroeconomic indicators. Notable differences can be observed with the results obtained between developed and developing countries. For example, a study done by Gautam (2017) in New Zealand established that there is a significant relationship between stock prices and financial markets.

Efforts to focus on macroeconomic variables and how they influence changes in stock prices has always been subjective. For instance, Fung and Lie (1990) considered that

using macroeconomic variables on stock prices is often an unreliable indicator of changes in stock prices. Fung and Lie (1990) further consider that this problem is prone to affect a lot of Asian countries which are considered to lack a sound ability to capture accurate information on shifts in macroeconomic fundamentals.

Meanwhile, the institution of sound financial and economic reforms in Jordan has brought so much economic resilience which has seen a lot of macroeconomic indicators such as inflation and unemployment stabilising to low values (Exchange Jordan, n.d). This has also resulted in major contributions towards improving economic and social development especially with regards to the manufacturing sector. Moreover, a lot of manufacturing companies in Jordan have been observing sound positive increase in the demand of their stocks together with their prices. This is relatively linked with fundamental aspects and the impact of fundamental variables in this case is explainable using findings made by Zubair and Kijboonchoo (2017) which showed that there is a significant interaction between firm specific variables and stock prices. There are not many studies that examine the effects of company fundamentals on stock prices with regards to Middle East countries such as Jordan. Moreover, findings made by related studies are not widely available and documented as to how they deal with the relationship between company fundamentals and stock prices. This study therefore seeks to examine how company fundamentals affect stock prices of manufacturing companies in Jordan.

Research problem

The debate concerning the effects of company fundamentals on stock prices have long been surrounded with a lot of debate which dates back to the 80s (Basu, 1977). The debate is based on whether firm specific factors alone are sufficient to explain changes in stock prices.

- **Problem one:** Theoretical frameworks such as the fundamental theory contends that a combined use of firm specific, industry and macroeconomic factors should be used to offer explanations about changes in stock prices (Al-Tamimi et al., 2011). This is because Jordanian economy has been characterised with a lot of structural, financial, industrial and economic stability (Exchange Jordan, n.d). This leaves changes in stock prices mainly reflected

by changes in firm specific factors otherwise known as fundamental factors. The major question and problem are to whether firm specific factors (company fundamentals) alone will offer reliable explanations especially with regards to Jordan.

- **Problem two:** Observations made showed that there are volatile changes in stock prices of manufacturing companies listed on the Amman Stock Exchange (ASE), (ASE, n.d). The stock price volatility index of manufacturing firms rose by more than 15% between the period 2010 to 2018 (ASE, n.d). The established causes of such volatile changes in stock prices are relatively different from those established by other studies (Al-Tamimi et al., 2011; Das & Pattanayak, 2009; Irfan & Nishat, 2002; Obeidat, 2009). That is, volatile changes in stock prices of manufacturing companies listed on the ASE are mainly driven by changes by changes in price earnings ratio (PES), earnings per share (EPS), total debt (TD), total assets (TA) and the Tobin's Q which reflects the value of the firm. As a result, there is no concrete idea as to how changes fundamental indicators trigger volatile changes in stock prices.
- **Problem three:** Some manufacturing firms listed on the ASE are facing challenges in sustaining increases in stock prices. Moreover, there are lack of measures or strategies to ensure that there is a sustained increase in stock prices of manufacturing companies in Jordan.

Research objectives

The main emphasis of this study is to determine the fundamental drivers of stock prices of manufacturing companies in Jordan. The study also seeks to;

- Examine the explanatory effects of firm specific variables with regards to price earnings ratio, market price per share, total debt, Tobin's Q and total assets on the stock prices of manufacturing companies in Jordan.
- This also includes measures needed to enhance the stock prices of manufacturing companies.

Research questions

The study also seeks to answer the following question research questions;

- What are the explanatory effects of firm specific variables with regards to price earnings ratio, market price per share, total debt, Tobin's Q and total assets on the stock prices of manufacturing companies in Jordan?
- What can be done to ensure that there is a sustained increase in stock prices of manufacturing companies in Jordan where some manufacturing firms are facing challenges in sustaining increases in stock prices?

Significance of the study

The study is essential in as far as the study on fundamental analysis is concerned as it results in improvements in the analysis of fundamental aspects of stock prices determination. This will be done by incorporating the Tobin's Q and total debts to examine how they influence stock prices especially with regards to Jordan. The study is also important for establishing ideas needed to promote an increase in investment in the manufacturing industry at a time when much investments are needed to promote economic growth through sectoral development. The study is also important for academic reasons as it provides more details on fundamental analysis aspects and their implications. This is significantly importance since a number of studies mainly focus on financial institutions and do not place much focus on the manufacturing sector.

Organisation of the study

The study will be structured into five chapters under which the first chapter provides introductory insights about company fundamentals and stock prices. The first chapter also provides details about the theoretical and empirical insights surrounding stock price determination and fundamental analysis. The second part offers details about manufacturing activities and the economic situation in Jordan as well as stock market activities. The third chapter deals with the methodological procedures that were used in this study. The fourth chapter presents an outline of findings made from the data

analysis process while the last chapter highlights conclusions, recommendations and suggestions that were made from the study.

Limitation of the study

The results of this study are based on an analysis of manufacturing companies in Jordan. Hence, they cannot be easily generalised and applied to other types of companies and countries other than Jordan. Data on stock prices was not accessible and the researcher had to use stock price volatility index data as a proxy of stock prices. This worked quite well as it made it possible to determine the volatile effects of company fundamentals on stock prices.

CHAPTER ONE

LITERATURE REVIEW

1.1 Introduction

This chapter provides details about the theoretical frameworks that were used to lay out a foundation of this study. The goal behind the use of theoretical models is to establish a point where the obtained results can be examined and discussed. As a result, the study considered the fundamental theory of share prices, the Gordon-Shapiro growth model and the random walk theory. The reason being that a core of their assumptions greatly reflected what transpired in Jordan between the period 2010 to 2018. During this period, little or events were recorded with respect to industrial and macroeconomic effects on stock prices. Such changes were in respect of firm specific factors and were examined using prevailing empirical studies.

1.2 Theoretical frameworks

Three major theories on stock prices were not apply in this study and these theories are the fundamental theory of share prices, the Gordon-Shapiro growth model and the random walk theory. Conditions under which these theories applied and how effective and reliable these are or were in explain changes in stock prices are discussed in details as follows;

1.2.1 The fundamental theory of share prices

The fundamental theory of share prices is based on the assumption that share prices are determined by three distinct elements which can be categorised into (i) firm

specific factors, (ii) industry relevant information and (iii) macroeconomic determinants (David & Veronesi, 2000). The existence of the factors means that any one of them can affect share prices at any moment in time. The effects can also be combined effects in which all the combined three aspects are imposing changes in a company's share prices. This theory was employed to determine how company fundamental affects to stock prices of industrial companies listed on the ASE.

The prime assumption of this theory is that each share has what is called an intrinsic value (Damodaran, 2007). This value helps to determine if the share is undervalued or overvalued and the related factors that will cause its price to change or adjust until a new equilibrium is attained. At this level of the new price the intrinsic value of the shares will neither be undervalued or overvalued.

With regards to overpriced shares, the idea is to dispose them before their prices starts to fall. Under such cases, companies can experience volatile changes in their share prices and this can affect a number of key corporate fundamentals. This includes current and future investment levels, growth and expansion programs, diversification structures and funding etc. This is mainly because of investors sentiments as they react to the changes in the firm's share prices (Bhattarai, 2014).

A study by Okafor and Mgbame (2011) revealed that changes in share prices have important implications on other company fundamentals. Gautam (2017) reiterated the same idea and outlined that earnings per share (EPS) usually drop in respect of a fall in the share price of a company's stock. With regards to under-priced shares, the rational move is to buy the shares before their prices starts to increase. All this requires continuous evaluations and monitoring of companies' financial information as the fundamental factors constantly change. Such helps to determine if the stocks are undervalued or overvalued and hence it is worthy to and deduce that the fundamental theory of share prices helps to determine if stocks are undervalued or overvalued. Also, with respect of such changes, the three aspects which relate to the firm, industry and macroeconomic activities.

1.2.2 The Gordon-Shapiro growth model

The Gordon-Shapiro growth model (GGM) provides a way of determining the intrinsic value of a stock based on the assumption that future dividends will grow on a constant rate (Gordon, 1962). The model assumes that dividends have either a zero-growth rate or will grow at a constant rate. The first scenario normally holds under conditions where there are no changes in economic indicators such as inflation (Gordon, 1962). Under such cases, the following formula is often used to compute the value of the stocks (P_0);

$$P_0 = D/i \quad (1.1)$$

Where D is dividend per share and i is the required rate of return.

$\frac{D_1}{r-g} = P_0$, rearranging it results in $\frac{D_1}{P_0} + g = r$ which is known as the total return obtained from holding the stock. In other words, it considers that total return is a sum of capital gains and income made from holding the stock. The DDM further assumes that the growth in income does and will never surpass the costs of equity (Nirmala et al., 2011). This is relatively true in the long run as opposed to the short run under which ($r-g$) is considered not assume any negative value.

The DDM also highlight that previous stock values offer ideas about the likely future stock values. In other words, the growth in dividends is presumed to be perpetual (Das & Pattanayak, 2009). Given a condition that the growth of a company's dividends is g , shareholders expect a rate of return r and that the approved annual dividend is D then, the value of the value of the business V can thus be determined as follows;

$$V = D/(r - g) \quad (1.2)$$

The GGM assumes that dividends can grow at a constant rate g (1.2). However, a more realistic situation would involve changing the first expression so that so that it accommodates different profitability ratios of each period by projecting dividends (1-n). this results in the following expression;

$$V_0 = \sum (D_i / (t-g)^i) + [D_n / (1+t)^n] [(1+t) / (t-g)] \quad (1.3)$$

The problem with this theory is that it assumes that dividends grow at a constant rate and this makes it only applicable to companies whose dividends per share grow at a stable growth rate. Thus, companies whose dividends fluctuate in a volatile manner may find it difficult to apply the GGM. This assumption often does not hold most of the times. This is because dividends can change especially when company directors deem it possible to change the dividends paid due to an adverse economic situation such as a depression (Gordon, 1962). Gordon also considers that the effects of a financial crisis can cause company directors to offer low dividends. Gordon further posits that periods of high economic or financial instability are sometimes evident by cases where company directors do not declare dividends at all. Under such cases, the validity and applicability of the GGM will be compromised. Das and Pattanayak (2009) noted that periods of high inflations can either cause dividends to be either reduced or increased depending on the performance of the company.

Meanwhile, ideas by Nirmala et al. (2011) highlighted that the value that is established from the application of the GGM is in most cases not confirmed by the market. Also, a key of the factors that are involved in the computation of this formula are not easily definable. Under such cases, it is therefore important to note that the applicability and validity of the GGM will not hold. Hence, other approaches will be needed to explain how company fundamentals will influence a company's stock price.

1.2.3 Random walk theory

This theory presumes that changes in stock prices tends to exhibit an independent behaviour (Obeidat, 2009). In other words, the theory presumes that past stock prices have no effect on future stock prices. Hence, ideas by Fama imply that past stock prices will not have an effect on the determination of future stock prices. Thus, changes in stock prices are successively independent of each other.

