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Doctor of Philosophy (PhD)

**HOW MISPRICED EQUITIES DRIVE THE
CORPORATE TAKEOVER MARKET: COMPARISON
OF DEVELOPED AND DEVELOPING MARKETS**

Waseem ANWAR

Supervisor
Prof. Dr. M Banu DURUKAN SALI

İZMİR- 2018

THESIS APPROVAL PAGE WILL BE INSERTED



DECLARATION

I hereby declare that this doctoral thesis titled as “How Mispriced Equities Drive the Corporate Takeover Market: Comparison of Developed and Developing Markets” has been written by myself in accordance with the academic rules and ethical conduct. I also declare that all materials benefited in this thesis consist of the mentioned resources in the reference list. I verify all these with my honor.

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ÖZET

Doktora Tezi

**Yanlış Fiyatlanmış Hisse Senetleri Şirket Devralmaları Piyasasını Nasıl
Yönlendirir: Gelişmiş ve Gelişmekte olan Piyasaların Karşılaştırılması**

Waseem ANWAR

Dokuz Eylül Üniversitesi

Sosyal Bilimler Enstitüsü

İngilizce İşletme Anabilim Dalı

İngilizce İşletme Yönetimi Doktora Programı

Bu çalışma yanlış fiyatlanmış hisse senetlerinin birleşme ve satın almaları nasıl yönlendirdiğini araştırmayı amaçlamaktadır. Yanlış fiyatlamamanın ödeme yöntemi tercihinin, duyuru öncesi primine ve devralan şirketin birleşme sonrası getirilerine etkisi üzerine kanıtlar sunmayı hedeflemektedir. Bu ilişkiyi test etmek üzere üç model oluşturulmuştur. Ampirik analizlerde lojistik regresyon ve çoklu regresyon yöntemleri kullanılmıştır. Çalışmanın örneklemini Ocak 2001 ve Aralık 2017 döneminde G7 (gelişmiş ülkeleri temsilen) ve E7 (gelişmekte olan ülkeleri temsilen) ülkelerinde gerçekleşen birleşme ve satın almaları kapsamaktadır.

Çalışmanın sonuçları satın alan şirketlerin hem gelişmiş hem gelişmekte olan ülkelerde hisse senetlerinin aşırı değerli olması durumunda devralmada ödeme yöntemi olarak hisse senedi kullanmayı tercih ettikleri yönünde kanıtlar sunmaktadır. Gelişmiş ülkelerde, şirketler sadece hisse senedi ile ödemeyi tercih ederken gelişmekte olan ülkelerde hisse senedi ve nakit ödeme birlikte kullanılmaktadır.

Ampirik bulgular devralmayı takip eden bir yıl içinde satın alan şirketin hisse senedi getirilerinin ortalama olarak %1 düştüğünü göstermektedir. Sonuçlar, hem gelişmiş hem gelişmekte olan piyasalarda hisse senedi aşırı

değerli satın alan şirketlerin de hisse senedi getirilerinde düşüş olduğunu kanıtlar sunmaktadır.

Duyuru öncesi primini test etmek için kullanılan modelin sonuçlarına göre gelişmiş piyasalarda satın alınan şirketin ortalama duyuru öncesi primi %30 iken gelişmekte olan piyasalarda %16 olarak belirlenmiştir. Analizlerde satın alınan şirketin hisse senedinin düşük değerlendirilmiş olması gelişmiş piyasalarda duyuru öncesi primin daha yüksek olmasına yol açarken gelişmekte olan piyasalarda yanlış fiyatlamamanın duyuru öncesi primle anlamlı bir ilişkiye sahip olmadığı belirlenmiştir. Bu çelişkili bulguların olası nedenleri kurumsal çevre ve kurumsal yönetim farklılıkları ve ekonomilerin farklı piyasa yapıları olarak listelenebilir.

Anahtar Kelimeler: Yanlış fiyatlanmış hisse senedi, aşırı değerli hisse senedi, devralma, birleşme ve satın almalar, G7, E7

ABSTRACT
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Dokuz Eylül University
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Department of Business Administration
Business Administration Program

This study investigates how mispriced equity affects mergers and acquisitions (M&A). It aims to provide evidence on the impact of mispriced equity on payment method, preannouncement premium, and post-merger returns of acquirer. Three models have been formed to estimate the impact of mispricing on each of the variables separately. Logistic regression and multiple regression models have been used for the empirical analyses. Sample of the study includes mergers and acquisitions cases from G7 (as representatives of developed economies) and E7 (as representatives of developing economies) economies for the period of January 2001 to December 2017.

Results show that overvalued acquirers prefer to pay by stocks in the takeovers in both developed and developing markets. In developed economies, overvalued acquirers prefer stock as the payment method whereas in developing economies, overvalued acquirer prefer the combination of cash and stock as a payment method.

Empirical findings revealed that stock returns of the acquirer decreased by 1% on average in the year following the takeover. Results suggest that overvalued acquirers also experience a decline in stock returns in both developed and developing markets.

Results of preannouncement model show that average preannouncement premium of the target's stock is 30% in developed markets, and 16% in the

developing markets. Furthermore, analysis suggests that undervaluation of the target's stock increases the preannouncement premium in developed markets whereas in the developing economies mispricing of the target has no significant relationship with preannouncement premium. These conflicting findings may be due to differences in the institutional environments, corporate governance practices, and market structure of these economies.

Keywords: Mispriced equity, Overvalued equity, Takeover, mergers and acquisitions, G7, E7



**HOW MISPRICED EQUITIES DRIVE THE CORPORATE TAKEOVER MARKET:
COMPARISON OF DEVELOPED AND DEVELOPING MARKETS**

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ABBREVIATION

APT	Arbitrage Pricing Theory
B/P	Book to Price ratio
CAPM	Capital Assets Pricing Model
DDM	Dividend Discount Model
E7	Emerging Seven Countries
EMH	Efficient Market Hypothesis
G7	Group of Seven Countries
IQR	Interquartile Range
M&A	Mergers and Acquisition
M/B	Market to Book ratio
P/B	Price to Book ratio
P/E	Price to Earnings ratio
V/P	Residual value to Price ratio
WACC	Weighted Average Cost of Capital
GDP	Gross Domestic Product
GNI	Gross National Income
PPP	Purchasing Power Parity

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INTRODUCTION

The financial objective of a firm is to increase its value in the long term. To achieve this objective, firms need to grow to ensure that their revenues, profits and firm value increase. Generally, firms grow internally through their capital budgeting activities. During internal growth, firms acquire new assets, new technologies in order to expand their business. However, firms can also grow externally by investing in other firms in the takeover market. The takeover market is the market of mergers and acquisitions where one firm acquires another firm (Brigham and Houston, 2012:655). Examples of drastic growth and increase in the stock prices, result from investing in the takeover market (Brigham and Houston, 2012:656).

There are number of motives that drive firms to acquire other firms. Synergy, which is one of the most important motives, is the condition where combined value of the merged firms is greater than the sum of their values separately (Chang, 1988:59). There are four main sources of synergies; operating economies, financial economies, differential economies, and increased market power (Brigham and Houston, 2012:657). Operating economies refer to the cost efficiency resulting from the increase in the production of the combined firms. Financial economies result from the cost efficiency of the combined firms in being able to access cheaper capital. Differential economies include the efficiencies due to technology sharing between the firms. Lastly, increased market power is achieved through increase in the market share and decrease in the competition resulting from the takeover. Shareholders of both the acquiring firms and the target firms benefit from these synergies.

Tax consideration is another important motive of the takeovers. Highly profitable firms may acquire firms with heavy accumulated losses (Erickson, 1998:83). These losses immediately result in tax savings for the acquirers in case of a takeover rather than the delayed adjustment of profits by the target firms alone. Takeovers can also minimize tax liability of the firms' stockholders through disposing the excess cash. If firms have very few investment opportunities internally, they may use the excess cash to pay additional dividends which results in higher tax liability for the stockholders. To

avoid this, the firms can invest their excess cash in the takeover market instead of paying it out as dividends (Auerbach and Reishus, 1987:81).

Diversification could also be another motive of acquisitions. Managers can reduce the business risk and stabilize the earnings of their firms through diversification (Hitt et al., 1990:5). However, it could be argued that stockholders do not benefit much in such diversification as they can always diversify themselves by investing in different stocks. Furthermore, empirical studies reveal that diversification sometimes reduces the firm value (Graham, et al., 2002:695).

Personal incentives of managers could also be a motive of takeovers (Brigham and Houston, 2012:657). Even though decision making within the firm should always focus on the long-term value of the firm, still personal incentives of managers could influence them. Managers like power, and takeovers increase their powers as the merged firm would be bigger. Generally, managers of bigger firms seek more salaries and other benefits from the firms. Apart from this, managers could also use the takeover market as a tool to meet the high expectations of the stock market (Jensen, 2004:550). Literature has revealed that managers of overvalued firms invest in merger and acquisition activities to sustain their overvalued equity (Jensen, 2004:552).

In addition to these motives, if the acquirer's or target's equity is mispriced, it can also serve as a motive for the takeover transaction. If a firm's equity is undervalued, this creates an opportunity for other firms to purchase it for less than its true value, hence the undervalued firm becomes a target (Dong et al., 2006:3). Studies have proven that target firms are generally undervalued compared to comparable firms (Shleifer and Vishny, 2003:26).

On the other hand, overvalued equity of an acquiring firm does not only serve as a motive, but it also affects the choice of the payment method and the post-merger stock returns of the acquirer. If a firm has overvalued equity, it can use its equity as a cheap currency to acquire another firm by paying by stock (Dong et al., 2006:3). In this case, for an overvalued acquirer, a fairly valued target becomes a cheap option (Ang and Cheng, 2006:1). Hence, the payment method choice for overvalued firms is expected to

be stock. Overvalued firms tend to raise more capital as their stock is overvalued and they get more by issuing new equity (Dong et al., 2012:5).

Acquiring firms indulge in the takeover activity to maximize their firm value. However, empirical evidence suggests that most of the acquiring firms lose value in the takeovers (Moeller et al., 2003:2). There are two major reasons of this value loss; acquiring firms select wrong target firms which result in value loss or acquiring firms overpay for the takeover (Varaiya and Ferris, 1987:1). Both of these are caused by the wrong judgement of the management of the acquiring firm. Overvalued equity is one of those factors that leads to this wrong judgement. Since overvaluation may be caused by higher performance forecasts and expectations by the stock market, if a firm does not meet these market expectations, it experiences values losses (Jensen, 2004:549). In the case where the firm does not meet the market expectations, managers of the overvalued firm seek investment opportunities so that they can justify the high value of equity. Takeover is one of the most attractive investment options for the managers in such a situation. Under this performance pressure, managers of an overvalued firm analyze the target bids optimistically which results in value destruction (Jensen, 2004:552). Personal incentives of the managers also drive them to make takeover decisions optimistically. As a result, it is expected that overvalued equity of the acquirer may lead to a decrease in the stock returns of the acquirer.

The undervaluation of the target's equity may also influence how its stock price changes during the takeover process. The process of the takeover starts with the takeover bid announcement where the acquiring firm places its offer to the target firm. If the target firm accepts the offer, then the takeover takes place otherwise it is considered an unsuccessful bid. Generally, the market gets the information of the bid at the time of bid announcement, but it has been observed that stock prices of the target firm experience sharp increases in the preannouncement period (Schwert, 1996:153). It implies that the market gets some information related to the bid even before the announcement. There are two major sources of this news; one is the stock trading by the insiders which is illegal in most of the countries (Keown and Pinkerton, 1981:856), second is the rumors in the market by various sources (Jensen and Ruback, 1983:14). Although the market

does not have the actual information of the bid, still stock price of the target firm increases. Hence, this increase may be influenced by the undervaluation of the target's equity.

In line with the above explanations, this study aims to investigate the impact of mispriced equity on the takeover market by providing evidence of the impact of mispriced equity on the payment method, pre- announcement premium of the target's stock, and post-merger returns of the acquirer.