Another thing to consider with the random walk theory is that it assumes that market is efficient and bound to attain higher levels of efficiency at all costs. The condition surrounding efficient is based on the assumption that there is perfect competition among traders and firms (Sharif et al., 2015). Both firms and traders are also presumed to be in possession of perfect information about corporate and trading activities (Obeidat, 2009). The existence of perfect information and competition conditions stirs

up efficient market behaviour among the financial players. Moreover, the nature of information that is available on the market is also indicated by the prevailing share price. Which means low share prices are a reflection of perfect information which is highly available to all the financial players. Changes in stock prices are also an indication of changes in events surrounding the stock prices and company operations.

So, what drives stock prices in this case can thus be said to be the individual behaviour of market participants and the existence of new information. Midani (1991) considered that the availability of new information causes prices to change instantly so as to reflect the existence of new information on the market.

One of the notable implications that can be deduced from the random walk is the possibility of investors to outperform the market in the long run. This is because the theory assumes that it is impossible if not difficult to predict changes in stock prices (Al-Shubiri, 2010). This has significant effects on risk management and investment decisions made by investors because the ability to make huge returns by assuming limited risks. This encourages investors to assume more risks (bullish). Damodaran (2007) highlights that the best strategy is for investors to invest in portfolios containing more of such stocks.

The random walk theory can be used to explain how company fundamentals triggers changes in stock prices of manufacturing companies. This is because it acknowledges that it is not necessarily previous stock prices that causes a change in future stock prices. This is relatively as investors often look at current stock prices together with future forecasted prices to determine if they should invest or not.

The problem with this theory is that it overlooks the idea that any stock market has a lot of different investors. According to Al-mumani (2014) pinpointed out that investors are different and all have different time at their disposal. As a result, trends in the prices of stocks can develop. In addition, investors especially those that are savvy can get to a stage where they can outperform the market. Meaning that they can even buy stocks at a low price and sell them at a relatively higher price. Sharif et al. (2015) also criticised the random walk theory citing that the prices of stocks does not follow trends or patterns. This is because stock prices are affected by a lot of indicators which include firm, industry and macroeconomic factors. All these indicators may make it difficult to accurately predict the behaviour of stocks in the long run.

There are also other ideas such as those provided under technical analysis which criticise the random walk theory. These ideas show that if investors possess unique and better trading and market analysis skills, they can outperform the market (Al-Shubiri, 2010). The technical analysis also considers that it is highly possible to predict future prices of stocks using their previous prices. Other proponents of the technical analysis also traders do not just outperform the market by chance or luck as noted by the random walk (Al-Shubiri, 2010; Damodaran, 2007; Sharif et al., 2015). In other words, they consider that skills and knowledge are the basic keys needed to outperform the market (Almumani, 2014; Damodaran, 2007).

1.3 The Importance of financial statements in the evaluation of stocks

Financial statements serve an important purpose both to the company and outsider for quite a number of different reasons. For instance, Midani (1991) considers that the general public, investors and other stakeholders need financial statements so as to obtain reliable information about how well the company is doing and how they are being impacted by the company's operations. Such is always important to obtain and examine whether the economy is doing well or not. But most importantly, in difficult times, the important of financial statements can be so valued as investors and other stakeholders try to avert risks of losing (Nirmala et al., 2011). Such cases are characterised by company failures, bankruptcy, liquidation and financial crises and failures takes the attention of consultants and researchers because of global economic situation.

To investors at large, their decision to invest in a company is based on decisions made using financial statements. As such, the nature of information depicted by the financial statements must be accurate and reliable at all costs. This is where transparency and disclosure principles come in hand. Malhotra and Malhotra (2008) considered that financial statements must abide by the principles of transparency and disclosure and under no circumstances should the financial statements be manipulated or certain information concealed. This is bad corporate practices and reference can be made to examples such as the Enron Saga. The saga was associated manipulative disclosures and investors went on to lose their funds.

On the other hand, financial institutions also rely on financial statements to make decisions as to whether they should grant credit in the form of loans to companies (Das & Pattanayak, 2009). Normally, a creditworthy corporation is one that has good financial indicators and can be considered to be financially stable and, in a position, to repay the debt within a short period of time and not get declared insolvent.

Financial results can be used for benchmarking purposes through which comparisons are made between a company with that of other companies and against industry averages. This is important as it forms part of SWOT analysis through which strengths and weaknesses of the company can be determined. It is then easy for creditors and investors to determine the position the company's position in relation to the industry.

1.4 Anomalies in stock markets

There are considerations which point out that changes in stock prices can be affected by anomalies which causes the stock market index to offer unreliable explanations. One key observation that has been noted is in relation to different elements of stock returns which have been established to show different types of correlations (Nirmala et al., 2011). In other words, it is presumed that there is a certain level of unpredictability that exists with stock prices (Kahneman & Tversky, 1973). Prior to that, Slovic and Lichtenstein (1971) had discovered through behavioural finance that there is an un-predictability element that surrounds the determination of stock prices. This led to the establishment of the idea that individuals prefer extreme prediction values that go along with the extreme predictive information they possess.

The existence of stock market anomalies was also establishment following the work conducted by Ball (1978) which highlighted that there is a post behaviour that follows the announcement of earnings which causes market inefficiencies. This is notably true because we cannot assume traders to react the same following an announcement of earnings. Hence, it is worthy to consider that traders will always be associated with asymmetric reactions to financial news and events. This causes stock prices to change in a manner which causes them not to reflect their actual values as postulated by the efficient market hypothesis.

The basic idea is that future stock prices could be explainable using past stock prices and thus providing a good insight about stock prices movements. But a study carried out by Kleidon (1981) later provided proof that such price movements were characterised by a lot of exaggerations. Conclusions were drawn that such movements were best described by earnings and not price-dividends. This affirms the idea that investors do not place huge emphasis on dividends trends in the short run but towards short-term economic conditions (De Bondt & Thaler, 1985).

1.4.1 Fundamentals

Stocks have fundamental elements that help to determine their values in respect of their intrinsic values with regards to EPS, growth rates, price-to-sales, price-to-book, price-to-earnings and dividends yields ratios. Investors can use these indicators to make profits out of a particular situation as to whether the stock are undervalued or overvalued (Irfan & Nishat, 2002). Consequently, firms high PBs and EPS are considered to offer huge returns which surpass that of the market whereas those with good growth and dividend levels were presumed to offer inaccurate indication of future expected returns (Al-Malkawi, AlShiab & Pillai, 2018).

1.4.2 Size

There are anomalies that can be observed with respect to the size of the firm which are termed the “small firm effect” (David & Veronesi, 2000). The basic observation is that small firms can often perform better than large firms in terms of stock returns. Though small firms have been noted to be associated with high risk, there are cases whereby small firms have been observed to have higher stock return than those of large firms (Damodaran, 2007). Of which small have always been known for failing to sustain overreaction significance and this causes the problem of failure to accurately abnormal profits.

1.4.3 Seasonalities

Stock returns are always subject to change in a volatile manner one way or the other. Seasonality effects arise when the last period of anomalous returns is associated with low autocorrelations (Sadorsky, 2003). The anomalies will vary with time and the notable time anomaly is the ‘January effect’ where extreme returns are obtained as the volume and prices of traded stocks increase in countries like America and fall in

some countries because of what is called the 'January disease'. As such, the stock market can be said to be associated with Seasonalities that vary with time and can have extreme high returns in one period and less in the other.

1.4.4 The FF factor model

The Fama and French FF factor model is part of an attempt to use macroeconomic variables to describe stock anomalies. The resultant outcome is known as the CAPM which controls for firm-specific factors, firm size and bid-ask spread established by Fama and French (1993). Such stock market anomalies tend to disappear when these 3 aspects are taken into consideration. The model considers that stocks ought to be put into two categories which reflect the overall value of the company and that is small and large caps. This would in turn be determined by looking at earnings, growth rates, PE ratio, dividends yield and equity (Al-Shubiri, 2010). This helped in placing a distinction between value and growth stocks. As a result, value stocks are more preferable as compared to growth stocks. However, this does not mean that all investors will favour value stocks as opposed to growth stocks. The reason being riskiness, high institutional demand, series of good performances etc.

1.5 Determinants of stock prices

The determinants of stock prices can be categorised into three broad categories namely firm specific, industry and macroeconomic determinants. These are herein discussed as follows;

1.5.1 Firm specific determinants of stock prices

Observations made in Jordan which revealed that much of the changes in stock prices especially that of manufacturing companies were highly being drive by firm specific factors. As a result, the fundamental analysis was employed to determine which fundamental firm factors would explain changes in the value of the manufacturing companies' stock prices.

1.5.1.1 Price earnings ratio

This is a valuation indicator which provides information of how well the price of a share stands in relation to earnings that will be obtained from holding that share (David & Veronesi, 2000). The PES ratio is used by investors to compare how well a firm's share

performs against other shares. It can also be used to examine the performance of the company itself by looking at the earnings made between different periods. As such, a high PES is an indication of better performance and investors will most likely buy shares of companies with high PES. A high demand of shares of companies with a high PES will translate to an increase in the price of their stocks. Hence, its relationship to the price of a stock is positive. However, a negative relationship can be obtained to investor sentiments in which investors may be sceptical about the operations of a company as noted by Bhattarai (2014).

1.5.1.2 Market price per share

The market price of share (MPS) is simply a reflection of how much the company's shares will be sold at or how much they will fetch when sold (Okafor & Mgbame, 2011). The MPS is always bound to change with respective changes in the economy as well as the stock market. Thus, positive changes in in the economy as well as the stock market will result in an increase in the MPS. The opposite is true and, in this case, a positive relationship between MPS and stock prices will be presumed.

1.5.1.3 Book value per share

This relates common shareholders equity to the number of outstanding shares to determine if the company's stock is undervalued or overvalued (Gautam, 2017). A high value shows that the company's stock is undervalued and the resultant impact is that the price of that stock will increase to reflect its actual price. Hence, the relationship between the price of any stock and its book value can be considered to be positive.

1.5.1.4 Dividend per share

This refers to the dividends that are declared by the firm for outstanding shares (Damodaran, 2007). This is an important company fundamental because it provides details as to how income the shareholders will get for investing in a company. Thus, a high dividend per share indicates that the company has a better ability to sustain its earnings and under such cases the demand for its stocks is more likely to rise leading to a positive volatile change in the company's stock prices.

1.5.1.5 Firm Size

Firm size is relatively an indicator of how big the company is in relation to other companies using a common base of measurement or indicator (Damodaran, 2007). Though indicators of size can vary with some including market capitalisation as an indicator of size, the amount of assets the company has in its possession is the most widely used indicator. An increase in size of the company can be said to trigger a volatile increase in stock prices (Damodaran, 2007). This is because the more investors invest in company assets, the more they are exposing their funds to risk as opposed to diversification where losses in one investment is countered by profits made by other investments.

1.5.1.6 Tobin's Q

The Tobin's Q equates the firm's assets replacement costs to its market value (Chen & Dhiensiri, 2009). That is, the replacement costs of a company's assets should equal its market value. This indicator is based on the assumption that the book value of a company together with its market value are equal. In this way, investors can tell if a company is undervalued or overvalued. A low Q which in all the cases is less than 1 indicates that the company is undervalued and a figure above 1 show that the is undervalued (Denis & Osobov, 2008). Both cases can trigger volatile changes in stock prices the former will be a decline while the latter will be an increase.