This study aims to contribute to the literature of mergers and acquisitions as well as mispricing in three ways. First, to the best of our knowledge, it is the first study that investigates the impact of mispriced equity on preannouncement premium of the target's stock. Second, it is the first study to investigate the relationship of mispriced equity and the takeover market for the G7 and the E7 economies comparatively. Third, in this study an addition has been made to the earlier models of mergers and acquisition by introducing a new variable, percentage of acquisition, which measures the volume of takeover transaction. In the existing literature, deal size has been used to measure the volume of transaction which is the dollar value of the deal. Dollar values have certain drawbacks such as exchange rate fluctuations especially in cases of international comparison.

Three models have been developed to estimate the impact of mispricing on each of these variables separately. Logistic regression and multiple regression models have been used for the empirical analyses. Sample of the study includes mergers and acquisitions cases from G7 (as representatives of developed economies) and E7 (as representatives of developing economies) economies for the period of 2001-2017.

This study is organized as follows; chapter one explains the market efficiency and mispriced equity. Chapter two discusses the takeover market and the relationship of mispriced equity and the takeover market. This chapter also includes the hypotheses of the study. Chapter three covers the data and explains the methodology and presents the descriptive statistics. Chapter four provides the empirical results and discussion of findings. The implications and limitations are given at the end in the Conclusion.

CHAPTER ONE

MARKET EFFICIENCY AND MISPRICED EQUITY

The aim of this chapter is to explain market efficiency and mispriced equity. First part of the chapter includes efficient market hypothesis and random walk theory, role of arbitrageurs in achieving efficient markets, and factors affecting market efficiency. Second part of the chapter explains mispriced equity, measures of mispriced equity, and implications of mispriced equity.

1.1. MARKET EFFICIENCY

1.1.1. Efficient Market Hypothesis and Random Walk Theory

According to the efficient market hypothesis (EMH) proposed by Fama (1970:1), in an efficient market, it is not possible for investors to beat the market constantly because all the information available in the market is already absorbed by the stock prices. According to EMH, stocks are traded at fair value in the stock market, making it impossible for an investor to buy an undervalued stock or sell an overvalued stock consistently. There are three types of market efficiency according to the EMH; weak form, semi-strong form, and strong form. Under the weak form efficiency, market prices of assets reflect all the information related to the past stock prices and stock returns. In the semi-strong form efficiency, market prices reflect all the past publicly available information and they adjust to the new public information instantly. The strong form efficiency claims that markets reflect all the publicly available information and the insider information as well.

In the weak form efficiency, stock prices reflect all the past information related to the stock prices and stock return patterns, so technical analysis could not be used to beat the market and get excess returns. Stock prices do not have any dependence and stock returns are random. However, in the weak form efficiency, the fundamental

analysis could be used to identify undervalued and overvalued stocks. It could yield returns higher than the market returns (Reilly and Brown, 2002:178).

In the semi-strong form efficiency, stock prices reflect all the publicly available information related to the stock, so it is not possible to find the undervalued or overvalued stocks through technical analysis or fundamental analysis because all the information used in such analyses is already absorbed in the stock prices. However, it is possible to earn excess returns by having some information which is not publicly available. Insider trading is one example of using non-public information although it is illegal to use insider information for trading (Reilly and Brown, 2002:178).

Under the strong form efficiency, stock prices reflect all the public and the private information related to the stock. Hence, it is not possible to earn excess returns because all the information available regarding the stock is already absorbed in the stock prices. In the real world, it is not possible to achieve an absolute strong form of efficiency, but it is used as a reference point to check the level of efficiency in stock markets. One can judge the level of market efficiency of a certain market by its deviation from the strong form efficiency (Fama, 1970:33).

Several techniques have been developed to test different forms of efficiency. Weak form efficiency is tested by the examination of the statistical independence of stock returns over time. Since the weak form efficiency describes that excess returns are not possible because all past information is reflected in the prices, stock returns must be independent over time. Autocorrelation technique and the runs test are being used to test the independence of stock returns (Islam and Khaled, 2005:1, Poshakwale, 1996:4). Autocorrelation tests the correlation of a time series with a lagged version of itself e.g. $t-1$, $t-2$, $t-3$. In the runs test, series of price changes is created by labeling the price change as positive (+) or negative (-). This series shows only signs of change as follows: ++-+-++-+-+-. Two or more consecutive positive or negative price changes make one run, a run breaks when change is in the opposite direction. To test the independence of a series, runs of a given series is compared with the number of expected runs in a predetermined table which shows the number of expected runs for a random series.

Empirical studies have found mixed results for weak form efficiency of the stock market. Some studies have found evidences of weak form efficiency (Buguk and Brorsen, 2003; Hudson et al., 1996, Laurence, 1986), others have found evidence against weak form efficiency of stock markets (Islam and Khaled, 2005; Lim and Hooy, 2013; Poshakwale, 1996). However, evidence of any dependence in the returns does not mean that abnormal returns are possible through technical analysis. Substantial transaction costs make it difficult for an investor to capitalize such dependence of returns (Reilly and Brown, 2002:180).

In the semi-strong form efficiency, stock prices reflect all the available public information related to the stocks. The semi-strong form efficiency is tested by event studies which examine how fast stock prices adjust to new public information. If the market takes a significant time in absorbing the new information, then it is possible to earn abnormal returns by investing in a stock immediately after the public announcement of an event. Under semi-strong form efficiency, such case is not possible. Semi-strong form efficiency is also tested by stock return prediction models that test the prediction capacity of stock price information and other public information. In a semi-strong form efficiency, such future stock predictions are not possible.

Empirical investigation of semi-strong form efficiency has also provided mixed results. Most of the event studies including the event of stock splits, initial public offerings, world events and economic news, accounting changes, and a variety of corporate finance events have given results in favor of semi-strong form market efficiency (Hussin et al., 2010; Reilly and Brown, 2002:193). However, most of the studies that have used the future stock price prediction models to test for semi-strong form efficiency have provided evidence that the market is not semi-strong form efficient hence it allows the prediction of returns (Akbar and Baig, 2010; Alexakis et al., 2010; Givoly and Lakonishok, 1979; Summers, 1986).

In the strong form efficiency, market prices reflect all the public and private information related to the stock. The efficient market makes it impossible for anyone to earn abnormal returns continuously. Strong form efficiency is tested by analyzing the

performance of corporate insiders, analysts, and institutional investors. In a strong form efficient market, none of these would be able to earn abnormal returns consistently.

Empirical investigation of insider trading revealed that it is possible to get abnormal returns by having private information (Chau and Vayanos, 2006; Rozeff and Zaman, 1988). However, it is unlikely that other investors get an advantage from this insider information as prices absorb the new information very quickly (Chau and Vayanos, 2006:2). Trading activities of institutional investors and analysts revealed that they earn abnormal returns by having superior information (Ke and Ramalingegowda, 2005; Piotroski and Roulstone, 2004).

Some of the modern world investors, such as Warren Buffett, have been able to beat the market constantly (Malkiel, 2005:2). Empirical analysis of Buffet's investment strategies revealed that it was not luck or magic that made him beat the market, rather it is the choice of quality stocks over and over again that made it possible to beat the market (Frazzini et al., 2013:28). However, Warren Buffet (2002) states that for individual and institutional investors, the best strategy is to invest in index funds with minimal charges. With this passive strategy, investors are more likely to beat most of the professional investors (Buffett, 2002). Malkiel (2005:2) argues that if the market is not efficient and it does not reflect the true value of securities, then active investors should outperform the passive investors and the overall market. Malkiel (2005) used actively managed mutual funds as a proxy for active investors and S&P 500 as the representative of the market. Results show that S&P 500 has outperformed active mutual funds by 2.52% in the period of 1993 to 2002 and by 2.24% in the sample period of 1983 to 2002. The underperformance of active investors, that is mutual funds, is the result of trading costs which they incur on their regular trades (Malkiel, 2005:3).

Random walk theory explains that stock price movements are random and independent of each other (Reilly and Brown, 2002:178). Thus, past price movements cannot be used to predict the future price movements. Under random walk theory, it is not possible for an investor to earn abnormal returns consistently by technical analysis. However, it does not imply that one cannot beat the market by having insider information, or any superior information that may be generated by security analyses,

rather it proposes that the market cannot be exploited by using past information of stock returns (Borges, 2010:3). It is very difficult that stock returns follow the exact description of randomness. Price movements may not be exactly random but rather their dependence may be too small to get importance (Fama, 1995:2). As far as this dependence of stock prices, cannot be used for future price predictions, it would be considered that stock prices do follow a random walk.

Empirical analyses of the random walk theory have shown varied results for different markets. Smith and Ryoo (2003), Borges (2010) and Worthington and Higgs (2004) investigated the European markets and Worthington and Higgs (2004) have found that price on the stock markets of Germany, Ireland, Portugal, Sweden, the United Kingdom, France, Finland, the Netherlands, Norway, Spain, and Hungary follow a random walk, while the prices on the other stock markets including Austria, Belgium, Denmark, Greece, Italy, Switzerland, Czech Republic, Poland and Russia do not. Borges (2010) found empirical evidence supporting random walk theory on the stock markets of France, Germany, UK, Greece, Portugal and Spain. Smith and Ryoo (2003) conclude that in stock markets of Greece, Hungary, Poland, and Portugal, stock prices do not follow a random walk while they found that in the Turkish market, stocks follow a random walk. Tas and Dursunoglu (2005) and Smith and Ryoo (2003) also found a random walk in the Istanbul Stock Exchange. Frennberg and Hansson (1993) investigated the behavior of stock returns in the Swedish market for the period of 1919-1990. They found a strong positive autocorrelation in one month to twelve-month data, whereas, on the long-term horizon, they found a negative autocorrelation of stock returns. These results indicate that the prices on the Swedish market does not follow a random walk at the short-term or long-term horizons as there is dependence in stock price over time.

Chang and Ting (2000) reported that stock prices follow a random walk in the stock market of Taiwan. They concluded that the random walk hypothesis cannot be rejected for weekly, monthly and yearly return data for the Taiwan's stock market.

Lo and MacKinlay (1988) tested the random walk theory for the US market for a sample period of 1962-1985. They rejected the random walk hypothesis at overall and sub-sample levels.

Similarly, Frennberg and Hansson (1993) provide empirical evidence against the random walk theory in the Indian market. Their results suggest a non-linear, ARCH type of dependence between returns of an individual stock and an equally weighted portfolio (Frennberg and Hansson, 1993). Araujo Lima and Tabak (2004) investigated the random walk theory in China, Hong Kong and Singapore. They found that Hong Kong stock market, and only Class A stocks of Chinese market follow a random walk whereas Singapore stock market and Class B stocks of Chinese market do not.

Based on the above explanations, it can be concluded that the evidence on the random walk theory is inconclusive as some of the markets follow the random walk and others do not. Empirical evidence also suggest that the same market may have two different results for the random walk theory at different times (Smith and Ryoo, 2003; Worthington and Higgs, 2004)

1.1.2. Role of the Arbitrageurs in Achieving Efficient Markets

Market efficiency assumes that investors act rationally because when investors are rational they would fairly price a security. When they would get new information, they would adjust their valuation on the bases of the news. Value should increase for the good news and it should decrease for the bad news. If investors do not act rationally, they would not adjust the prices correctly according to the new information which would lead to inefficiencies in the market. It would create mispriced securities, the securities whose market values do not reflect their true fundamental value. Presence of mispriced securities in the market is an opportunity for rational and informed investors. They can capitalize on the mispricing by buying the undervalued securities and selling the overvalued ones. These rational and experienced investors are called arbitrageurs, who eliminate the effect of irrational investor behavior from the stock prices through arbitrage activities. Arbitrageurs simultaneously buy and sell the same, or similar

securities in two different markets to get an advantage of the price differences (Shleifer, 2000:3).

Empirical evidence has shown that these informed investors improve the efficiency of the stock market. Grossman and Stiglitz (1980:2) showed that informed investors can earn more returns if they take a better position in the market compared to the uninformed investors. In fact, informed investors, by their return seeking activity, improve the market efficiency. Lin (2007) found that security analysts have improved market's ability of resource allocation in the Chinese market. Figlewski (1984) found that mispricing in the stock market is the result of noise and more than 70% of arbitrage opportunities disappear within a day when the market gets mature.