1.5.2 Industry determinants of stock prices

Industrial changes pertain to external factors that shape and govern the operation of specific industries in an economy (Sadorsky, 2003). This denotes how things such as industrial index be it the financial, manufacturing or services industrial index affect the value of stocks. Industrial changes are normally governed by seasonal changes in the production or availability of certain raw materials as well as changes in needs and wants that come with changes in the season. Chan and Hameed (2006) highlighted that the industrial index can either gain or lose value following structural changes in the economy. Thus, the effects of industrial factors on stock prices is influenced by whether the industry has been going through a series of improvements or adverse effects. The latter will cause an increase in stock prices of firms in that industry as well

as those of complementary activities. Meanwhile, the former will result in a decrease in the stock prices of firms in that industry and related activities.

1.5.3 Macroeconomic determinants of stock prices

Macroeconomic determinants also determine if stock prices are going to increase or fall. The macroeconomic determinants of stock prices are changes in the exchange rate, economic policy, economic and political shocks, deflation, inflation, economic outlook and interest rate. These are discussed as follows;

1.5.3.1 Exchange rate

Stock prices can move in response to changes in the country's exchange rate against major currencies. That is, a currency appreciation or depreciation determines how stock prices are more likely to behave (Chan & Hameed, 2006). For instance, if a currency appreciates against that of major currencies, then goods exported will be relatively expensive than before. As result, exports together will export revenue may fall and cause stock prices to fall, as well.

1.5.3.2 Changes in economic policy

Economic policies are responsible for warranting both financial and economic stability. It is therefore important for governments to make sure that their institute proper economic policies. The quality and effectiveness of economic policies made by the government will be reflected through a series of macroeconomic indicators such as inflation, recessions, unemployment, exchange depreciations etc, which impose negative effects on corporations together with their stock prices. Al-Shubiri (2010) strongly concurs with this idea and contends that failure by the government to institute proper policies can make it difficult for businesses to thrive. This may be associated with high interest rates and inflation which may trigger a fall in stock prices.

1.5.3.3 Economic and political shocks

Economic and political shocks are key events that have disastrous effects on stock prices. Their occurrence is tied to national and global changes taking place and these do not only affect stock prices but also affect the economy as whole. The effects of the financial crisis cannot be isolated among a list of economic shocks that hinders an

increase in performance stock market. Pandit and Zach (2011) considers that the economic and financial shocks are enough to cause financial distress which can cripple the entire financial system. Most of the financial and economic shocks that take can pass from one country to another in the form of a contagion. Political shocks on the other hand, have an effect of making it difficult for business to thrive better. Political incidences are associated with high risks of investing in that particular country and hence investors will relocate their investments to much safer investment destinations. This will see stock prices falling as investors dispose off their stakes (Balke & Wohar, 2006).

1.5.3.4 Deflation

A slowing down economy can be sad to be deflating and this imposes serious negative effects on companies (Morck, 2000). This is because profits will fall with the reduction in prices that will be going on in the economy. On the other hand, the price of stock will go down and investors reallocate their funds towards fixed income bearing investments such as bonds. This is similar to the Great Depression which occurred and saw a lot of stocks losing value on the financial market.

1.5.3.5 Inflation

Inflation is one of the key economic indicators that imposes huge negative effects on stock trading. This is because inflation erodes the time value of money inflation when the investments and or loans made have a fixed value (Lee, 2006). The effects of inflation have been known to drive down sales and corporate profits earned (Morck, 2000). Efforts by the Central Bank to deal with inflation by raising interest rates can have an adverse effect on stock prices. This is through opportunity costs and rationality in which it becomes more rational for investors to invest in high interest earning assets. The opportunity cost is the additional interest revenue which they could have earned by investing else. Hence, the greater the opportunity cost, the more investors will invest in other assets or activities outside the concerned. This will cause the value of the firm's stock to fall.

1.5.3.6 Economic outlook

Changes in economic activities are a reflection of the economic outlook and any prevailing economic outlook provides an indication to investors of possible investment

strategies. That is, if stock prices will fall or rise in relation to either economic growth and a recession. AL Qaisi et al. (2016) observed that stock prices usually rises in prices of high economic growth as economic activities and income levels among consumers and firms arise as well. Thus, to an investor, an improvement in economic outlook provides a better probability that investors will make profits in the future from investing in particular stocks. The opposite is true and periods of uncertainty are characterised by volatility and high risks which may trigger stock prices to fall due to bearish behaviour.

1.5.3.7 Interest rates

It is the mandate of any central bank to utilise interest rate policy to attain economic stability. The use of interest rates is either to promote investment or to discourage unnecessary consumption behaviour. With regards to companies, companies can borrow money in the form of a debt so as to finance production or operational activities. The extent to which they can borrow depends on the prevailing interest rates. That is, the cost of borrowing will be reflected by the level of interest rates paid by the company. In this case, high interest rates will have an effect of reducing the company's profit levels (Almumani, 2014). This will have an effect of reducing the level of profits that is available to pay dividends to shareholders. As a result, the company may witness a decline in its share price. Hence, the relationship between share price and interest rate is presumed to be negative. This can also be supported by ideas established by Sharif et al. (2015) who contend that high interest rates have an effect of causing other investment platforms or avenue to look profitable. Which causes investors to switch towards alternative investments. This causes the firm's stock prices to fall.

The fundamental theory together with its analysis can be said to be beneficial in the sense that it places focus on important and relevant areas. That is, it does not have an underlying assumption. However, the major challenge pertains to the accuracy of decisions made because companies can provide inaccurate of information. At times, companies can hide the required information. Moreover, it lacks an ability to offer predictions about the randomness of activities surrounding the determination of share prices.

1.6 Empirical literature on company fundamentals

Al-Tamimi et al. (2011) did a study of companies in the UAE by employing a panel OLS method that regresses the effects of interest rate, consumer price index and money supply on stock prices. The observed findings pointed out that GDP, money supply and EPS are positively related with stock prices. However, changes in interest rate, consumer price index were noted to be negatively related with stock prices. This was accompanied by a study conducted by Zubair and Kijboonchoo (2017) which drew similar focus but based on evidenced from Pakistan companies using VAR and Granger causality. Their results established that earnings yield, government debt, inflation, BOP, REER and IPI will often change to cause positive effects on the stock market index

Al-Malkawi, Al-Shiab and Pillai (2018) focused on examining the effects of company fundamentals on stock prices of companies in the MENA region using a Feasible GLS method. The model estimation approach regressed the effects of PES, EPS, DVS, BVS, ROE and MPS on stock prices. Their results revealed that there are positive changes in stock prices that are related to improvements in PES, EPS, DVS, BVS and ROE. Their results also showed that a negative relationship also exists between MPS and stock prices.

Irfan and Nishat (2002) concentrated their efforts on examining how shares prices of companies listed on Pakistan's Karachi stock exchange respond to changes in earnings, leverage, asset growth, pay-out ratio, dividend yield and firm size. This was done using a Cross sectional OLS and the findings showed that dividend yield, leverage, firm size and pay-out ratio have significant effect on stock prices. This is more likely to influence the results obtained in this study because the companies are listed on the ASE.

Das and Pattanayak (2009) used a panel OLS method to evaluate the effects of volatility, risk, valuation, growth, ROI, earnings on stock prices of Indian financial institutions. It was noted that there were negative effects of volatility and risk on stock prices. However, valuation, growth, ROI, earnings were observed to be having positive effects on stock prices. This was also similar to a study done by Nirmala et al. (2011) who analysed a group of companies in India using a panel OLS approach to regress the effects of volatility, risk, valuation, growth, DPS, size, ROI, earnings on stock

prices. It was noted that there exists negative effects of volatility and risk on stock prices but valuation, growth, ROI, earnings, DPS and size were noted to have positive effects on stock prices.

Midani (1991) did a study that relied on the use of a panel OLS to estimate annual times series data of 19 companies in Kuwait. The explanatory variables were EPS, BPS, MPS and firm size. The results were in support of the idea that EPS has notable effects on stock prices. The results also showed that BPS, MPS and firm size had positive effects on stock prices and conclusions were made that changes in stock prices were mainly observed to differ between industries.

Obeidat (2009) used data collected from 38 companies in Abu Dhabi to estimate a panel OLS with variables firm size, PES, Book value, EPS and MPS being the independent variables. The findings revealed that firm size, PES, book value, EPS and MPS are positively related to changes in stock prices. The results were part of efforts to stress the importance of company fundamentals on stock prices.

Sharif et al. (2015) conducted a study based on Bahrain using data from the period 2006 to 2010. The results obtained from the pooled OLS estimation showed that firm size, PES, dividend yield, DPS, BPS, ROE are significant determinants of stock prices. All these variables were observed to be having positive effects on stock prices. Conclusions were made that company fundamentals have significant effects on stock prices.

Almumani (2014) placed their focus on examining companies in Jordan using a pooled OLS approach. The study estimated a model based on MPS, EPS, BPS and PES, the results revealed that MPS, EPS, BPS and PES are positively related to improvements in stock prices. The effects are conditional and vary from industry to industry. Al Qaisi et al. (2016) did a similar study that was also based on examining companies in Jordan using a pooled OLS model estimation techniques. It was noted that improvements in MPS, EPS, BPS, PES and pay-out ratio will result in an increase in stock prices. The effects not only vary with industry but also vary according to changes in the macroeconomic environment.

Lee (2006) incorporated fundamental and non-fundamental aspects to determine their effects on stock prices of 30 companies listed on the NYSE in USA using a panel OLS approach. It was noted that dividends, earnings, book value, total equity, total assets,

total liabilities, net income. All fundamental determinants are unilaterally related to changes in stock prices. The effects of non-fundamental determinants vary but mostly causes an increase in stock prices.

Morck (2000) used an OLS approach to conducting a panel analysis of the reasons why emerging markets have high varying stock price movements. The study included the effects of credit flow, sales and debt intakes, size and performance of firms. The results outlined that large firms are more likely to have high varying stock prices as opposed to small firms. The results also suggested that having an ability to perform better as opposed to market peers will result in an increase in the price of the firm's stock.

Pandit and Zach (2011) did a quantitative analysis of the effects of information externalities on stock prices using an OLS approach. The study is based on the influence of economic factors on stock price. The results showed that an improvement in economic outlook will result in an increase in share prices. the results however showed that poor economic performance and the worsening of the business outlook will result in a decline in share prices.

Balke and Wohar (2006) also used an OLS approach to determine factors that cause changes in stock prices. Their findings were based on both technical and economic factors and the results indicated that size, performance and liquidity have positive effects on stock price and the same applies to economic performance. This entails that size, performance and liquidity will have a positive impact on Jordan's industrial firms' stock prices.

Al-Shubiri (2010) did an examination of the determinants of market stock price movements using panel data collected from commercial banks in Jordan. The study takes into account of both firm specific and technical factors and argues that firm specific factors have an important implication on stock price as opposed to technical factors. This will thus form a bases upon which the findings made in this study will be compared to.