1.1.3. Factors Affecting Market Efficiency

There are some factors that are important for an efficient market. Fama (1970:6,7) states three conditions under which markets would be efficient. Those conditions are; no trading cost, free access to information, similar expectations. He further argues that these conditions are sufficient for an efficient market but not necessary. He states that transaction costs are a hindrance in the transactions, but it does not indicate that it limits the transactions from reflecting the available information. Likewise, he suggests that even if a small group of investors has access to information, they can contribute towards a fully efficient market. Lastly, the difference in expectations and interpretation of investors does not restrict market efficiency because market prices would reflect the implications of the most accurate investors who use the information in the most efficient way (Fama, 1970:6,7).

However, literature suggests that these factors limit the market's reaction towards new information (Grossman and Stiglitz, 1980; Lehman, 1990:26; Verrecchia, 1980). There are many other factors including limits to arbitrage and bounded rationality that affect the efficiency of the markets which are explained in more detail in the following parts.

1.1.3.1. Limits to Arbitrage

As it has been discussed earlier, if any inefficiencies arise in the market, arbitrageurs would eliminate them quickly by their trading activities. Arbitrageurs drive the market towards efficiency. Lehmann (1990:26) presented a model where arbitrageurs can capitalize on the overreaction of the market since it reverses in a short period of time. He suggested taking a short position for “winners” and long position for “losers” to get advantage (Lehman, 1990:26). In the modern world of technology, it is very difficult to find a simple opportunity for arbitrage where one can buy and sell the same stock in two different markets and get riskless profit. There can be an opportunity where arbitrageurs take advantage of the differences in spot and future prices. However, arbitrage in the stock market is not always a risk-free arbitrage as they have to take a certain amount of risk for high returns (Morck et al., 1990b:6). When risk associated with stock returns is considered then arbitrage activities would also be riskier (Shiller et al., 1984). For example, if an arbitrageur analyzes that a stock is underpriced and there is an opportunity for profit, they capitalize it through arbitrage. However, it is not a risk-free activity to invest in underpriced stock because that stock could become further undervalued and result in loss to the arbitrageur. This risk of the arbitrage may limit arbitrageur’s activity as he would invest a small amount in that stock according to his risk preference. By limiting his investment in mispriced equities, the arbitrageur would not be fully effective to drive the market towards efficiency.

Trading cost is another factor that limits the arbitrage activities. As stated by Fama (1970:1), even though trading is important for the efficient market, it does not stop the market from showing the new information as the market reacts, even when there is a trading cost. However, trading costs restrict the market reaction. Investors react to any available information to acquire gains but if costs of acquiring and interpreting information or costs of implementing are too high, it would limit the gain. In the case where trading costs are greater than the potential benefits, investors may not react to the new information at all. Markets with higher trading costs tend to underreact to the new information significantly (Lee et al., 1999:45). Ample amount of literature has

investigated the costs of acquiring information and cost of trading and concluded that they restrict the market's reaction to the new information (Diamond and Verrecchia, 1981; Grossman and Stiglitz, 1980; Verrecchia, 1980).

The market takes time to absorb the new information in security prices and this time depends on several other factors like the size of the market and the volume of trade. Seyhun (1986:2) argues that security prices do not reflect all public information immediately, rather security prices take some time to adjust to the new information. Fama et al. (1969) empirically tested the impact of new information (stock split) on stock price adjustment. They concluded that stock price reacts to the information immediately in most of the cases but generally it takes a few days to fully absorb the information. During this transition, there would be a gap between market value and intrinsic value of a security. Ball (1978) reviewed twenty studies that conclude that stock prices react to the earnings announcements gradually.

In an efficient market, stock prices should absorb the new information immediately. Without the new information, prices should follow a martingale behavior in the short-run. Price movements should be random, and predictability should be minimal (Sims, 1984:2). Empirical evidence shows that there is a strong serial correlation in the short-run returns (Lehmann, 1990).

Chordia et al. (2005:24) argues that market efficiency is a collective effort of investors. Perhaps unintentionally, they all make their efforts to push the market towards efficiency. Unlike the theory, in the real world, it does not happen instantly. There must be a time interval, generally a short one, during which market would not be efficient.

Arbitrage activity also requires liquidity. Liquidity is a factor in stock trade which results in price movements without any new information about the stocks. Institutional investors trade the whole day regardless of the new information. They may trade a stock just to change their liquidity position which is nothing to do with the new information. Sadka (2006) argued that stock price anomalies are influenced by liquidity risk in the market. Chung and Hrazdil (2010) empirically investigated the impact of liquidity on market efficiency for the US market. Results indicate that better liquidity facilities improve the efficiency of the market as it allows investors to implement their

investment strategies more efficiently. They further report that the relationship between liquidity and market efficiency is even stronger in the time of new information (Chung and Hrazdil, 2010:1). Chordia et al. (2008:24) argued that predictability of short-term returns should be minimal in an efficient market. They proved empirically that predictability gets reduced during the high liquidity times in New York Stock Exchange. Pastor and Stambaugh (2003) found that liquidity of the aggregate market influences the stock returns.

1.1.3.2. Bounded Rationality

Empirical analysis of efficient market hypothesis, under various market settings, suggests that markets do not always react to new information efficiently. Most of the studies concluded that markets react inefficiently to the new information, as it over-reacts or under-reacts to the new information (Barberis et al., 1998:1; Daniel et al., 1997:30). Theoretically, the possible impact of a certain information on stock prices could be predicted and calculated but actual price movements could be different as human behavior is involved in it (Shiller, 1999:4).

Human behavior causes short-term and long-term inefficiencies in the stock markets leading to overreaction and underreaction of stock prices to new information. There are two approaches to the impact of human behavior on stock price movement. One is the contrarian approach which assumes that investors would overreact in a certain condition and this overreaction would get reversed afterwards. It advocates the buying of “past loser” stocks and selling of “past winner” stocks to earn abnormal returns (Lakonishok et al., 1994:2). Second is the relative strength approach which assumes that investors would underreact to new information and it suggests buying of “past winner” stocks and selling of “past loser” stocks (Levy, 1967:2). Although these approaches advocate the opposite trading patterns, still both approaches show the inefficiency in the stock market caused by human behavior.

Bondt and Thaler (1985) investigated the phenomena of overreaction in the stock market and found that investors overreact to new information which results in the over-

adjustment in stock prices. They further found that in the long-run this overreaction disappears by readjustment of stock prices. Jegadeesh and Titman (1995:2) investigated the impact of firm specific and common information on stock price reaction. They concluded that stock prices overreact to the firm specific information, whereas stock price reaction to the common factors is too slow and delayed (Jegadeesh and Titman, 1995:2). Lee and Swaminathan (2000) found that highly traded stocks tend to overreact to new information.

Lehmann (1990) investigated the market efficiency hypothesis for the Newyork Stock Exchange and concluded that the market is not efficient. He found that “winners” and “losers” with respect to returns, experience reversal in the following week. Lehman (1990) explains this reversal as the adjustment in the overreaction to new information. According to him, it is not reasonable to use a well-diversified portfolio for testing the market efficiency. The reversal in the prices of “winners” or “losers” will give evidence in favor of market efficiency theory. Instead, it is more practical to form a zero-investment portfolio to test the market efficiency. Zero-investment portfolio by having a short position for a stock that just has experienced a price lift or by having a long position for a stock that has lost value recently can lead to abnormal returns (Lehmann, 1990:4).

Grinblatt and Titman (1989) analyzed the trading pattern of mutual funds and concluded that mutual funds prefer to buy stocks that have performed well in the preceding quarter. The success of the sample mutual funds of this study presents strong evidence in favor of relative strength approach of investment. Jegadeesh and Titman (1993:26) found that following relative strength approach in trading by considering the past 3 to 12 months past price performance, yields abnormal returns, although these abnormal returns disappear after a one year period.

Levy (1967) presents some more evidence of relative strength approach and formed an investment strategy accordingly. He proves that buying a stock with a current price which is significantly greater than its average price over the past 27 weeks, results in significantly abnormal returns. However, Jensen and Bennington (1970:2) objected

the study of Levy (1967) by calling his sample biased, they found contrary results for a period which are mostly different than Levy's sample period.

Although both approaches suggest opposite trading strategies, both have provided abnormal returns in empirical testing which requires further investigation. Jensen and Bennington (1970:2) argued that evidence for contrarian approach are either for a very short period (1 week, 1 month) or for a long period (3 to 5 years), whereas for the relative strength approach, studies have mostly considered 3 to 12 month periods. Hence, this difference in holding period might have caused the abnormal returns for opposite approaches. Balvers et al. (2000) have also provided evidence of abnormal returns by applying a contrarian approach in the long-term data. They have taken a sample of 18 countries and a sample period of 1969-96. Schumaker and Chen (2008) found abnormal returns by using relative strength approach for 1-week period and for the contrarian approach by taking 5-week holding period. The scope of the study does not include the comparison of both approaches; instead, it is concerned with abnormal returns resulting from these approaches. Empirical evidence for both trading strategies provides evidence of inefficiencies, hence mispricing, in the market.

Apart from reaction to new information, investor sentiment also influences the stock market efficiency. Shiller et al. (1984) found that besides fundamentals, fads and fashions also play a role in determining asset prices. Seyhun (1990) found that in the times of crises, insiders tend to buy their own firm's stocks without any change in the fundamentals. Shiller et al. (1991) surveyed investors after the stock market crash and found that a large number of investors believed that fundamentals had changed. Closed-end funds could be used as a proxy for individual investor sentiments (De Long et al., 1990). With a bearish trend, investors sell their stocks including their closed-end fund shares. In doing so they sell closed-end funds at a discount (compared to the total value of the net assets). In case of a bullish trend, there could be a premium on closed-ended funds (Morck et al., 1990b). Media content is also used as proxy of the investor sentiments. Tetlock (2007:27) found pessimistic contents have a downward impact on the stock market.

1.2. MISPRICED EQUITY

As discussed above, there are different factors such as trading costs, liquidity, and market timing that limit the arbitrage activity in the market. Limited arbitrage activity could create inefficiencies in the stock market (Shleifer, 2000:121). Bounded rationalities of investors as also discussed above contribute to the inefficiencies in the stock market. Small and random price movements do not violate the efficient market hypothesis and random walk theory (Fama, 1998:2). Since the randomness of price movements does not allow investors to beat the market continuously, these small and random movements appear and disappear rapidly and do not cause mispricing of equities.

Mispriced equity is an equity whose market price does not reflect its fundamental value (present value of all future cash flows associated with it). Mispriced equity could be overvalued or undervalued. Equity is overvalued if its market value is more than its fundamental value and equity is undervalued if its market value is less than its fundamental value.

1.2.1. Measuring the Mispriced Equity

Mispricing is a state where market value does not reflect the firm's fundamental or intrinsic value. Typically, a firm's intrinsic value is the present value of all the future cash flows associated with the firm. If the intrinsic value of the firm is denoted by IV and market price by P, then the mispricing of a firm is calculated as P/IV . When this value is higher than 1, the equity is assumed to be overvalued and when it is lower than 1, equity is assumed to be undervalued. In the estimation of mispricing, calculation of intrinsic value is the biggest challenge because it is the present value of future cash flows and future cash flows are not known. Therefore, analysts use various estimation techniques to determine the intrinsic value of the stocks.

1.2.1.1. Model-based Measures of Mispricing

There are some model-based valuation methods that have been used in the literature to measure mispricing. These methods include the dividend discount model and residual income model.

In the dividend discount model, the value of the stock is calculated by discounting all the expected dividends of the stock (Stowe et al., 2002:39). In the dividend discount model, two things are very important; first is the estimation of future dividends and second is the estimation of the appropriate discount rate. The discount rate is the required rate of returns of the shareholders which is calculated by using the capital asset pricing model (CAPM), arbitrage pricing theory APT, or multifactor asset pricing models.

Free cashflow valuation is another method for the calculation of the intrinsic value of the stock. This method is similar to the dividend discount model. However, this model includes all the cash flows that are available for distribution. Unlike the dividends, free cash flows are not frequently published data, but analysts need to compute this from the financial information. It is a useful method in the conditions where firms pay no dividend or very low dividends (Stowe et al., 2002:114). Free cashflows are discounted by using weighted average cost of capital (WACC). WACC is a calculation of a firm's cost of capital in which each category of capital is proportionately weighted.

Ohlson (1995) developed the residual income model to estimate mispricing where residual income (V) is calculated by subtracting the cost of capital from net income and then mispricing is calculated by dividing it by price (V/P). Since this residual income is not equivalent to a firm's intrinsic value, it cannot be concluded directly from this ratio if equity is mispriced or fairly priced. There is no benchmark for V/P to conclude whether a higher (lower) value is an indication of undervaluation (overvaluation) (Dong et al., 2006).