Chan and Hameed (2006) did a similar study but focused on emerging markets. Arguments made are in support from the idea made in this study that stock price determinants are more likely to vary with industry and country under study. Hence, their results will be used as a base of support in this study.

Sadorsky (2003) placed focus on determining the macroeconomic determinants of stock price volatility. Insights from his study showed that the ability of firms to innovate technologically places them ahead of other firms. This therefore means that they will be in a strong position to make more profits as opposed to their competitors. Hence, this cause investors to demand more of these firms' stock causing their stock prices to increase. All these ideas thus place the importance of looking at the firm specific factors that affect stock prices especially considering that the effects of these factors vary from one country to another.

Denis and Osobov (2008) used a multivariate analysis to examine movements in stock prices following changes in fundamental aspects of companies in New Zealand. This study is similar to the one conducted by Chen and Dhiensiri (2009) in Nigeria using the same multivariate analysis. Their findings were similar and it was observed that there is a positive relationship between stock return and dividend policy.

Bhattarai (2014) placed focus on assessing stock price changes of companies in Nepal using a Panel OLS. The study regressed the stock prices against changes in dividend yield, PES and EPS. It was noted that there is an inverse relationship that exists between share price and dividend yield but changes in stock prices were also noted to be positively related with PES and EPS.

Gautam (2017) drew focus on Nepal and employed a panel OLS which incorporated the effects of dividend yield, pay-out ratio, market capitalisation and leverage on stock prices. The results were in support of the findings made by Okafor and Mgbame (2011) which examined companies in Nigeria. Their findings were relatively similar and highlighted that dividend yield, pay-out ratio, market capitalisation and leverage are positively related with stock prices. On the other hand, EPS, TA and BPS were noted to be inversely related with increases in stock prices. Okafor and Mgbame (2011) also used a multivariate analysis to examine companies in Nigeria. The findings are also relatively similar and they showed that dividend pay-out has both positive and negative effects on share prices whereas dividend yield has a positive effect on share prices.

Abdullah and Tursoy (2019) conducted a study that examines the relationship between capital structure and firm performance using evidence collected from Germany under IFRS adoption. Their study used annual data from the year 1993 to 2016 and the results showed that changes in firm performance are positively related to changes in

capital structure. The results further revealed that a huge volume of non-financial firms' assets is financed by debt. This was believed to be as a result of low debt issuing costs and tax benefits. This means that improvements in capital fundamentals with respect to debt equity ratio will have positive effects on firm performance.

Rjoub, Türsoy and Günsel (2009) studied the effects of macroeconomic factors on stock returns of the Istanbul stock market using an OLS approach. Their findings revealed that there are a lot of significant differences in market portfolios of firms listed on the Istanbul stock market. Which means that possible similar observations are more likely to be observed with firms listed on the ASE. This provides proof of the idea that company fundamentals vary between firms and industry and that its effects on stock prices are also more likely to vary.

Tursoy, Günsel and Rjoub (2008) did a study that looked at macroeconomic factors, the APT and the Istanbul stock market using an OLS approach. Their study focused on the effects of macroeconomic factors on stock prices. Their conclusions revealed that macroeconomic factors such as money supply, inflation, crude oil prices, unemployment, foreign reserves and GDP have huge effects on stock prices. However, their recommendations revealed that there is a huge need to incorporate fundamental aspects into analysing changes in stock prices. This supports the main objective of this study which is to look at how company fundamentals affect stock prices.

Tursoy and Faisal (2018) used an ARDL bounds test and combined cointegration to look at the impact of gold and crude oil prices on stock market in Turkey. The results showed that gold prices and stock prices are negatively related in the short and positively related in the long run. Their suggestions also supported previous observations made by Tursoy, Günsel and Rjoub (2008). That is, there is a need to incorporate company fundamentals into examining how they influence changes in stock prices. This therefore shows that there a great need to examine how company fundamentals affect stock prices of firms listed on the ASE.

Based on these ideas it can be noted that the effects of company fundamentals on stock prices need to be determined especially in a country like Jordan. This is because Jordan has experienced market, financial and structural stability have stock prices that are significantly influenced by changes in fundamental indicators. As a result, the

effects of company fundamentals need to be isolated and determined. This can be supported by insights given Sadorsky (2003) which stressed the importance of doing studies to meet specific geographical conditions. Furthermore, deductions can be made that differences in economic, industrial and firm specific factors between countries reiterates the importance of this study. In addition, the provided literature has helped in identifying research gaps with respect to the variables MPS, EPS, TD, TA and TBQ. The next section therefore looks at the development of the conceptual framework and how it can illustrate changes in stock prices of manufacturing companies in Jordan.

1.7 Conceptual framework

Based on the above given literature examinations, it can be noted that the effects of total debt and changes in Tobin's Q have not been given due considerations. Thus, this study will incorporate these two aspects to examine how they help to explain changes in stock prices of manufacturing companies listed on the ASE. This will be done by incorporating notable company fundamentals which have been established to be having huge effects on stock prices and these are MPS, EPS and TA. As result, the following conceptual framework will be used to offer ideas about how changes in company fundamentals explain changes in stock prices of manufacturing companies listed on the ASE.



Figure 2.1: Conceptual framework

Source: Author (2019)

Hence, the above model will constitute part of an idea that will be used to estimate the panel regression model. This will be based on the idea that stock price volatility (SPV) is a function of MPS, EPS, TD, TBQ and TA which can be expressed as follows;

$$SPV = F(MPS, EPS, TD, TBQ, TA) \dots\dots\dots (1).$$

Expectations are that both variables will exert positive effects on SPV. However, MPS and EPS can pose both negative and positive effects on SPV as noted from the provided literature review. As a result, a panel regression model will be estimated based on this conceptual framework.

1.8 Chapter summary

The main emphasis of this chapter was to lay a foundation upon which results obtained in this study will be examined using the laid out theoretical and empirical ideas. This was accomplished through the use of both theoretical and empirical frameworks. Notably, the fundamental theory of stock prices, the Gordon-Shapiro growth model and the random walk theory. Using these 3 theoretical foundations, it can be noted that a key aspect that influence stock prices especially those of companies in Jordan are firm specific factors. This is relatively true when considerations are made that between the period 2010 to 2018, the economy of Jordan remained relatively stable with no structural and financial imbalances. The determination of stock prices is surrounded by anomalies which include fundamentals, size, Seasonalities and FF model related anomalies. Such anomalies affect the accurate determination of stock prices. Meanwhile, the impact of company fundamentals on stock prices of manufacturing companies in Jordan cannot be underestimated observing that much of the changes in the stock prices of manufacturing companies were due to changes in firm specific factors. The notable fundamentals that impose huge effects on stock prices are EPS, MPS and total assets. However, a number of studiers do not consider the effects of total debts and Tobin's Q to explain changes in stock prices. This study will therefore incorporate both EPS, MPS, total assets, total debts and Tobin's Q to explain how they caused changes in stock prices of manufacturing companies listed on the ASE in Jordan.

Table 1.1: Summary of empirical studies

Author(s)	Country	Approach	Variables	Results
Al-Tamimi et al. (2011)	UAE	Panel OLS	Interest rate, consumer price index, money supply, GDP.	GDP, money supply and EPS are (+)vely related with stock prices. Interest rate, consumer price index (-)vely related with stock prices.
Zubair & Kijboonchoo (2017)	Pakistan	VAR and Granger causality	Earnings yield, government debt, inflation, BOP, REER, IPI	Earnings yield, government debt, inflation, BOP, REER, IPI are positively related to stock market index
Al-Malkawi, AlShiab & Pillai (2018)	MENA	Feasible GLS	PES, EPS, DVS, BVS, ROE, MPS.	Positive relationship between PES, EPS, DVS, BVS and ROE, PES, EPS, DVS, BVS, ROE, and stock prices. Negative relationship between MPS and stock prices.
Irfan & Nishat (2002)	Pakistan	Cross sectional OLS	Earnings, leverage, asset growth, payout ratio, dividend yield, firm size.	Dividend yield, leverage, firm size and payout ratio have significant effect on stock prices.
Das and Pattanayak (2009)	India	Panel OLS	Volatility, risk, valuation, growth, ROI, earnings	Negative effects of Volatility and risk on stock prices but valuation, growth, ROI, earnings have positive effects on stock prices.
Nirmala et al. (2011)	India	Panel OLS	Volatility, risk, valuation, growth, DPS, size, ROI, earnings	Negative effects of Volatility and risk on stock prices but valuation, growth, ROI, earnings, DPS and size have positive effects on stock prices.

Author(s)	Country	Approach	Variables	Results
Midani (1991)	Kuwait	Panel OLS	EPS, BPS, MPS, firm size	EPS has notable effects on stock prices as opposed to BPS, MPS and firm size.
Obeidat (2009)	Abu Dhabi	Panel OLS	Firm size, PES, Book value, EPS and MPS	Firm size, PES, Book value, EPS and MPS are positively related to changes in stock prices
Sharif et al (2015)	Bahrain	Pooled OLS	Firm size, PES, dividend yield, DPS, BPS, ROE	Firm size, PES, dividend yield, DPS, BPS, ROE are significant determinants of stock prices
Almumani (2014)	Jordan	Pooled OLS	MPS, EPS, BPS and PES	MPS, EPS, BPS and PES are positively related to improvements in stock prices. The effects are conditional and vary from industry to industry.
AL Qaisi et al. (2016)	Jordan	Pooled OLS	MPS, EPS, BPS, PES and pay-out ratio.	Improvements in MPS, EPS, BPS, PES and pay-out ratio will result in an increase in stock prices. The effects not only vary with industry but also vary according to changes in the macroeconomic environment.
Lee (2006)	USA	Panel OLS	Dividends, earnings, book value, total equity, total assets, total liabilities, net income,	All fundamental determinants are unilaterally related to changes in stock prices. The effects of non-fundamental determinants vary but mostly causes an increase in stock prices.

Author(s)	Country	Approach	Variables	Results
Denis and Osobov (2008)	New Zealand	Multivariate analysis	stock return and dividend policy	A positive relationship between stock return and dividend policy
Chen and Dhiensiri (2009)	Nigeria	Multivariate analysis	stock return and dividend policy	A positive relationship between stock return and dividend policy
Bhattarai (2014)	Nepal	Panel OLS	Stock prices, dividend yield, PES and EPS	Inverse relationship between share price and dividend yield but positive with PES and EPS.
Gautam (2017)	Nepal	Panel OLS	Dividend yield, pay-out ratio, market capitalisation and leverage, EPS, TA, BPS	Dividend yield, pay-out ratio, market capitalisation and leverage are positively related with stock prices. EPS, TA and BPS are inversely related with increases in stock prices.
Okafor and Mgbame (2011)	Nigeria	Multivariate analysis		Dividend pay-out has both positive and negative effects on share prices. Dividend yield has a positive effect on share prices.

CHAPTER TWO

OVERVIEW OF FINANCIAL ACTIVITIES IN JORDAN'S MANUFACTURING INDUSTRY

2.1 Introduction

This chapter offers about the key firm and industry specific manufacturing factors and a series of economic activities that had an influence on the stock prices of manufacturing firms in Jordan. This includes covering the notable functions played by ASE

2.2 An insights of Jordan's economic activities, events and trends

One of the notable features that can be observed to be characterised with the Jordanian economy is resilience. The Jordanian economy is profoundly well known for its ability to maintain its internal cohesion and in the midst of economic challenges. Some of the key economic challenges that have been encountered by Jordan's monetary authorities has been to deal with problems posed by the closure of trade routes, energy crisis and the 2008-09 financial crisis (ECP, 2019). This has seen problems such as employment and a rising debt level imposing some challenges towards maintain high growth rates.

The Economic Policy Council (ECP) noted that increases in oil and food prices, security costs and a decrease in remittances (ECP, 2019). In spite of all these circumstances, the Jordanian monetary authorities have been capable of containing such economic forces and threats by instituting proper economic measures.

Meanwhile, the economy of Jordan has been showing strong signs of improvements since the period 2000 to 2009 in which the economy expanded by 6.5% as noted by figure 2.1. the period 2010 to 2016 was characterised by an increase in GDP by 2.5% and during this period, its public debt has grown higher at a rate that surpassed that of GDP. As a result, the debt to GDP ratio was to have increased to 95% in 2016 from 61% in 2010 (ECP, 2019).

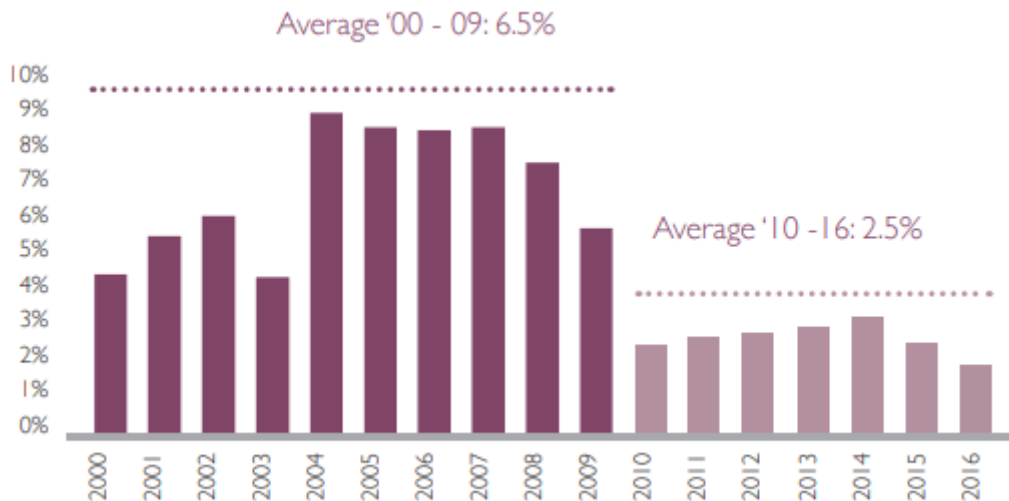


Figure 2.1: Jordan's GDP Growth

Source: ECP (2019)

The first period of economic transition can be noted to have taken place between the year 2000 to 2009 in which the Jordanian economy was growing above the 2.5% average (see figure 2.1). However, the second period saw the Jordanian economy growing at rates below the 2.5% average. The lowest growth rate was observed to have been in 2016 during which the economy grew by 2.5%. This incidence was followed by an injection of US\$723 million into the Jordanian economy so as to ease debt problems (ECP, 2019).

Table 2.1: Major economic indicators of Jordan

Indicator	2016	2017	2018
Real GDP	2.0	2.0	2.1
Inflation	-0.8	3.3	3.9
Current account balance	-9.5	-10.7	-9.6
FDI	4.0	5.0	5.0
Fiscal balance	-3.2	-2.2	-1.8
Debt	95.1	95.9	96.2

Source: World Bank (2019)

Table 2.1 reveals that there has been a steady growth in GDP from the year 2016 to 2018 from 2% to 2.1%. The increase in GDP was against the backdrop of a surge in inflation from -8% in 2016 to 3.9% in 2018. An improvement in fiscal balance from a negative of 3.2% in 2016 to -1.8 together with an increase in FDI from 4% to 5% in 2018 can be said to have played a part towards causing a steady increase in GDP.

In terms of contribution to economic progress, much of the improvements in economic activities can be noted to be coming from 7 economic sectors and these are manufacturing, services, mining, tourism and hospitality, transport, finance and construction industries.

Meanwhile, a number of structural adjustments programs were introduced by the government in the year 2017. The main idea was to facilitate the government in raising its revenue bases by more than US\$635 million (Exchange Jordan, n.d). Moreover, other measures were also introduced to deal not only with the debt problem, but also to ensure that the economy remains on an upward growth path. Such measures include fiscal discipline on the part of the government itself.

Other measures included maximising on the benefits reaped from Public-private partnerships, putting a priority on investment projects and promoting efficient capital spending. Challenges were also observed following the high influx of Syrian refugees into Jordan and this posed a serious threat to efforts to boost employment levels. However, notable contributions in terms of employment are observed to be from the government services which employs 26% of the Jordan's labour force. This is followed by the trade, education and manufacturing sectors which employ 15%, 12% and 10%

of the labour force respectively. Other sectors such as mining, agriculture, finance, hospitality, construction and transport do not contribute much with respective contributions of 1%, 2%, 2%, 2%, 5%, 6% and 9% respectively (see figure 2.2).

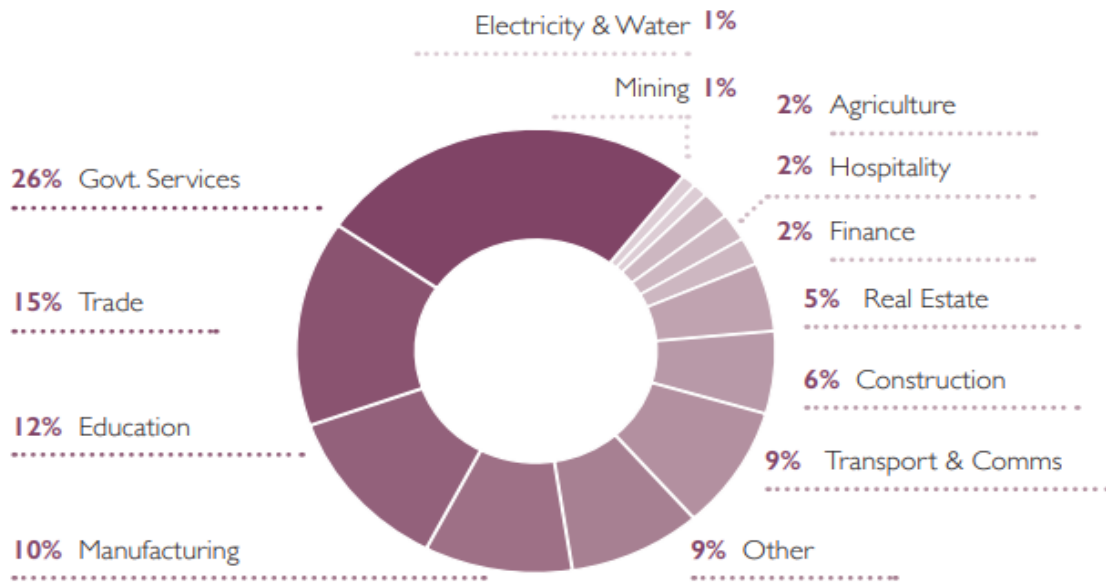


Figure 2.2: Employed Jordanians by economic activity

Source: ECP (2019)

2.3 An overview of Jordan's manufacturing industry

This is one of the fastest growing sectors and it is undeniable as observed from figure 2.2 that the manufacturing sector plays an important role not only towards promoting economic growth, but also towards social empowerment by employing 18% of Jordan's labour force.

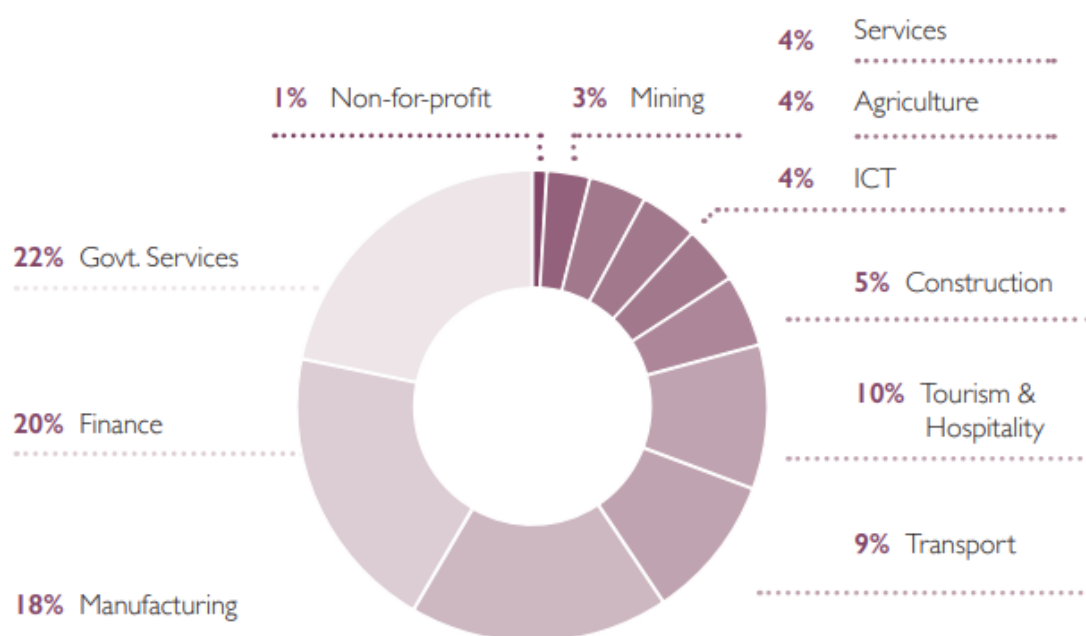
Meanwhile, Jordan's monetary authorities have developed plans that should see the Jordan economy expanding by 5% between 2018 to 2022 (Jordan Embassy, 2019). Such a 5% targeted has been translated into a US\$1.8 billion increase in GDP and is considered to be attainable by setting similar targets on each sector of the economy.

Table 2.2: 2018-2022 sectoral growth and investment targets

Sector	Expected growth (%)	Required investment (US\$m)
Agriculture	10	113m
Manufacturing	10	530m
Transport and ICT	12	334m
Tourism and hospitality	5	169m
Construction	15	254m

Source: ECP (2019)

Table 2.2 shows how important it is to enact policies to promote a growth in Jordan's manufacturing sector. This is because a US\$1.8 billion increase in GDP 2018-2022 requires that the manufacturing sector contributes US\$530m and must be expanding at 10% each year. Though the construction sector is required to grow relatively higher than other sectors at a rate of 15%, the required contribution is relatively lower than that of the manufacturing sector and stands at US\$254m.

**Figure 2.3:** Sectoral contribution to Jordan's economy

Source: ECP (2019)

It is also of no doubt that the Jordanian government plays a key role in the development of its economy as it contributes 22% towards GDP. Banks and other financial

institutions can also be noted to be contributing much to the development and growth of Jordan's economy as noted by as 20% contribution towards GDP growth.

The importance of the manufacturing sector in Jordan's economy can also be supported by the observed findings shown in figure 2.3 which revealed that the manufacturing sector contributed 18% towards GDP growth in 2017. Hence, it can be said the manufacturing sector is important for the growth and development of Jordan's economy as well as social empowerment by boosting employment levels.