In the empirical analysis, Foerster and Sapp (2005) analyzed the results of the dividend discount model with the actual stock prices for a sample period of 120 years. Results show that the dividend discount model performs well in explaining the actual stock prices (Foerster and Sapp, 2005:1). Nasseh and Strauss (2004) reported that the dividend discount model better explains the stock prices and mispricing of stocks than free cashflow model. However, in a comparison of the dividend discount model with residual income model, Nasseh and Strauss (2004) found that the dividend discount model has less explanatory power compared to the residual income model. In a comparative study Francis et al. (2000) found that residual income model performs better than dividend discount model and free cashflows model. The residual income based value has been prove as a strong predictor of future abnormal returns (Frankel and Lee, 1998, Lee et al., 1999). It has also been prove as a predictor of repurchase and takeover decisions (D'mello and Shroff, 2000, Dong et al., 2006).

1.2.1.2. Multiples Method of Measuring Mispricing

Multiple are the ratios that compare the stock price of the firm with different book values such as earnings, book value per share. The most commonly used multiples in finance to calculate value of a stock are price to earnings and book to market ratios.

Price to earnings ratio (P/E) is a commonly used ratio in valuation. It compares the market price of the stock against earnings per share of the firm. It is a very simple and useful technique to value a firm because it considers earnings for valuation which are very crucial for the investor. It has been used extensively in the literature as a measure of valuation and found to be correlated with stock returns (Lee et al., 1999; Lin and Fu, 2008). For valuation purposes generally, forward earnings are estimated because prior earnings are gone and not relevant for current price (Stowe et al., 2002:184). It does not have a benchmark for evaluation of a stock's mispricing. Instead, higher values indicate overvaluation and lower values indicate undervaluation.

Book to price (B/P) or in reverse order Price to book (P/B) or Market to book (M/B) ratio is another important ratio to value equity. It is very simple to calculate and

widely used in the literature in firm valuation. Literature suggests that the B/P ratio is a good predictor of stock returns. Monthly returns are strongly related to B/P ratio (Ang and Cheng, 2006; Barberis and Huang, 2001; Daniel et al., 2001). Pontiff and Schall (1998) have found B/P as a strong predictor of overall returns and returns in cross-sections. In this measure, market value reflects mispricing, risk and future cash flows associated with equity, whereas book value reduces irrelevant scale differences in the ratio. Blend of market value and book value makes the B/P ratio a less noisy measure of mispricing (Daniel et al., 2001; Dong et al., 2006).

This ratio is also used as M/B ratio to proxy for mispricing. By using the M/B ratio for the measurement of mispricing, the book value of equity is used in the place of intrinsic value which is not much realistic. In fact, M/B ratio accounts for mispricing and growth combined as shown below (Dong et al., 2006:13; Lin and Fu, 2008:10).

$$\ln (M / B) = \ln (M / IV) + \ln (IV / B)$$

where IV denotes Intrinsic Value, M denotes the market value of equity and B denotes the book value of equity. In this equation, $\ln M/IV$ used as a proxy for mispricing and $\ln IV/B$ is the proxy for the potential of the firm for growth.

Since M/B ratio comprises both mispricing and growth opportunities at the same time, it has been used by different studies as a measure of mispricing and growth opportunities (Warr et al., 2012:3). Because of the nature of the M/B ratio, there is no benchmark against which it could be compared to determine mispricing in a certain case. Rather higher (lower) M/B ratio indicates overvaluation (undervaluation) (Dong et al., 2006:15).

All measures of the mispriced equity have certain advantages and disadvantages. Model-based measures of valuation have inherited measurement error as they include number of estimations. Dividend discount model requires the estimation of future dividends and the required rate of returns, free cashflow model requires estimation of free cashflows and WACC, whereas the residual income method needs required rate of return for the valuation. Any approach which may be used to calculate the future dividends, and required rate of return, involves certain assumptions and estimation biases. On the other hand, multiple based measures such as price to book ratio, price to

earnings ratio, do not have any measurement biases but these ratios account for growth and mispricing at the same time.

1.2.2. Implications of Mispriced Equity for the Firm

Empirical analyses on efficient market hypothesis and random walk theory reveal that sometimes market shows inefficient behavior and stock returns do not follow a random walk. Inefficiencies of the market affect the stock prices and stock prices become mispriced. This part discusses how mispricing of equities affects the financial decision making of the firm.

Morck et al. (1990b:8) put forth two hypotheses in this regard; the passive market hypothesis, and the active market hypothesis. According to the passive informative view of the stock market, the market reflects the information related to the stocks prices and investment strategies for the investor, but the market does not influence the investment decisions of the firm managers (Gjerde et al., 2001:1). Managers are decision makers and they are the most informed people related to the firm. The stock market does not generate any additional information which helps managers in their decision-making process. There might be some signals coming from investors regarding how a firm should allocate its resources, but managers should not consider them in his decisions (Morck et al., 1990b:9). It assumes that stock market is a “sideshow” and does not have any role in real-time resource allocation. For the empirical evidence such as the correlation between stock returns and investments of the firm, passive informative view of the stock market assume that this correlation is the result of similar information held by managers and the stock market (Morck et al., 1990b:9). However, this hypothesis assumes that the market possesses information related to the macro-economic factors which help managers in their decision making (Mauro, 2000:5).

The second hypothesis is the active market hypothesis which assumes that the market has a role to play in managerial decision making. Managers consider the information coming from the stock market in their financial decision making (Gjerde et

al., 2001:1). Active market hypothesis assumes that investment decision of the firm should reflect the market's expectations (Mauro, 2000:6). Morck et al. (1990b:9) argue that even the most accurate prediction by the market would have some error which is because of investor sentiment. Even if predictions of the market are inaccurate, still they influence the investment decisions of the firm. The active market hypothesis may be closer to the real world situation as stock markets play a very important role in the decision making of the firm.

When markets fail to price securities fairly, it results in opportunities for investors as well as managers. Market inefficiency causes mispricing of equities in the market which affects the firms' financing decisions as firms tend to raise more capital when the price of their issued securities is overvalued and repurchase when their securities are undervalued (Daniel et al., 1998:17). The literature of mispriced equity suggests that managers of the overvalued firm indulge in activities such as earnings management, investing optimistically, which destroy the firm value (Kothari et al., 2006:5, Jensen, 2004:549). It leads to the discussion of agency cost of overvalued equity. Literature suggests that overvalued equity is associated with high agency costs. According to the agency hypothesis, managers want to prolong the overvaluation and they resist the market's correction towards fair valuation (Jensen, 2004:552). Instead of passing the true state of the firm's position to the investors, they try to justify the optimistic valuation of the market (Kothari et al., 2009:3). Jensen (2004:552) has called overvalued equity as managerial heroin because it is really a pleasing state for managers at first. Managers get too much attention of the stock market, investors and even media. Generally, managers get into this game of justifying the overvalued equity by showing high performance through earnings manipulation (Rangan, 1998). Once they are into this game, there is no stopping as they need to make more earnings management in the coming periods. When this game ends, it destroys the firm value as the firm loses the trust in the market (Jensen, 2004:550).

Literature suggests that in order to justify overvalued equity, managers often make decisions that cost the firm heavily. Since overvaluation may be caused by higher performance forecasts and expectations by the stock market, if a firm does not meet

these market expectations, it experiences value losses. When managers fail to perform as good to justify the high value of equity, they may get involved in earnings management to meet the expectations of the market (Kothari et al., 2006:41). Accruals is a common way of showing better performance by the managers. In their analysis Kothari et al. (2006) sorted the firms on the bases of their accruals and found that firms with overvalued equity have more accruals compared to other firms. These accruals are negatively related to the future earnings of the firm which depicts that these accruals are a way of earnings management. Managers also issue excessive debt and equity under overvaluation as it costs them lower at the current state of overvaluation (Jensen, 2004:552, Morck et al., 1990a:5). In this state, with an ample amount of pressure of the market and availability of ample finance, managers tend to invest heavily in long-term projects. Pressure from overvaluation drives managers to invest optimistically which causes high agency costs to the firm (Morck et al., 1990a:6).

For a manager of the overvalued firm, the takeover market is one of the most valuable opportunities. In the takeover market, managers can balance their investing decisions and financing decisions at the same time by issuing stock as the payment of the acquisition. However, takeover decisions influenced by overvaluation may not be the optimal decision for the firm. In the pressure of overvalued equity, managers could make wrong decisions of takeover. Roll (1986:4) argues that optimism of managers could cause them to overpay in an acquisition which reduces the shareholder value. Managers use the stock prices for assessment of the current state of the market and future predictions. Overvalued equity could cause them to make the wrong assumptions and predictions of the market. Overvaluation results into several managerial biases such as optimism and pricing mistakes (Jensen, 2004:557). Therefore, acquisitions influenced by overvalued equity are more likely to result in subsequent negative returns for the acquiring firm. Chapter 2 covers the impact of mispriced equity on mergers and acquisitions in more detail.

CHAPTER TWO

TAKEOVER MARKET

The aim of this chapter is to explain the takeover market and how mispriced equity affects the takeover market. The chapter starts with the discussion of the takeover market, types of takeovers, benefits and costs associated with the takeover market. It also includes explanations on payment methods in takeovers, preannouncement premium, and post-merger returns of the acquirer. Last part of Chapter 2 includes the discussion about how mispriced equity affects the payment method, preannouncement premium, and post-merger returns of the acquirer in takeovers. The hypotheses to be tested are also developed based on this part.

2.1. TAKEOVER MARKET

Takeover market refers to the market for mergers and acquisitions where firms acquire other firms, and it is also called the market for control (Brigham and Houston, 2012:655). It provides an external mechanism of corporate governance as it is a constant threat for the underperforming managers. Managers know that if their firms underperform or get undervalued, it would become an attractive target for the takeover market. In such a case, managers may lose their job and reputation in the market. It drives managers to perform better which is in the interest of the shareholders. Hence, the takeover market is a very important component of corporate governance as it reduces the agency costs (Oviatt, 1988:3).

Mergers and acquisitions activities also improve the resource allocation in the market. Firms that do not perform to their potential, are acquired by other firms that have potential to improve their performance. It ensures the flow of resources from low performers to the high performers. In this regard, the takeover market ensures that only those firms, that can maximize the value of shareholders, survive (Manne, 1965:4).

Management of the firm should focus on the value maximization of the shareholders. If they deviate from their prime objective by running the firm poorly, the

stock value starts falling and the firm gets undervalued. High degree of undervaluation makes the firm a target for the takeover market. It is a risk for the managers because with the acquisition of the firm, management of the firm would also be changed. This external pressure causes firms to return to their maximized value. Even if the bid of acquisition is unsuccessful, it still is a source of external pressure on the managers to act optimally. An unsuccessful bid is like a “salutary kick” for the managers as it is a wakeup call for them as stated by Keasey et al. (1997:147).

Role of takeovers varies across the countries depending upon the corporate governance mechanism of the country. In the countries where stock holdings are highly dispersed, such as the US and the UK, shareholders have less influence on the operations and management of the firm. In these settings, the role of the market for control is very crucial as it serves as an external mechanism of control which compensates the lesser control of shareholders (Macey and Miller, 1995:3). On the other hand, countries such as Germany and Japan have high levels of ownership concentration and shareholders have a strong influence on the management of the firm. Institutional shareholders, such as banks and other financial institutions also play a significant role in the control mechanism of the firms. In this situation, the market for control does not have a very active role to play since shareholders already have a significant control of the firm (Macey and Miller, 1995:3). Though mergers and acquisitions data of Japan and Germany reveal that they have experienced a large number of takeover cases in the last few decades. However, as explained by Jackson and Hoepner (2001:15), these takeover cases are not financial or governance oriented. They argued that German mergers and acquisitions cases are mainly industry oriented (horizontal and vertical), where firms are more concerned about eliminating the competition, controlling the supply chain, and economies of scale. According to them, the German takeover market is not derived with the motivation of getting the advantage of undervalued firms. Even if the motivation of takeover is not financial or governance, it still improves the resource allocation in the economy (Devos et al., 2008:4).