2.4 The role of the Amman Stock Exchange

Generally, any stock exchange company is designed to assist companies to secure the required capital funding by providing them with access to a pool of private and institutional investors. Stock markets also constitute a huge part component of a secondary market through which investors and companies are brought together (Hoang et al., 2016). It is in this way that companies can raise funds by issuing shares and shareholders can also dispose of their shares (Jain & Biswal, 2016). Stock markets also serve an important role of offering capital to investors and companies (Manu, 2017). Ideas provided by Dwyer and Kotey (2015) showed that stock markets play an important role of ensuring that efficient price discovery exists in the entire Jordanian financial market. The other essential aspect of stock markets that cannot be neglected is that they offer accurate and timely company disclosure and trading information needed by investors to make sound decisions (Jain & Biswal, 2016).

Meanwhile, the ASE was formed in March 1999 as a private corporation that operates with no profit intentions (incentives) but with financial and administrative freedom (ASE, n.d). As its stand, the ASE has full authorization to trade securities under the governing authority of a board of directors that is composed of 7 members (ASE, n.d). The establishment of the ASE was as a result of a restructuring exercise that was carried out on the Jordan Capital Market in the same year. This result in the establishment of Securities Depository Center (SDC), Jordan Securities Commission (JSC) and the ASE.

The ASE conducts its operations in line with the principles of liquidity, efficiency, transparency and fairness (ASE, n.d). This is made possible by the adoption of internal

directives with regards to listing and market division standards. Such efforts are made possible through joint cooperation between the JSC and the ASE. The ASE is a prominent member of the World Federation of Exchanges, Federation of Euro-Asian Stock Exchanges and Arab Federation of Exchanges.

Under the ASE, stocks are traded using a two-tier system in which the first tier seeks to provide more information to the investor so that he gains full knowledge of the firm he intends to invest in (ASE, n.d). This tier system can be said to be important for promoting transparency. Meanwhile, the second tier serves to make sure that all requirements are adhered to prior to listing a company on the ASE. These requirements include things like the number of shares issued, free-float etc., (ASE, n.d).

Since its inception, the ASE has been in a good position to promote good trading and managed to enhance the performance of public shareholding companies which showed that their [performance rose from JD1.1 billion in 2013 to JD1.2 billion in 2014 (ASE, n.d). As it stands there are more than 218 companies that are listed on the ASE (exchangejordan.com).

2.5 Chapter summary

This chapter has offered insights about Jordan's economic activities, events and trends, an overview of Jordan's manufacturing industry and shaded more details on the role of the Amman Stock Exchange. The established ideas have shown that the economy of Jordan have been strong sings of resilience since the period 2000 to 2018. Hence, this is enough to rule out the effects of macroeconomic indicators on the estimated model. In addition, there has been notable sound structural stability in its financial and non-financial markets and hence the inclusion of dummy variables can also be ruled out as well. Meanwhile, the manufacturing sector is one of the fastest growing sectors in Jordan. It also con tributes a lot towards eco nomic growth. In addition, Jordan's manufacturing sector plays a key role in the attainment of the 2018-2020 vision to have the economy expand at an annual rate of more than 5%. Moreover, Jordan's manufacturing sector has been playing a key role towards promoting social and economic development. As it stands, it is the second largest employer of Jordan's total labour force next to the government. Hence, the importance of the manufacturing

sector in Jordan cannot be underestimated as it goes to affect a number of key indicators which include exports, FDI inflows, exchange rate and foreign currency inflows.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter provides insights about the methodological procedures that were carried out to analyse the effects of company fundamental on stock prices manufacturing companies sector companies in Jordan. This is of important because it helps in ensuring that the findings made in this study remain highly valid and reliable (Winter, 2000). As such, the study conducted a panel estimation of the effects of company fundamentals on stock prices of manufacturing companies in Jordan. This chapter covers unit root tests, panel data estimation techniques, panel model robustness tests, serial correlation test, population and sampling techniques, definition and justification of variables, and data analysis and sources.

3.2 Research approach

The study in its nature is a quantitative study which deals with the analysis and use of econometric models to estimate both the impact and effects of exogenous variables on an independent variable (Gujarat, 2013). Notably, the effects of company fundamental on stock prices of service sector companies in Jordan. This was made possible through the use of annual secondary data and both deductions and corporate policy implications were made based on the analysed data.

3.2.1 Unit root tests

Prior to the estimation of the panel models, unit root tests were conducted to determine if the model variables had unit roots or not. Conducting unit root tests is important because it helps to deal with the problem of spurious results that occurs when the variables have unit roots (Greene, 2013; Gujarat, 2013).

When the autocorrelation, variance, mean, etc., are the same over a period of time the condition is known as a stationary time series (Gujarat, 2013). Ideas provided by Maddala and Wu (1999) showed that the use of mathematical transformations when forecasting, makes it possible to "stationarise" time series data (i.e., to make it stationary). The idea being based on the benefit that is associated with having a predictable time series data.

If disturbances occur and the series happens to its trend, then detrending can be used to stationarise the series especially if it has a constant long-run trend. The process involves deflating, logging or using time series indexes as regressors and trend lines in ARIMA or regression models (Levin, Lin & Chu, 2002). The series in this case is trend-stationary. Cases where it is impossible to have a stationary series by detrending are usually dealt with by changing the series to season-to-season or period-to-period differences (stationary at first difference).

The augmented Dickey–Fuller (ADF) and the Phillips Perron tests provide a good indication of the nature of stationarity of a given series (Gujarat, 2013). Geoffrey Watson, James Durbin and John von Neumann developed a way of determining the optimal finite sample needed for a unit root test. One example is the Sargan-Bhargava statistics test which is done in 1st order autoregressive models to determine if series is explosive or stationary (Choi, 2001). Notable tests include;

- ADF-GLS test,
- Zivot–Andrews test,
- Phillips–Perron test and,
- KPSS test

3.2.2 Panel data estimation technique

Panel data models rely on a combination of the same type of data and variables over a given period of time which can either be uniform or unequal (Hsiao, 2014). There are various methods of estimating panel data models and these include the generalized method of moments (GMM), (Baum, Schaffer & Stillman, 2003) and fixed effects models (FEMs) and random effects models (REMs), (Hedges & Vevea, 1998). In this study, emphasis was restricted to the use of FEMs and REMs because they provide situational conditions under which variations in the observed area of interest can be explained by changing the contextual conditions (Borenstein et al., 2010).

When the estimated parameters exhibit an element of non-randomness, the resulted outcome is deemed to be a fixed effect (Borenstein et al., 2010). That is, all the underlying conditions surrounding the subject area are fixed. FEMs thus assume that the independent variable is uncorrelated with the individual-specific effects (Hedges & Vevea, 1998).

Given a combination of an error terms μ_{it} , unobserved time-invariant individual effect α_{it} , parameters β , regressors which are time variant X_{it} and the explained variable y_{it} , the following representation can be made;

$$y_{it} = X_{it}\beta + \alpha_i + u_{it} \text{ for } t = 1, \dots, T \text{ and } i = 1, \dots, N \quad (1).$$

FEMs regards X_{it} to be correlated with α_{it} , and uses within transformation to demean the variables and eliminate α_{it} as follows;

$$y_{it} - \bar{y}_i = (X_{it} - \bar{X}_i) \beta + (\alpha_i - \bar{\alpha}_i) + (u_{it} - \bar{u}_i) \implies \ddot{y}_{it} = \ddot{X}_{it}\beta + \ddot{u}_{it} \quad (2).$$

But because $\bar{\alpha}_i = \alpha_i$ and α_{it} is a constant, the effect is totally removed and thus resulting in the following scenario;

$$\bar{X}_i = \frac{1}{T} \sum_{t=1}^T X_{it} \text{ and } \bar{u}_i = \frac{1}{T} \sum_{t=1}^T u_{it}. \quad (3).$$

REMs on the other hand, consider that there the independent variable is not correlated with the individual-specific effects (Hedges & Vevea, 1998). This is a more realistic

assumption because conditions which surround variations in a variable are not always constant or fixed as assumed by FEMs (Baum, Schaffer & Stillman, 2003).

3.2.3 Panel model robustness tests

Tests are usually required to determine which of the two between the FEM and REM holds the best and this conducted using the Hausman test. In this case, the Hausman test seeks to test the following null hypothesis;

- **H₀**: The REM provides a more examination of the modelled effects. That is, the REM provides better explanations of the effects of company fundamentals on stock prices of manufacturing firms in Jordan
- **H₁**: The FEM provides a more examination of the modelled effects. That is, the FEM provides better explanations of the effects of company fundamentals on stock prices of manufacturing firms in Jordan.

In other words, the Hausman test presumes that there exist errors in the estimated models which can cause the model to be mis-specified (Schmidt, Oh & Hayes, 2009). As a result, consistent estimates must be obtained if either the FEM or REM is to be considered as correctly specified.

3.2.4 Serial correlation test

Serial correlation is another key problem that can render the obtained results to lack credibility. Greene (2013) considers serial correlation as a situation which occurs when the error terms are correlated. Of which the errors can either be negatively or positively correlated with other and the resultant cases are negative serial correlation and positive serial correlation respectively (Durbin & Watson, 1951). As a result, the Durbin Watson test is often used to test the estimated models for serial correlation. In this study, the decision to consider the estimated models as free from the serial correlation was based on the computed statistics. That is, accept that there is no serial correlation when the obtained statistics is relatively around 2 (Gujarat, 2013).

3.3 Population and sampling techniques

The study was based on examinations made on manufacturing companies listed on the Amman Stock Exchange (ASE). In particular, examinations were made on all the 9 manufacturing companies listed on the Aman Stock Exchange. Foremost, the decision to focus on manufacturing companies is justified by observations made which showed that Jordan's manufacturing sector has been going through a series of changes (ASE, 2018). Such changes were presumed by ASE to have triggered significant changes in company fundamentals and stock values of manufacturing companies. All the 9 companies were selected for analysis in this study because it provided a highly accurate description of how changes in company fundamentals affects stock prices of manufacturing companies in Jordan (Levy & Lemeshow, 2013).

Table 3.1: Description of the study population

Company	Sector	Period
The Industrial Commercial & Agricultural	Industrial	2010-2018
Jordan Chemical Industries	Industrial	2010-2018
Universal Chemical Industries	Industrial	2010-2018
National Chlorine Industries	Industrial	2010-2018
Jordan Industrial Resources	Industrial	2010-2018
Comprehensive Multiple Project Company	Industrial	2010-2018
National Cable & Wire Manufacturing	Industrial	2010-2018
Jordan New Cable	Industrial	2010-2018
Arab Electrical Industries	Industrial	2010-2018

3.4 Definition and justification of variables

This section provides a definition of the model variables and a justification of their inclusion into the study. This also includes looking at the possible relationships that exists between the explanatory variables and the independent variable stock idiosyncratic volatility (SPV). It is from these established relationships that discussion of findings will be carried out.