Role of the takeover market also varies across developed and emerging economies. Corporate governance and investor protection mechanism is comparatively

poor in emerging markets. Generally, founding shareholders control the firm and they poorly enforce shareholders' legal rights and accounting transparency (Claessens and Yurtoglu, 2013:12; Gibson, 2003:2). Since the legal framework related to corporate governance is poor in emerging markets, firm level governance mechanisms should be strong enough to compensate for that. Although evidence suggests that firm level governance mechanism is also poor in the emerging economies (Klapper and Love, 2004:2). OECD principles of corporate governance have improved the condition of corporate governance in emerging countries, but still, corporate governance and investor protection system are not much strong (Chen et al., 2011:1). When legal systems and internal corporate governance mechanisms of the firm fail, external pressure by the market is very important to discipline the management and controlling shareholders of the firm. Therefore, the role of the takeover market is even more vital in emerging markets. Although the number of mergers and acquisitions cases is quite smaller in the emerging markets, it is increasing rapidly (Lebedev et al., 2015:651).

2.1.1. Types of Takeovers

From the method of implementation, there are two types of takeovers; friendly and hostile. Under the friendly takeover, the acquirer informs the management of the target firm before placing the bid. Management of the target firm gets enough time to evaluate the offer and its terms. If they find that the takeover offer is maximizing the wealth of the shareholders, they can accept the offer. There is a possibility that management may not accept a value maximizing opportunity because of the agency problem (Bliss and Rosen, 2001:1).

A hostile takeover occurs when the acquirer directly approaches the shareholders of the firm and places the offer. This offer is placed without the knowledge of the management or if the management has refused an offer for a friendly takeover earlier. In the hostile takeover, the acquirer tries to convince the shareholders that management is not running the firm efficiently and share prices are undervalued. Generally, the acquirer offers a premium to the shareholders whereas the management tends to try to convince

the shareholders that the acquirer is not offering enough compensation to the shareholders (Hirshleifer and Titman, 1990:3).

Since the hostile takeover does not involve the consent of management of the target firm, it could result in the wealth loss of shareholders of the target firm. Management of the target firm could use different strategies to prevent the acquirer from the takeover. These strategies include white knight, poison pill, white squire, golden parachutes (Brigham and Houston, 2012:669). White knight strategy is finding another acquirer, which is acceptable for the target's management, to compete with the potential acquirer. Poison pill strategy involves taking some steps by the target's management to hurt their own firm. White squire strategy is finding a person or a firm that will buy a significant share of the target to save it from the takeover. Golden parachute is making an agreement with the management to make heavy payments to them if their job is terminated.

Even after taking such defense strategies, a hostile takeover is still possible. Acquiring firm may not compensate for the true value of the target firm in the hostile takeover. Hostile bids at a large level could disturb the whole economic and political system of the country (Gordon, 2003:4). For this reason, a number of antitakeover laws have been made in different countries that regularize the takeovers. These laws restrict the potential acquirer from holding a certain amount of stocks of target firm without declaration. It also includes the minimum period for which a tender offer should be maintained. By these legislations, policymakers try to protect the rights of the target firm's shareholders, but these laws could be discouraging for acquirers. Although the literature suggests that these laws do not affect mergers and acquisitions at a large scale (Bittlingmayer, 1998:13).

2.1.2. Synergies in Takeovers:

Takeover market optimizes the value of the firms and the overall market in different ways (Gordon, 2003:1). First and the most obvious benefit of takeovers is it being a threat that serves as a tool to pressurize the managers and reduce the agency cost of the firm. Apart from this, successful takeovers also increase the value of both acquirer and target firms due to synergy effects. Synergy refers to the state where the value of two combined firms (acquirer and target firm) is greater than their values separately.

There are number of factors that are sources of synergy in a takeover (Kim, 2011:22). The transfer of skills and technology between the firms increases their operating performance. After the takeover, the acquirer and the target firm transfer their skills and technology to each other which result in value creation (Chari et al., 2004:7). If the acquirer and the target firm are from a similar business area, they can reduce the cost of production by combining production which may allow them to achieve economies of scale (Rahatullah, 2014:1).

Goold and Campbell (1998:4) argue that there are six sources of synergies in the takeover market. These sources include sharing skills and knowledge, coordinated strategies, sharing of tangible resources, economies of scale, gaining bargaining power over suppliers, the creation of new products/services. As it has been discussed earlier, a poorly managed firm is an attractive target for the takeover market. Generally, the acquirer selects the target firm by analyzing its potential for improvement. After the merger, the acquirer takes the control of the target firm and removes inefficiencies which results in synergies (Rahatullah, 2014:3).

2.1.3. Drawbacks of the Takeover Market

The literature has also presented the costs associated with the takeovers. According to Shaver (2006:1), even though firms get involved in mergers and acquisitions in hope of synergies, they experience two major problems after mergers and acquisitions. The first problem is the contagion effect, which is the case where negative

characteristics are transmitted between the firms as well as the positive ones after the mergers and acquisitions. For example, if the acquiring firm has some problems in its operations, it could transfer to the target firm if it adopts similar techniques from the acquiring firm. These negative characteristics could result in inefficiencies (Shaver, 2006:1).

Second problem, Shaver (2006:1) pointed-out is the existing limited capacity of resources. The limited capacity of tangible and intangible resources may not allow the firms to get benefits by transmitting it to each other. Mueller and Sirower (2003:16) examined a sample of 168 large merger cases in the US market. They found very little or no evidence for synergies in merger cases. Rather they found that managers tend to involve into merger activity for their own benefits. Bliss and Rosen (2001:1) also found a link in managers' incentives and choice of mergers. Results show that stock based compensation of CEO is negatively correlated with the choice of the merger. As a result, mergers and acquisitions cause new types of agency problems instead of removing the existing ones.

Unsuccessful bids of takeovers also cause problems for target firms. In some cases, unsuccessful bids have driven target firms to bankruptcy and failure (Eliasson, 2011:7). Once a firm becomes a target, this sends a signal to the market that it may actually not be performing as well as it should be. As a result, the market's perception and valuation of the target firm is influenced.

The threat of a takeover is a pressure from the stock market that drives managers to act for the value maximization of shareholders. However, sometimes the pressure of the stock market limits the managers to make long-term decisions since some long-term projects such as research and development may not increase the value in the short-term. Investors can not truly assess the value of long-term projects of the firm due to information asymmetry (Stein, 1988:2). The market is likely to undervalue such long-term investments of the firm. Therefore, the market could perceive that the firm is not being run efficiently and the firm could face the takeover threat. Investment in innovation projects have a high chance of failure in the short-term but yield heavily in the long-term (Manso, 2011:2). Literature suggests that the takeover threat limits the

investment in innovation which is vital for long-term competitive advantage (Hirshleifer and Titman, 1990:2). If the anti-takeover mechanism is strong in the market, the firms are likely to invest more in innovation projects (Hirshleifer and Titman, 1990:3).

2.1.4. Empirical Evidence on the Efficiency of the Takeover Market

It has been argued that the active takeover market serves as an external corporate governance tool (Sinha, 2004:2). In this way, the existence of the takeover market improves the efficiency of the target firm, but the crucial question is whether the takeover activity itself improves the efficiency of the firms involved in it. Ample amount of literature has addressed this question through empirical investigation providing a variety of different results under various market settings.

Healy et al. (1992) investigated the 50 largest mergers and acquisitions of the US market. Results suggest that the shareholders of the acquirer and the target experienced an increase in stock returns after the merger.

Aybar and Ficici (2009) study the cross-border takeover cases into the emerging markets. They found that target firms from emerging markets experienced a 6% average increase in monthly stock returns whereas the acquirer also experienced an increase in the stock returns by more than 2% on average.

There is also evidence that takeovers are negatively correlated with the firm performance. Al-Sharkas et al. (2008) empirically tested the impact of mergers and acquisitions on the US banking sector. They found that mergers improve the cost efficiency and profitability of banks. They also found that merged banks are running at lower costs compared to other banks because of technical and allocative efficiency. They proposed an economic rationale for the future mergers in the US banking sector.

Cornett and De (1991) found positive excess returns for financial and nonfinancial bidding and target firms even though financial firms yield significantly higher stock returns compared to nonfinancial firms.

Houston et al. (2001) analyzed the post-merger firm performance estimations of the management of the acquiring firm. They have found that most of the value gaining

opportunities are coming from cost efficiency. They found a very strong correlation between the post-merger returns and projections of cost efficiency.

DeLong and DeYoung (2007) analyzed a sample of 216 publicly traded mergers and acquisition cases in the US market. They found that mergers do not improve the financial efficiency of the firm. However, when they formed a model where investors and firms can get a knowledge from previous mergers and acquisition data, they found a positive impact on the post-merger financial performance.

There are some empirical studies that have found no impact or negative impact of takeovers on the performance of acquirer and target firms. Agrawal et al. (1992) investigated a sample of 937 mergers and acquisition cases in the US. They found that shareholders of acquiring firms lose 10% of their wealth in five years following the merger. Pilloff (1996) investigated the post-merger performance of the firms and found no significant increase in the stock returns of acquirer and target firms. Houston and Ryngaert (1994) found that post-merger returns of acquirer and target are slightly positive but statistically insignificant. They concluded that mergers do not improve cost efficiency and performance of the firms. However, they found that if there is a strong overlap of operations of acquirer and target firms, then the takeover improves the efficiency and the market gives more value to such takeovers.

2.2 CHOICE OF PAYMENT IN TAKEOVERS

Investing and financing decisions of a firm are the ones that are directly associated with the value of the firm. For their utmost importance, these issues have got so much attention from researchers. Over the last century, an ample amount of work has been done on these issues and many theories have been formed to address them. Financing decisions of a firm include the selection of the right balance between debt and equity. Debt is comparatively a cheaper source of finance, but higher risk is also associated with it. Modigliani and Miller (1958) initiated the debate of value relevance of the capital structure. They argued that under certain assumptions, the firm value would be irrelevant to its capital structure. Their assumptions include no taxes, no

brokerage cost, no bankruptcy cost, an investor can borrow at the same rate as the firm, information symmetry (Modigliani and Miller, 1958:267). Although there are some unrealistic assumptions still this theory of irrelevance gives an understanding of capital structure as it provides proof of what factors make the capital structure relevant to the value of the firm.

Modigliani and Miller (1963) modified their theory of capital structure and stated that with the tax benefit of the debt, increase in the debt would increase the firm value. According to them, the firm should take as much debt as it can take. Following them, debt should be the major source of capital for the firms. However, empirical evidence suggests otherwise as firms do not have that much debt capacity (Martin, 1996; Masulis, 1983, Bauer, 2004).

Apart from the tax benefit, debt also reduces the agency problems as it limits the free cash flows of the firm. If there is too much cash on the disposal of the managers, they may use it in the projects of their personal benefit (Brigham and Ehrhardt, 2009:616).

However, there are a few risks associated with debt that make it too costly for a firm. Agency cost of debt is one of those factors that limit firms to take large amounts of debt (Mello and Parsons, 1992). This is the cost that is incurred when debt holders of the firm restrict it to invest freely. Myers (1977) argues that risky debt of the firm sometimes refrains it to invest in real investment opportunities which transfers wealth from equity holders to debt holders. Therefore, he suggests that firms with growth opportunities should finance itself with equity. Empirical investigation of Titman and Wessels (1988) shows no relationship between debt and growth of the firm. However, Bradley et al. (1984) found a negative relationship between financial leverage and growth of the firm. Above mentioned studies have focused on debt and financing of the firm in general, however, the recent study is focused on financing decision of mergers and acquisitions particularly.

Basically, mergers and acquisitions are considered to be an investment opportunity for a firm but at the same time it involves the financing decisions of the firm in the form of choice of payment. Choice of payment includes payment in cash, payment

by issuing stocks of the acquiring firm, and payment in the combination of cash and stocks. Payment method is among the most important issues that come under discussion between acquiring and target firms at the time of a bid. For an acquirer, it is very important to select the payment method optimally as it is related to the value of the firm in different ways.