Table 3.2: Definition of variables and expected signs

Nature of the variable	Variable	Measure	Measure	Expected impact on SPV
Dependent Variable	stock price volatility (SPV)	%	Refers to the way a company's stock prices changes. A highly changing stock price is considered to be more volatile.	Dependent variable
Independent Variable	Debt ratio (DR)	%	Shows how much is owed the company by debtors. Indicates the extent to which the company is able to get more revenue from sales made.	+
Independent Variable	Market price per share (MPS)	%	This is simply a reflection of how much the company's shares will be sold at or how much they will fetch when sold	+ -
Independent Variable	Earnings per share (EPS)	%	This is a valuation indicator which provides information of how well the price of a share stands in relation to earnings that will be obtained from holding that share	+ -
Independent Variable	Total asset (TA)	US\$	It is mostly used to measure the size of a firm, notably banks. The higher the value of the firm's assets size, the bigger it is considered to be.	+
Independent Variable	Tobin Q (TBQ)	%	The Tobin's Q equates the firm's assets replacement costs to its market value. That is, the replacement costs of a company's assets should equal its market value.	+

Table 3.3: Descriptive statistics in log form

Variable	Mean	Min.	Max.	Std.
Stock price volatility	-2.053	-3.933	14.209	2.016
Market price per share	1.006	-0.166	3.180	0.803
Earnings per share	-0.939	-2.566	13.400	1.756
Total Assets	16.273	-0.991	18.630	2.146
Tobin Q	-0.645	-2.305	0.365	0.604
Total debt	15.160	-1.611	18.452	2.341

The highest mean that was observed was in relation to total assets which was observed to be stood at 16.273 while negative means were recoded with respect to SPV, EPS and Tobin's Q of -2.053, 0.939 and -0.645 respectively. The same applies to the maximum values that were recorded, with total assets recording the highest maximum value of 18.63 followed by total debt with 18.452, SPV with 14.209, EPS with 13.4, MPS with 3.18 and Tobin's Q with 0.365. High elastic changes in terms of standard deviations were not to exist with regards to total debt, total assets, SPV and EPS of 2.341, 2.146, 2.016 and 1.756 respectively. Low inelastic responses were noted to be characterised with changes in MPS and Tobin's Q with values of 0.803 and 0.604 respectively.

3.5 Data analysis and sources

That study will dwell on the use of panel data estimation techniques, in particular fixed and random effects models to estimate the impact of company fundamentals on common stock prices. This will be complemented by the use of a combination of descriptive statistics, correlation coefficient and diagnostics test to determine the validity and reliability of the estimated models. The data was retrieved from the Central Bank of Jordan and will span from the period 2010-2018.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter provides an outline of the computed findings. Panel model data estimations were conducted with respect of FEM and REM using annual time series data from the year 2010 to 2018 collected from ASE. The importance of this study is attached to its capability to offer a platform on which discussions and policy implications can be made. The established ideas have shown that the economy of Jordan have been strong sings of resilience since the period 2010 to 2018. Hence, this is enough to rule out the effects of macroeconomic indicators on the estimated model. In addition, there has been notable sound structural stability in its financial and non-financial markets and hence the inclusion of dummy variables can also be ruled out as well.

4.2 Stationarity tests

The prime emphasis of conducting stationarity tests was to ascertain if the variables had unit roots or not (Levin, Lin & Chu, 2002). Maddala and Wu (1999) posited that the presence of unit roots undermines the reliability of the estimated findings. This is because the results will be considered to be spurious (Greene, 2003).

The results presented in table 3.1 rejected the null hypothesis that there are unit roots at first difference and hence the variables were considered not to cause spurious effects on the obtained results.

Table 4.1: Unit root test results

Variable	@ level					
	Levin, Lin & Chu t.		ADF		PP	
	Stat.	Prob.	Stat.	Prob.	Stat.	Prob.
LMPS	-14.6116	0.0000	19.6593	0.3523	38.5019	0.0033
LEPS	-9.3490	0.0000	28.0875	0.0607	51.0695	0.0001
LTA	-4.0127	0.0000	18.3269	0.4343	36.3309	0.0064
LTD	-4.5900	0.0000	21.8422	0.0000	40.3054	0.0019
LTBQ	-3.0947	0.0000	17.3241	0.3649	42.3381	0.0004
LSPV	-8.2167	0.0000	34.8482	0.0042	61.8395	0.0000

* Newey-West automatic bandwidth selection and Bartlett kernel

4.3 Correlation coefficient test

A highly significantly and positively correlation can be observed to exist between LTD and TBQ of 0.9555. This possibly suggests that an increase in total debts are more likely to be observed to be associated with an increase in the value of the company. Also, EPS is highly significantly and positively correlation with SPV by 0.8687 meaning that an increase in EPS will also be characterised by a high increase in stock price volatility.

Table 4.2: Correlation coefficient test

Variable	LSPV	LMPS	LEPS	LTA	LTBQ	LTD
LSPV	1					
LMPS	0.0257	1				
LEPS	0.8687*	-0.1187	1			
LTA	-0.8212*	-0.1685	-0.7510*	1		
LTBQ	0.1322	0.3370*	-0.0876	-0.1093	1	
LTD	-0.7049*	-0.2682*	-0.5494*	0.9555*	-0.1452	1

* Correlation significant at 0.01 level

Significant negative correlations were also noted to exist between LTA and LSPV (Al-Tamimi et al., 2011), LTA and LEPS (Obeidat, 2009), LTD and LSPV (Al-Malkawi, AlShiab & Pillai, 2018), LTD and LMPS (Das & Pattanayak, 2009), LTD and EPS (Obeidat, 2009), LTD and TBQ (Irfan & Nishat (2002) of -0.8212, -0.7510, -0.7049, -0.2682, 0.5494 and -0.1452 respectively. Non-significant negative correlations were

noted to exist between LTBQ and LEPS, LTBQ and LTA, and LTD and LTBQ of -0.0876, -0.1093 and -0.1452 respectively as noted by Al-Tamimi et al. (2011) and Obeidat (2009). This suggests that an increase in any one of these fundamental indicators will be characterised by a decline in the other fundamental indicator.

4.4 Model specification tests

Serial correlation test was conducted prior to the determination of the fixed effects redundancy test. This was done by comparing the obtained Durbin Watson (DW) estimation values with the standard figures set out in the DW table. The decision was to accept that there is no serial correlation when the DW values lie above the lower and upper tables values. As noted, the estimation DW values above the lower and upper tables values and hence conclusions were drawn that there were no serial correlation problems.

Table 4.3: Serial correlation test

Description	FEM		REM	
	DW _L	DW _U	DW _L	DW _U
	1.364	1.624	1.364	1.624
DW estimation values	2.283*		1.787*	

** Overall decision, No serial correlation*

The Hausman test was computed to test the null hypothesis the REM offers the best explanatory insights about the regressed effects of the independent variables against the independent variable. In other words, the REM is considered to offer a better and or higher statistical consistency as opposed to the FEM (Mutl & Pfaffermayr, 2011).

Table 4.4: Hausman test

	Stat.	Df.	Sig.
χ^2	18.458823	5	0.0024

Due to the observed results which showed that a Hausman statistic of 18.4588 is associated with a p-value of 0.0024, the null hypothesis that the REM offers a better and or higher statistical consistency as opposed to the FEM was rejected. Hence, it was concluded that the FEM offers a better and or higher statistical consistency as

opposed to the REM. That is, the FEM provides better explanations of the effects of company fundamentals on stock prices of manufacturing firms in Jordan.

4.5 Redundant fixed effects test

The Hausman test established that the FEM offers a better and or higher statistical consistency as opposed to the REM. Meanwhile, redundant fixed effects test was conducted to test if the use of FEM would not compromise the reliability and validity of the model when used for policy and or decision making. Lack of reliability and validity can be caused by redundancy of the model.

Table 4.5: Redundant fixed effects tests

	Stat.	Df.	Sig.
Cross section F	3.140	(8, 67)	0.0045
χ^2	25.793	8	0.0011

The test results showed a χ^2 of 25.793 with a probability of 0.0011. as a result, the null hypothesis that the FEM is redundant was rejected and conclusions were made that the FEM offers reliable and valid insights about variability in stock prices due to changes in company fundamentals.

4.6 Panel data estimations

Panel data estimations were conducted with regards to the FEM estimation. The idea behind the use of FEM was to determine if conclusive relationship between the variables can be obtained. The results obtained from the FEM estimations are here in presented and discussed as follows;

4.6.1 Fixed effect model

Initial observations were made that an increase in MPS by 1 unit would reduce stock price volatility by 0.7889 units. Such is considered to be true by Al-Malkawi, AlShiab and Pillai (2018) who outlined that more shares will be bought when the MPS remains

relatively high as investors anticipate to make profits in the future. This will cause the prices of the stocks up together with the increase in MPS.

Table 4.6: FEM test results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LMPS	-0.788923	0.241379	-3.268401	0.0017
LEPS	1.813368	0.350066	5.180077	0.0000
LTA	3.093997	0.764286	4.048217	0.0001
LTBQ	0.503447	0.221099	2.277016	0.0260
LTD	-2.576888	0.515193	-5.001788	0.0000
C	-10.51342	5.107870	-2.058278	0.0435
<i>R² = 0.900</i>	<i>Adjust. R² = 0.881</i>	<i>F-stat. = 46.583</i>	<i>Prob. F-stat. = 0.000</i>	<i>DW stat. = 2.283</i>

A positive relationship can be drawn with regards to EPS and SPV of 1.813 meaning that an increase in EPS by 1 unit will cause stock prices to be positively volatile by 1.813 units. Such can be attributed to ideas formulated by Al-Malkawi, AlShiab and Pillai (2018) which showed that an increase in EPS shows that the company's shares are doing quite well against other shares. It also shows that manufacturing companies are performing better than before. As such, investors will buy more shares of companies with a high EPS. A high demand of shares of companies with a high EPS will translate to an increase in the price of their stocks.

Observations were further made that an increase in the firms' assets by 1 unit will result in a positive volatile increase in stock prices by 3.09 units. This can be supported by ideas given by Obeidat (2009) which showed that an increase in the firm's assets in strong indicators of managerial efficiency and effectiveness. Such efficiency and effectiveness will result in an increase in profit levels which in turn causes an increase in the demand of the firms' stock. A sudden high demand of the firms' stocks will be associated by volatile changes in stock prices.

Similar conclusions can be made concerning the relationship between the firms Tobin Q and SPV. That is, an improvement in the firms' market value will trigger cause the firms' values to be overvalued as a result the demand for their stocks will vary considerably as stockholders dispose of the overvalued stocks. Al-Tamimi et al. (2011) contends that the disposal of overvalued stocks will trigger a high volatility in stock prices.

Meanwhile, an increase in the firms' debt levels by 1 unit will reduce SPV index to decrease by 2.5769 units. This is because an increase in the level of debts will reduce the problem of dilution of ownership which comes by issuing up more shares. High debt levels have a tendency to lower shares issued and this can often cause the price of a company's stock to fall down as noted by Das and Pattanayak (2009).

4.7 Discussion of findings

The fundamental elements which impose effects on the stock prices of manufacturing companies in Jordan can be noted to be MPS, EPS, TD, Tobin's Q and total assets. The notable feature that surrounds these variables and their effects is that they vary in effect and significance with respect to the type of the manufacturing company. They can also be considered to vary with the nature of the industry which in this case is the manufacturing industry. Macroeconomic elements also impose effects on changes in stock prices. However, the effects observed in this study were insignificant due to a highly level of structural, macroeconomic and industrial stability observed in Jordan.