Martin (1996:3) argues that acquirers that finance takeover activity with stocks experience negative returns. Empirical studies have also shown that stock financed takeovers experience lower returns compared to cash financed takeovers (Franks et al., 1988; Travlos, 1987; Wansley et al., 1987). The poor performance of the stock bidders is not just limited to the bidding period, they have experienced post-merger poor performance as well (Agrawal et al., 1992). In fact, a study by Linn and Switzer (1994) reports that stock bidders continued performing significantly worse compared to the other firms. These findings suggest that bidders should carefully select its payment method as it is associated with its future stock returns.

Existing literature has also discussed asymmetry of information with reference to the payment method (Martin, 1996). Asymmetric information between the acquirer and the target firm makes it difficult to estimate the value of the target firm fairly. In this situation where valuation is difficult, it is safer for the acquirer to pay the takeover under consideration by stock. By doing this, the acquirer is sharing the risk of target's misvaluation with the target's shareholders (Hansen, 1987).

Cash bidding signals a high value of target firm and it refrains other firms from bidding as well (Fishman, 1989). Firm size is also positively related to the cash payments in takeover. Generally, bigger firms have more excess cash to pay the takeover by cash (Moeller et al., 2004). The ownership structure of the acquiring firm also matters in the decision of the payment method. Amihud, et al. (1990) found managerial ownership is positively related to the cash bidding in mergers and institutional ownership is negatively correlated with the profitability in case of stock biddings.

Another important factor in the choice of payment is the dilution of control caused by issuing new stock to the target firm. Jung et al. (1996:2) argue that in the firms with managerial ownership, managers do not like to issue new stock to finance

acquisitions because it dilutes their ownership. Thus, managers with a larger ownership stake would finance the acquisition by cash. Empirical evidence exhibited similar results that managerial ownership is positively correlated with cash and debt financed acquisitions (Amihud et al., 1990).

Martin (1996:6) proposed a nonlinear relationship between ownership and choice of payment. According to this study, at low and high levels of managerial ownership, managers are less concerned with dilution of control. However, managers with a middle range of ownership stake would be reluctant to issue new stocks to finance the acquisition. Block holders and institutional shareholders are generally most active outside investors in a firm. They can influence the decision making processes of the firm if they have a significant number of holdings. Since empirical findings suggest that acquisitions backed by stocks reduce the firm value, it is expected that firms with block holders and institutional shareholders would prefer cash as payment method (Karampatsas et al., 2014:7; Martin, 1996:7; Shim and Okamuro, 2011:12). Institutional owners prefer financing the takeovers by cash or debt (Amihud et al., 1990:1).

Pecking order theory of capital structure proposed by Myers (1984) suggests that managers follow an order of internal to external for financing. At first, firms use their internal sources to finance an investment, then they opt the option of borrowing, and then finally they go for equity financing. If firms really follow the pecking order in financing acquisitions, then their cash balance should be positively correlated with cash bidding. Empirical findings of Crawford (1989) depict that acquirers with high cash balances tend to pay in cash. In fact, excess cash of the acquirer could be a motivation of the takeover (Bruner, 1988:1). Cash-rich firms prefer to invest in the cash-poor firms to create value but takeovers influenced by excess cash are value decreasing for the acquiring firm (Harford, 1999:1).

On the other hand, Weitzel and McCarthy (2011:25) found that small and medium enterprises (SMEs) prefer to pay by stock and pecking order is less relevant for them. Harford et al. (2009:2) argue that target capital structure of the firm is very important for a firm to follow the pecking order. If a firm already has a debt level over its target level, then the firm will finance acquisitions totally with equity. Therefore, the

existing capital structure and target capital structure of the firm are very important in its choice of financing an acquisition.

2.3. PREANNOUNCEMENT PREMIUM IN TAKEOVERS

Preannouncement premium refers to the stock price run-ups of the target firm's stock price during the period before the takeover bid is announced (Antoniou et al., 2008:17). Usually, stock prices of target firms experience a sharp increase during the preannouncement period (King, 2009:2). This sharp price run-ups in the stock price could be explained by the efficient market theory. The acquirer analyses the takeover based on its cost and incremental cash flows associated with it. If the acquirer finds it attractive, then the takeover bid is placed. During this planning phase and before the placement of the bid, stock prices start rising even when the acquirer is not buying the stocks to get an advantage (Schwert, 1996:153). In the efficient market view, it is the reaction of the market towards the new information of takeover. Since the market perceives it as good news related to the stock, it results in a sharp increase in the target's stock price. This explanation of stock price run-ups leads to two questions, 'why the takeover bid is good news for the market', 'How the market gets the information even before the bid is announced'.

To answer the first question of why the takeover bid is good news for the market, it is important to look at the literature related to takeover premium. Takeover premium is the difference of the real value of the target firm and the value at which the firm is actually been acquired (Laamanen, 2007:6). Acquirer usually offers a takeover premium to make the takeover bid attractive for the target firm. The literature suggests that on average target firms get high takeover premiums and stocks of target firms earn abnormal positive returns following the period of the takeover (Travlos, 1987:2).

Moeller et al. (2004) analysed a large sample of 12,023 takeover cases from the US for the period of 1980 to 2001. They found that the average takeover premium paid by large firms is 68%, and the average premium paid by small firms is 62%. Antoniou Antoniou et al. (2008:17) analyzed 396 takeover cases from the UK for the period

from 1985 to 2004. They have found that acquirers have paid on average 45% takeover premium. Whenever the market gets the news of a takeover bid, it perceives that there must be a takeover premium involved. For this reason, the market takes the news of the takeover bid as good news for the stock and the stock price goes up.

The efficient market theory could be used to answer the second question of how the market gets the information before the announcement. For an efficient market, it is very important that costless information is available to all of its participants (Fama, 1970:6). In the preannouncement period, information of the takeover bid is not available to the investors, although insiders of the firm have the information related to the bid and can use it for their personal benefit by making illegal insider trading. Even though insider traders and the investors who have the insider information are few in numbers compared to the whole market, still they can influence the whole market through their trading. As Fama (1970:7) argues limited number of investors having some information is sometimes enough to make a market efficient.

Literature has attempted to explain the volume and timing of stock price run-ups with the help of insider trading (King, 2009:3). Two hypotheses have been made to explain the situation. Market anticipation hypothesis put forth by Jensen and Ruback (1983:14) proposed that these price run-ups are the result of investor anticipations that the firm is subject to a takeover. These investor anticipations could be based on rumors in the press, analysis of the industry, or analysis of firm-specific factors. Investor anticipations result in trade activity and stock price run-ups, even if these anticipations are incorrect. An alternative hypothesis, insider trading hypothesis, is proposed by Keown and Pinkerton (1981:856) states that stock price run-ups of target firms are caused by the illegal trading activity of insiders. Since insiders have this information of the takeover bid, they buy stocks of target firm to get profit from a price jump at the time of the announcement. Information related to insider trading detected by the market and other investors follows the insider trading which results in price run-ups in the period ahead of the announcement. Both of these hypotheses have taken significant attention of researchers and a large number of empirical studies have attempted to test these hypotheses.

Pound and Zeckhauser (1990:2) tested the market anticipation hypothesis by taking rumors in Wall Street Journal "Heard on the Street" column, as a proxy for market expectations. Results show that stock market efficiently responds to the rumors in the market as stock prices adjusted instantly even though only 2 firms out of 42 sample firms actually received a takeover bid in the following 50 days of the rumor and 18 firms received takeover bid within one year following the rumor. Pound and Zeckhauser (1990:2) conclude that stock price run-ups could be explained with the help of market anticipation, even when anticipations are not correct.

Siganos and Papa (2012) tested the market anticipation hypothesis by using data from the UK. They have taken a sample of 783 cases of takeover for the year 1998 to 2010. They have also taken 1049 rumor articles in Financial Times related to the takeovers as a proxy of market anticipations. Rumors articles are those articles that include the analysis and discussions of some future events related to the firms such as initial public offerings, takeovers, buybacks. They concluded that the stock market anticipations explain a small part of the stock price run-ups of target firms.

Siganos (2013:16) used a very novel approach to test the market anticipation hypothesis. This study has taken the Google search volume as a proxy for investor expectations. Results suggest that Google search explains 36% of the stock price run-ups of target firms. Explanation power of Google search volume is even more than the Financial Times.

Gao and Oler (2012:1) investigated the preannouncement premium of the target's stock and found that rumors cause high trade activity in the preannouncement premium. They also investigated why investors sell the stock if there is already a news of upcoming takeover bid. They found that sellers of target's stock are rational investors who capitalize on the overreaction of the market on rumors.

Insider trading hypothesis of stock price run-ups has also been tested by number of studies. Keown and Pinkerton (1981) tested the hypothesis by taking the daily return data of 194 cases from the US. They concluded that information about the takeover bid had already been in the market before the announcement. Insiders have used the nonpublic information for their own advantage which resulted in the preannouncement

stock price run-ups. In their analysis, leakage of the information was significant 12 days prior to the announcement (Keown and Pinkerton, 1981:855).

King (2009) investigated the preannouncement trade activity and stock price run-ups for Canadian mergers and acquisitions data. Sample of this study included 399 cases of publicly listed firms from 1985 to 2002. Results of the study show a serial correlation in the stock turnover on the target firm 37 days ahead of the announcement. Abnormal turnover and abnormal stock returns have been observed one week prior to the announcement. On average 38% stock returns have been recorded in the preannouncement period. Results also proposed that trade activity by insiders is the major reason of stock price run-ups of target firm in the period ahead of the announcement (King, 2009:33).

Preannouncement stock price run-ups lead to another important decision to be made by the acquirer: whether the takeover bid should be revisited or continue as planned. Efficient market view proposes that the stock market reflects the aggregate of the information of many investors, good news in the market leads to the increase in the stock price. However, the news of the takeover is not new information for the acquirer as he already had this information of takeover bid prior to the market. The calculations have already accounted for the information which results in the stock price run-ups in the market, so it can be ignored (Schwert, 1996:153). However, empirical evidence suggests that the acquirers have to pay more when stock prices of target firms increase ahead of the announcement (Cornell and Sirri, 1992:25, King, 2009:26).

Jarrell and Poulsen (1989:21) argued that if preannouncement stock price run-ups are just the market reaction to the new information of the takeover bid, then preannouncement stock prices run-up should substitute the post-announcement stock price markup. However, their empirical analysis provides a very weak evidence that preannouncement price run-up substitutes the post-announcement price markup.

2.4. POST-MERGER RETURNS OF THE ACQUIRER

Takeover market optimizes the allocation of resources in the market as it transfers the resources from low performers to high performers. Transfer of skills and technology improves the performance and creates synergies (Chari et al., 2004:7). Cost efficiency is one of the most important determinants of takeovers. Houston et al. (2001) found that cost efficiency is the highest value generating activity in takeover projections of the management. All these factors improve the performance of both target and acquiring firms.

Empirical evidence has shown that takeovers create synergies as the combined value of merged firms is greater than the sum of their separate values, although the major part of increased value comes from value gains by target firms, whereas acquiring firms gain no stock returns from the takeover (Fuller et al., 2002:2). The takeover is the decision of the acquiring firm and the purpose is to get benefits from it. Takeover activity is meant to increase the wealth of shareholders of the acquiring firm. By indulging into the takeover, management of the acquiring firm believes that it can increase the economic value of their firm. They put their efforts to make the projections about how the operations of the merged firm would increase the efficiency. Although outcomes are not consistent with the expectations of the management as stock returns of the acquiring firm do not increase with takeover (Barney, 1988:2).

Post-merger stock returns of the acquiring firm reveal that they do not usually benefit from the takeover. Literature has suggested number of different reasons for it. Antoniou et al. (2008:2) states that underperformance of the acquirer could be explained by the overpayment in takeover. Sometimes merger premium is higher than the economic benefits of the takeover which results in negative stock returns for the acquirer. At the time of the announcement, stock returns of the acquirer may show a positive trend even if it overpays. Gradually market realizes the overpayment and corrects its mistake which results in the long-term negative returns to the acquirer (Schwert, 2003:26). Grinblatt and Titman (2002:708) states that stock returns of the acquiring firm at the time of announcement do not imply the expected benefits from

takeover rather stock returns of the acquirer at the time of announcement are more related to the market's reassessment of its business.

Hietala et al. (2002:3) argue that in a takeover announcement, three factors affect the stock prices of the acquiring and the target firms. How much synergies are involved in the takeover, stand-alone values of the firms, and how the value would split between the acquirer and the target. They believe that it is hard to distinguish them in a particular takeover.

Bruner (2002:14) reviewed 130 takeover studies for the period 1971 to 2001 concluding that the takeover is really a value generating activity for the target firm. It also increases the joint value of the combined firm, whereas the acquirer does not get returns higher than its opportunity cost in most of the cases. Just 20 to 30 percent transactions in the study have created some value for the acquirer. He further argues that if the acquirer does not earn abnormal returns, it does not depict that takeover activity has failed (Bruner, 2002:14). According to the principles of economics, an investor should be fine if she earns a normal rate of return on her investment. In 60 to 70 percent of cases, the acquirer does earn normal returns which is the least return they should be satisfied with (Bruner, 2002:14).

Chang (1998) investigated 281 takeovers on the New York Stock Exchange for the period of 1981 to 1991. They concluded that acquirers earn significantly positive returns in stock financed takeover deals. On the other hand, acquirers do not earn any abnormal returns in takeovers backed by cash.

Schwert (1996) analyzed a sample of 790 acquiring firms from the New York Stock Exchange for the period of 1975 to 1991. The study provides evidence that acquirers experience on average -7% returns in one year period after the takeover (Schwert, 1996). It further explains that these negative returns are usually caused by the high performance of stocks in the period before the takeover.

Mulherin and Boone (2000) investigated the takeover activity of 1305 US firms for the period of 1990 to 1999. They found that target firms gain 20.2 percent returns in three days time after the takeover, whereas the acquirers did not experience any increase in returns (Mulherin and Boone, 2000:21). Weston et al. (2001) state that zero returns to

the acquirer are not an exception to the competitive market for corporate control where the acquirer earns a normal return.

Antoniou et al. (2008:17) analyzed 396 takeover cases from the UK for the period of 1985 to 2004. In their analyses of post-merger stock returns, they found that takeovers with high takeover premium overperform the other takeovers in the short-term. Furthermore, they found no relationship between takeover premium and long-term stock performance. They concluded by arguing that the market takes the high takeover premium as a sign of synergies and capitalizes on it in the short-term, therefore long-term stock performance remains uncorrelated with the takeover premium (Antoniou et al., 2008:17).

Since the takeover is an investment for the acquirer, it should be analyzed just like an investment. The total cost of the investment is the total price it is offering to the target firm and any other costs associated with the acquisition. The benefits, on the other hand, include all the incremental cash flows which result by the activities such as an increase in productivity and cost efficiency. The basic method of Net Present Value (NPV) could be enough to check the feasibility of the takeover decision. If the acquirer is not overpaying for the acquisition, NPV should be positive and the stock price of the acquirer should go up.

Preannouncement premium literature shows that stock prices of the target firm already reflect the premium at the time of the announcement. Stock prices of the target firm are likely to exceed the fundamental value during this time period which depicts that the acquirer is already paying an excessive price for the takeover. Additionally, the acquirer is also paying a takeover premium on this price. Therefore, a larger takeover premium increases the probability of value-destroying takeovers (Schwert, 1996:3). When the acquirer pays too much takeover premium, it needs a massive growth and cost savings to justify the premium with performance. Generally, the acquirer does not succeed in getting the desired performance which results in losing value (Antoniou et al., 2008:2).

The major source of overpayment is the miscalculation by the management of the acquiring firm. The management can be overconfident about the synergies expected

from the takeover or the personal benefit could drive the management to make optimistic decisions (Hietala et al., 2002:2; Morck et al., 1990:1). The Hubris Hypothesis of Roll (1986:2) argued that the hubris of the acquiring firm managers causes them to overpay for the target since they overestimate their abilities to run the target firm. Moreover, value-destroying takeover decisions are generally made by entrenched managers (Masulis et al., 2007:10). Entrenched managers are likely to select mergers with fewer synergies and overpay them which results in value reduction for the acquiring firm (Harford et al., 2012:4).

2.5. MISPRICED EQUITY AND THE TAKEOVER MARKET

Mispriced equity refers to an equity for which market price does not reflect its intrinsic value as explained in the previous chapter. An equity is overvalued when the market price is greater than its intrinsic value and undervalued when the market price is less than its intrinsic value. Both the undervaluation and overvaluation of equities influence the takeover market. Managers of overvalued firms experience an ample amount of pressure to meet the market expectations. The takeover is an opportunity for the managers to achieve growth (Roll, 1986:2). On the other hand, undervalued firms become a target in the takeover market as its market value is less than its fundamental value.

Jensen (2004:552) argued that managers of overvalued firms are more likely to invest in an acquisition in order to achieve high performance. Shleifer and Vishny (2003:4) formed an acquisition model with the assumption that managers are fully rational, whereas markets have inefficiencies. Managers use takeover as an arbitrage activity to capitalize on the inefficiencies in the market. This model is opposite to the model of Roll (1986) where managers are infected by hubris and the stock market is efficient. Shleifer and Vishny (2003:26) found that there is an incentive for firms to have their equity overvalued as it enables them to acquire other firms, to grow, and to optimize value, while firms with undervalued equity become a target in the takeover

market. Ang and Cheng (2006:1) investigated the takeover bids and found that overvaluation increases the chances of a bid to be successful.

Dong et al. (2006:3) argue that market inefficiencies influence the takeover market. Acquirers tend to buy an undervalued firm by paying less than its fundamental value, and the overvalued acquirers can finance the takeover activity with their stocks which is a cheap currency for them.

2.5.1. Overvalued Equity and Choice of Payment

Overvalued equity reduces the cost of capital for the firm, hence raising new capital becomes easier for the firm and raising new capital also increases the value of the firm. It is the inefficient view of the stock market. Dong et al. (2012:5) argued that the firm will tend to raise more capital when its share values go above the fundamental value and will repurchase its equity when share values are less than the fundamental value.

Jensen (2004:550) argued that overvalued equity affects the managerial behavior substantially. Managers of the overvalued firm face intensive pressure from the market to perform better in order to match the higher expectations of the market. Under this pressure, managers invest intensively. To finance these investments, they have the availability of inexpensive capital, so they raise more capital to finance investments. Since overvalued firms have access to cheaper financing, they can consider investment opportunities with lesser returns which may not be viable for other firms.

Since overvalued firms prefer to invest intensively by financing through new capital, the takeover market is a good opportunity for them. In the takeover market, they can invest and generate new capital by issuing stocks as the payment of mergers and acquisitions. Shleifer and Vishny (2003:20) argue that overvalued acquirers can increase the wealth of their shareholders by using their stocks as a currency to buy other firms. Empirical evidence has shown that overvaluation of a firm increases its chances of becoming an acquirer and overvalued acquirer prefers to pay by stocks (Ang and Cheng, 2006; Dong et al., 2006; Rhodes-Kropf et al., 2005).

Myers and Majluf (1984) argue that if management of the acquiring firm believes that their equity is overvalued, they would prefer to use their stocks as a medium of exchange in the takeover. On the other hand, if the target firm is aware of this, it will try to have the payment as cash rather than stock.

On the other hand, Fishman (1989:14) stated that higher-valued acquirer would pay cash or with a high portion of cash because it signals the market positively. Eckbo et al. (1990:2) argued the same, pointing to the existence of the asymmetry of information between the acquirer and the market. If the takeover offer is fully in cash or consists of a high portion of cash, the market will perceive it as a good signal about the acquirer. They empirically tested it and found that the acquirer earns significantly higher returns when the takeover offer is in cash.

Shleifer and Vishny (2003:16) argued that if the acquirer believes that target firm is overvalued or it is hard for the acquirer to value the target, then the preferred payment will be in stocks. By issuing stocks in the settlement of the takeover, the acquirer is sharing the takeover risk with the shareholders of the target firm as well.

A number of studies have empirically tested the relationship between the overvalued acquirer and the payment method in the takeover market. Ang and Cheng (2006) investigated a sample of 1329 acquiring firms from the US for the period of 1981 to 2001. They found that overvalued acquirers prefer to pay by stocks. Consistent with this, Dong et al. (2006) found similar results that overvalued acquirers tend to pay by stock. Fu et al. (2013) investigated a sample of 1319 stock financed and 671 cash financed takeover cases from the US for the period of 1985-2006. Their results provide evidence that acquirers in stock-backed takeovers are more overvalued compared to cash financed takeovers (Fu et al., 2013).

Sudarsanam and Mahate (2003) analyzed a sample of 519 acquirers from the UK for the period of 1983 to 1985. Their results are also consistent with the US studies that overvalued acquirers have better chances of successful bids and overvalued acquirers prefer to use stock for the payment. Faccio and Masulis (2005) investigated a sample of thirteen European countries, namely Austria, Belgium, Finland, France, Germany, Ireland, Italy, Norway, Portugal, Spain, Sweden, Switzerland, and the UK for the period

of 1997 to 2000. Their results suggest that overvalued acquirer prefer using stock for the payment of takeover (Faccio and Masulis, 2005).

In light of the above explanations, the following hypothesis has been formulated:

Hypothesis 1: Overvaluation of the acquirer affects the chances of stock payment in a takeover

2.5.2. Overvalued Equity and Post-merger Returns of the Acquirer

When the equity of a firm gets overvalued, the market expects from the firm to perform better in order to justify the high value. If the firm fails to meet the expectations of the market, the equity value goes down. Managers try to prolong the overvaluation by showing high performance in the market which may cost the firm (Chi and Gupta, 2009:1). With overvalued equity, an ample amount of financing is available to the firm. Under the pressure of high-performance expectations, managers tend to invest heavily in long-term projects sometimes making wrong predictions and investing optimistically which may cost the firm heavily (Morck et al., 1990:2). Since the takeover market is an investment opportunity from the acquirer's point of view, overvalued firms tend to acquire other firms to exhibit high performance. Managers of the overvalued firms analyse the target firms optimistically and undertake value-destroying acquisitions (Roll, 1986:2).

As it has been discussed earlier that overvalued equity increases the pressure on the managers to perform better to justify the high stock price. Their optimism drives them to invest in negative NPV projects as well. They also consider the takeover market where they involve in value-reducing acquisition activities (Jensen, 2004:552). Fu et al. (2013:3) showed that overvalued acquirers overpay in the acquisitions and these transactions do not create synergy gains. They compared overvalued acquirers with other comparable firms from the same industry that were not involved in acquisitions. Results suggest that the acquisition has affected the stock performance of the acquirers badly. Further investigation of the study suggests that overvalued acquirers had a weak

corporate governance system at the time of acquisition (Fu et al. (2013). Overvalued acquirers experience high-value losses in the takeover (Moeller et al., 2005:21).

In contrast, Shleifer and Vishny (2003:26) argue that there is an incentive for firms to have overvalued equity as it enables them to acquire other firms, to grow, and to optimize value while firms with undervalued equity become a target. However, they did not provide any empirical evidence for the support of their claim that an overvalued acquirer performs better. Ang and Cheng (2006:1) argue that post-merger returns should be calculated by taking overvaluation into consideration. If a firm is overvalued, its value would decrease in the future even if it merges or not. So, they suggest that the returns must be adjusted for the overvaluation. They found that if the acquirer is more overvalued compared to the target firm, the acquirer earns abnormal returns at the time of announcement, covering one day preannouncement and three days post-announcement period (Ang and Cheng, 2006:2)

Empirical analysis of Moeller et al. (2005:1) suggest that the US acquirers have lost 12% value on average during the period of 1998 to 2001. They further showed that some highly overvalued acquirers experienced negative synergies during this time. Acquirers that experience value losses at the time of the announcement, continued making losses afterward.

Fu et al. (2013) investigated a sample of 1319 stock financed and 671 cash financed takeover cases from the US for the period of 1985-2006. They found that overvalued acquirers lose value after the acquisition. Their results further suggest that even if the acquirer pays by stock, still it loses value.

Ang and Cheng (2006) investigated a sample of 1574 acquiring firms from the US for the period of 1981 to 2001. They studied the returns from one day before the merger to the three years post-merger. For comparison purposes, they have also collected the data of one matching firm to the acquirer. They selected the matching firm on the basis of the same degree of overvaluation. Their results suggest that the overvalued acquirers outperform their matching firms by a significant margin and overvalued acquirers have increased the wealth of their shareholders. (Ang and Cheng, 2006:1).