The obtained findings are in line with major propositions made by the fundamental theory of stock prices which places focus on the effects of firm specific factors on stock prices. Such is also evident by the support rendered by the Dividend Growth Model which is centred on firm specific aspects of the company mainly dividend flow as the main determinant of the intrinsic value of a company. Such is true especially when consideration is given that the effects of industrial and macroeconomic changes on stock prices in Jordan were relatively insignificant. Thus, leaving firm specific factors having a huge effect on stock prices as noted by the obtained significant values established by the REM and FEM. Further support to these findings is also available through ideas given by the random walk which exhibited that the future stock prices of manufacturing companies were independent of past stock prices.

If the amount of money the company gets increases when its shares are sold, the price of the stocks are also going to increase. Al-Malkawi, AlShiab and Pillai (2018) showed support to this observation and concluded that this is driven by positive changes in in

the economy as well as the stock market which results in an increase in the MPS. More shares will be bought when the MPS remains relatively high as investors anticipate to make profits in the future. This will drag the prices of the stocks up together with the increase in MPS.

If the price of the manufacturing companies' share stands quite well in relation to earnings that will be obtained from holding the shares, then the PES ratio will increase. Al-Malkawi, AlShiab and Pillai (2018) noted that an increase in the PES ratio shows that the company' shares are doing quite well against other shares. In other words, the manufacturing companies can also be regarded as to be performing better than before. As such, a high PES is an indication of better performance and investors will most likely buy shares of companies with high PES. A high demand of shares of companies with a high PES will translate to an increase in the price of their stocks. Hence, its relationship to the price of a stock is positive. However, a negative relationship can be obtained to investor sentiments in which investors may be sceptical about the operations of a company as noted by Al-Tamimi et al. (2011)

A study by Das and Pattanayak (2009), showed that an increase in total debts provides companies with the required funds that are needed to boost operational capacity. In addition, debts are sometimes are cost effective way of financing operations as opposed to issuing more shares. The value of the company will result with an increase in operational capacity and this causes the price of its stock to increase as investors demand more stocks.

The study results also showed similar findings with respect to the effects of the Tobin's Q and stock prices as noted by Obeidat (2009). This is because investors will rush to buy undervalued stocks causing an increase in their prices. As a result, undervalued shares will see the prices of stock rising to reflect their original value. On the other hand, overvalued shares will cause investors to sell them before their prices starts to fall. This will cause their demand to fall and in turn a reduction in their prices as prices fall to reflect the actual their value.

An increase in the size of the manufacturing companies as denoted by the level of their total assets can be said to cause a reduction in volatile effects on stock prices. That is, it limits the extent to which positive changes in stock prices will be observed and this is mainly because of ineffectiveness and inefficiency in the use of the

companies' assets. Das and Pattanayak (2009) concurs with this idea and posits that failure by management to manage the company's assets in a manner that will enhance ROA can cause negative investor sentiments. As a result, the stock prices will fall in a volatile manner.

CHAPTER FIVE

CONCLUSIONS, RECOMMENDATIONS AND SUGGESTIONS FOR FUTURE STUDIES

5.1 Conclusions

Foremost, the Jordanian economy can be said to be resilient to economic and financial disturbances as well as financial shocks. This is because its monetary authorities have a better ability to institute proper and sound economic policies. The Jordanian economy can be projected to be on a better trajectory of growth and stability in the upcoming years. This is also attributed to much of the activities that occur through the ASE which is responsible to providing investors and corporations with access to capital funds. The ASE also serves as a huge secondary market through which companies can raise funds and shareholders can also dispose of their shares. Most importantly, the ASE plays an important role of ensuring that there is efficient price discovery in Jordan's financial markets. One of the major roles played by the ASE is that it offers accurate and timely company disclosure and trading information needed by investors to make sound decisions. Since its inception, the ASE has been responsible for the growth and improved performance of a number of private and non-private corporations.

The provided theoretical frameworks especially the fundamental analysis has highlighted that there exist three distinct elements which can be categorised into (i) firm specific factors, (ii) industry relevant information and (iii) macroeconomic determinants. But the notable elements that have been causing significant changes in the stock price of manufacturing companies together with those of other companies

are firm specific factors. This is because both the industrial situation and macroeconomic environment have remained relatively stable over a long period of time especially between the year 2010-2018 which is the study period. Hence, the impact of macroeconomic activities together with that of structural changes such as financial crisis does not apply in this case. This is because there were no structural imbalances that were observed during this course of this period.

The need to focus on firm-specific factors is not only justifiable by the scope of the study but also by support obtained from the Gordon-Shapiro growth model which considers that future dividends are a function and sum of present and expected dividends flows. This shows that much of the changes in the value of a company's stock is mainly influenced by those factors that are responsible for causing changes in dividend flows. Further support is also noted to exist and offerable from the random walk theory which presumes that changes in stock prices are successively independent of each other. This is notably true with regards to Jordanian manufacturing companies with regards to which changes in their stock prices were mainly being driven by other internal aspects such as corporate value, size and market value of the company.

Meanwhile, similar results were obtained with respect to the relationship that exist between LEPS, LTA and LTBQ, and stock price volatility which has been confirmed to be positive. That is, an increase in LEPS, LTA and LTBQ makes it profitable for investors to invest in manufacturing companies. This will result in an increase in the demand for stock of manufacturing companies. As a result, there will be a volatile increase in stock prices. Positive changes in MPS and TD issued by the company have been noted to cause volatile decreases in stock prices. This is attributed to investor sentiments about the company's operations. Such is also as a result of the opportunity costs associated with investing elsewhere or in other assets which offer huge returns possibly in the form of high interest rates.

In overall, company fundamentals can be noted to have different effects on stock prices. The effects of company fundamentals on stock prices varies according to the nature of the company, its size, industry and macroeconomic factors.

5.1 Recommendations

Based on the idea that quite a number of firm specific factors have huge and different effects on stock prices recommendations can be made that;

- Companies must engage in value maximisation by engaging in activities that maximise return on assets and equity. It is through this that shareholders will have a high incentive to invest more in the company leading to an increase in the companies' stock prices.
- Sound asset management strategies also needed to ensure that there is effective use of a company's assets and that more resources are devoted towards those assets which maximise returns.
- Good liability management strategies are needed to ensure that all the debts incurred by the firm are put into good use in a way that enhances the operational capacity of the firm.
- Good ethical standards coupled with good disclosure and fairness in the preparation of financial sentiments are needed so as to maintain good investor sentiments towards the company. This is because maintaining good investor relationships and sentiments is pivotal for ensuring a high demand of a company's stock.

5.3 Suggestions for future studies

This study has provided strong hints on the effects of company fundamentals on stock prices with respect to volatility. However, ARCH and E-GARCH models can be used to extend the analysis in a completely different level of analysis.

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LIST OF APPENDICES

Appendix I: Redundant Fixed Effects Tests

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.140372	(8,67)	0.0045
Cross-section Chi-square	25.792975	8	0.0011

Cross-section fixed effects test equation:
Dependent Variable: LSPV
Method: Panel Least Squares
Date: 05/25/19 Time: 20:16
Sample: 2010 2018
Periods included: 9
Cross-sections included: 9
Total panel (balanced) observations: 81

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LMP5	-0.076519	0.122735	-0.623444	0.5349
LEPS	1.175085	0.153292	7.665652	0.0000
LTA	0.873342	0.350352	2.492758	0.0149
LTBQ	0.623621	0.156892	3.974837	0.0002
LTD	-0.871306	0.253375	-3.438799	0.0010
C	-1.472753	1.921795	-0.766342	0.4459
R-squared	0.863031	Mean dependent var		-2.053297
Adjusted R-squared	0.853899	S.D. dependent var		2.015993
S.E. of regression	0.770576	Akaike info criterion		2.387829
Sum squared resid	44.53401	Schwarz criterion		2.565196
Log likelihood	-90.70708	Hannan-Quinn criter.		2.458991
F-statistic	94.51350	Durbin-Watson stat		1.701870
Prob(F-statistic)	0.000000			

Appendix II: Correlated Random Effects - Hausman Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	18.458823	5	0.0024

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LMPS	-0.788923	-0.128291	0.041996	0.0013
LEPS	1.813368	1.221323	0.098969	0.0598
LTA	3.093997	1.039761	0.457062	0.0024
LTBQ	0.503447	0.660178	0.025113	0.3226
LTD	-2.576888	-0.999989	0.199187	0.0004

Cross-section random effects test equation:

Dependent Variable: LSPV

Method: Panel Least Squares

Date: 05/25/19 Time: 20:18

Sample: 2010 2018

Periods included: 9

Cross-sections included: 9

Total panel (balanced) observations: 81

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-10.51342	5.107870	-2.058278	0.0435
LMPS	-0.788923	0.241379	-3.268401	0.0017
LEPS	1.813368	0.350066	5.180077	0.0000
LTA	3.093997	0.764286	4.048217	0.0001
LTBQ	0.503447	0.221099	2.277016	0.0260
LTD	-2.576888	0.515193	-5.001788	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.900384	Mean dependent var	-2.053297
Adjusted R-squared	0.881055	S.D. dependent var	2.015993
S.E. of regression	0.695283	Akaike info criterion	2.266928
Sum squared resid	32.38908	Schwarz criterion	2.680784
Log likelihood	-77.81059	Hannan-Quinn criter.	2.432972
F-statistic	46.58313	Durbin-Watson stat	2.283229
Prob(F-statistic)	0.000000		

Appendix III: Fixed effect model estimation

Dependent Variable: LSPV
 Method: Panel Least Squares
 Date: 05/25/19 Time: 20:20
 Sample: 2010 2018
 Periods included: 9
 Cross-sections included: 9
 Total panel (balanced) observations: 81

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LMPS	-0.788923	0.241379	-3.268401	0.0017
LEPS	1.813368	0.350066	5.180077	0.0000
LTA	3.093997	0.764286	4.048217	0.0001
LTBQ	0.503447	0.221099	2.277016	0.0260
LTD	-2.576888	0.515193	-5.001788	0.0000
C	-10.51342	5.107870	-2.058278	0.0435

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.900384	Mean dependent var	-2.053297
Adjusted R-squared	0.881055	S.D. dependent var	2.015993
S.E. of regression	0.695283	Akaike info criterion	2.266928
Sum squared resid	32.38908	Schwarz criterion	2.680784
Log likelihood	-77.81059	Hannan-Quinn criter.	2.432972
F-statistic	46.58313	Durbin-Watson stat	2.283229
Prob(F-statistic)	0.000000		

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16.07.2019

Dear Yousef Amer Tahat

Your project **“The Impact Of Company Fundamentals On Common Stock Prices: Evidence From Companies Listed On The Amman Stock Exchange ”** has been evaluated. Since only secondary data will be used the project it does not need to go through the ethics committee. You can start your research on the condition that you will use only secondary data.

Assoc. Prof. Dr. Direnç Kanol

Rapporteur of the Scientific Research Ethics Committee

Note: If you need to provide an official letter to an institution with the signature of the Head of NEU Scientific Research Ethics Committee, please apply to the secretariat of the ethics committee by showing this document.