Mueller and Yurtoglu (2007) have taken the data of Anglo-Saxon and non-Anglo-Saxon countries for the period of 1980s and 1990s. They have found that overvalued acquirers gain abnormal returns in the short-term post-merger period. Although these returns have gone away in the long-term (Mueller and Yurtoglu, 2007:16).

Following the aforementioned empirical evidence, the following hypothesis has been formulated:

Hypothesis 2: Overvaluation of the acquirer affects the post-merger stock returns of the acquirer

2.5.3. Undervalued Equity of Target Firm and the Preannouncement Premium

When the equity of a firm gets undervalued, its intrinsic value becomes higher than its market value. It creates opportunities for other firms to acquire the undervalued firm by paying less than of its real value. Therefore, undervalued firms are the most attractive targets in the takeover market (Shleifer and Vishny, 2003:26). In an efficient market, undervalued firms do not remain unnoticeable as the market quickly recognizes them and target them for takeover (Nielsen and Melicher, 1973:4; Walsh, 1989:8). Sudarsanam and Sorwar (2010:1) argued that undervaluation of a target is an important determinant of the takeover. News of a takeover bid signals the market that the equity of the target firm is undervalued. As a result, the stock price of the target firm experiences a sharp increase in the preannouncement period (Sudarsanam and Sorwar, 2010).

The relationship of undervaluation and preannouncement premium could also be explained indirectly with the help of the takeover premium. While placing the takeover bid, the acquirer analyses the real stand-alone value of the target firm and the value of the merged firms. If the acquirer finds that the target is undervalued then the offer comes with a takeover premium to make the offer attractive for the target firm. Holt (2015:1) argue that undervaluation of the target firm is the major reason of higher amounts of takeover premium which is given to the target firm.

Some other studies also support the argument that a higher takeover premium is associated with the undervaluation of the target firm (Gort, 1969:14; Walsh, 1989:19). Preannouncement premium is a reaction of the market towards the news of the takeover. The market gets the information of takeover by insider trading, which is illegal in most of the countries, or it could anticipate on the basis of other new sources (Jensen and Ruback, 1983:14; Keown and Pinkerton, 1981:856). The market takes the takeover bid as good news and stock prices of target firm increase which results in the preannouncement premium.

Takeover premium literature addresses the question of why market takes the takeover bid as good news. Since in most of the cases, takeover bids involve a huge amount of takeover premium, so market takes it as a good news (Moeller et al., 2004; Sudarsanam and Sorwar, 2010). In other words, with the news of takeover, the market anticipates the takeover premium which causes the stock price run-ups for the target .

It is hypothesized in the recent study that the takeover bid gives signals to the market that the equity of the target firm is undervalued which results in stock price-run-ups in the preannouncement period. Since the undervaluation of the target increases the takeover premium, undervalued targets are supposed to experience more stock price-run-ups in anticipation of higher takeover premium. So, the third hypothesis of the study is formulated as

Hypothesis 3: Undervaluation of the target firm affects the preannouncement premium

CHAPTER THREE

DATA AND METHODOLOGY

This chapter presents the data and methodology of the study. It is organized as; aim and hypothesis of the study, sample of the study, models of the study, data and variables of the study, and descriptive statistics.

3.1. AIM AND HYPOTHESES OF THE STUDY

The aim of the study is to determine the impact of mispriced equity on the takeover markets of developed and developing economies. It has been broken down into three sub-aims. First sub-aim is to analyze the impact of mispricing of the acquirer's equity on the choice of payment method in takeovers. Second sub-aim is to investigate the impact of mispricing of the acquirer's equity on the post-merger stock returns of the acquirer. Third sub-aim is to find the impact of mispricing of the target's equity on the preannouncement premium of the target's stock. Additionally, this study also attempts to compare the findings for all three analyses for developed and developing economies.

The present study aims to contribute to the mergers and acquisitions as well as mispricing literature in three ways. First, to the best of our knowledge, it is the first study that investigates the impact of mispriced equity on preannouncement premium of the target's stock. Second, it is the only study that has investigated the relationship of mispriced equity and the takeover market for the G7 and the E7 economies comparatively. Third, in this study percentage of acquisition has been included in the takeover models as a control variable which is unique to this study. The rationale of including this variable is discussed further in the control variables section.

On the bases of these objectives and the literature presented in Chapter 2, the following hypotheses have been developed:

Hypothesis 1: Overvalued equity of the acquirer affects the probability of stock payment in takeovers.

Hypothesis 2: Overvalued equity of the acquirer affects the post-merger stock returns of the acquirer.

Hypothesis 3: Undervalued equity of the target firm affects the preannouncement premium in target firm's stock price.

Furthermore, as one objective of the study is to compare the relationship of mispriced equity and the takeover market in developed and developing markets, all three hypotheses are tested by using the sub-samples of developed and developing markets. Results of these two samples are compared to determine if there are any differences between these markets.

3.2. THE SAMPLE OF THE STUDY

In the past few decades ample amount of literature has been produced on takeovers in the developed markets whereas there are very few studies that have focused on developing markets (Lebedev et al., 2015:651). Literature suggests that there is a significant difference between these two markets in terms of institutional environments and corporate governance practices even if they fall into the same corporate governance system category, i.e. bank-based or market-based (Claessens and Yurtoglu 2013:5; Lebedev et al., 2015:651). Empirical results of various studies have shown that similar models of takeover research have performed differently between developed and developing markets. Takeovers in developed markets create more long-term value compared to the takeovers from developing markets. This is attributed to better corporate governance systems (Ellis et al. 2011; Gubbi et al. 2010).

Similarly, studies on payment method in takeovers have revealed that in developing markets, most of the transactions involve either cash payments or the combination of cash and stocks (Chi et al. 2011; Rani et al. 2012). On the other hand, studies from developed markets have revealed a considerably larger amount of stock-backed takeover transactions (Dong et al., 2006; Malmendier et al. 2016). These findings can be explained by the weak shareholder protection environment in developing markets.

In light of the above explanations, the scope of the study includes the impact of mispricing on the takeover market in developed and developing markets. Therefore, the sample of the study is divided into two as G7 sub-sample, representative of developed markets, and E7 sub-sample, representative of developing markets, for a comparative analysis. This analysis aims to provide a better insight on how the relationship of mispricing with takeover markets differs between these markets.

Following prior studies, the present study has used G7 economies as the representative of developed economies (Rajan and Zingales, 1995; Tomschik, 2015), and E7 countries have been taken as the representative of developing economies (Doğan and Değer, 2018; Tomschik, 2015). E7 countries include China, India, Brazil, Mexico, Russia, Turkey, and Indonesia. G7 countries include US, UK, France, Italy, Germany, Canada, Japan.

Table 1 shows the population, Gross Domestic Product (GDP) and the Gross National Income (GNI) of the sample economies. Population of the E7 economies is 3.55 million whereas G7 economies is 776 million. The G7 and the E7 economies have 4.32 billion combined population which represents 58% of the total population of world.

France, Italy, Japan, UK, US, and Germany formed G6 (Group of six) in 1975. Canada joined them in the following year and it became G7 (Dobson, 2004:2). Since then, they meet annually to discuss the international issues such as the world economy, security, and energy policy. G7 countries are the most developed countries of the world and represent almost half of the world economy (He, 2009:3). As shown in Table 1, G7 economies had a 46% share in the world's GDP in the year 2017. G7 countries also contribute to the major portion of scientific research and development of the world (King, 2004:3; Shahbaz, et al, 2017).

Unlike the G7, E7 is not a formation of countries but this is just a grouping of seven largest emerging economies which is first introduced in a study conducted by the World Bank (Hawksworth and Cookson, 2008). These seven economies are growing rapidly, and studies predict that E7 economies are likely to grow twice as fast as G7 economies until 2050 (Gupta, 2017). It is also predicted that in 2050, China would be the world leader in GDP, followed by India at second place (Lea, 2017:5). As depicted

by Table 1, current GDP growth rate of 5.6% of the E7 economies, compared to 2.15% of the G7 economies depict that the E7 economies will surpass the G7 economies in next two decades. It has also been predicted by earlier studies that the E7 economies would be 50% larger than the G7 economies in terms of GDP by 2050 (Hawksworth and Cookson, 2008:1).

Table 1: Economic Indicators of the G7 and the E7 Economies

All values are taken from the World Bank data base for the year 2017. GNI is the gross national income of the country. GNI per capita is the gross national income divided by the total population. GNI, PPP is the gross national income of the country converted to international dollars using purchasing power parity rates. GNI per capita, PPP is the Gross national income per capita converted to international dollars using purchasing power parity rates. GDP is the gross domestic product of the country. GDP per capita is the gross domestic product of the country divided by its total population. GDP growth is the percentage increase in the gross domestic product from the last year.

	Population	GNI	GNI per capita	GNI, PPP	GNI per capita, PPP	GDP	GDP per capita	GDP growth
	Million	Billion \$	\$	Billion \$	\$	Billion \$	\$	
UK	66	2676	40530	2850	43160	2622	39720	1.80%
US	326	18980	58270	19608	60200	19391	59532	2.30%
Canada	37	1573	42870	1679	45750	1653	45032	3.00%
Italy	61	1878	31020	2424	40030	1935	31953	1.50%
Japan	127	4888	38550	5765	45470	4872	38428	1.70%
France	67	2548	37970	2934	43720	2583	38477	1.80%
Germany	83	3597	43490	4280	51760	3677	44470	2.20%
G7	766	36141	47206	39540	51645	36733	47979	2.10%
India	1339	2431	1820	9449	7060	2597	1940	6.60%
China	1386	12043	8690	23241	16760	12238	8827	6.90%
Turkey	81	883	10930	2225	27550	851	10541	7.40%
Russia	144	1356	9232	3655	24893	1578	10743	1.50%
Brazil	209	1796	8580	3173	15160	2056	9821	1.00%
Indonesia	264	934	3540	3140	11900	1016	3847	5.10%
Mexico	129	1113	8610	2291	17740	1150	8903	2.00%
E7	3553	20556	5785	47175	13276	21485	6047	5.60%
				G7	E7	Total		
Population compared to the world				10%	47%	58%		
GDP compared to the world				46%	27%	73%		

Source: World Bank online database, 2018

As depicted by Table 1, G7 economies have a total GNI of \$36,141 billion which is considerably higher than the \$20,556 billion of E7. However, E7 economies have a higher GNI, PPP than the G7 economies. GNI per capita, PPP is quite low for E7 economies due to their higher population. G7 and E7 economies make up 73% of the total world GDP, G7 economies contribute 46% to the world GDP and E7 economies contribute 27% to the world GDP. Moreover, the GDP growth for G7 economies is 2.10% whereas for E7 economies it is 5.60% in the year 2017.

The sample of the study includes mergers and acquisitions cases from the G7 and the E7 markets for the period of January 2001 to March 2017. It includes all the cases where the acquirer is from E7 or G7 countries. The sample has confined to the cases where both the acquirer and the target firms are public firms.

3.3. MODELS OF THE STUDY

Three different models are used to test the three hypotheses of the study. To test the first hypothesis, a multinomial logistic regression is used since the dependent variable of this model, the payment method, is a multinomial variable which can take three possible values; 0 if the payment is made by only cash, 1 if the payment was as stock, and 2 if combination of cash and stock was used for payment. Since the previous studies have used the logistic regression technique to estimate the payment method models (Chang, 1998; Faccio and Masulis, 2005; Franks et al., 1988; Linn and Switzer, 1994), this study has also used the multinomial logistic regression technique to estimate Model 1. The model employed is as follows:

$$\text{pay_mthd} = \alpha + \beta_1 \text{mispr_a} + \beta_2 \text{size_a} + \beta_3 \text{size_t} + \beta_4 \text{prtq_acq} + \beta_5 \text{lvq_a} + \varepsilon \quad (1)$$

where:

pay_mthd = payment method

mispr_a = mispricing of the acquiring firm

size_a = size of the acquiring firm

size_t = size of the target firm

prtg_acq = the percentage of acquisition

lvga = financial leverage of the acquiring firm

In Model 1, the dependent variable is the payment method used by the acquirer to pay for the takeover. There are three ways an acquirer can pay for the takeover, namely payment by cash, payment by stocks, or payment by combination of cash and stock. Mispricing of the acquiring firm is the independent variable in the model. Following prior studies (Dong et al., 2006; Faccio and Masulis, 2005; Lin and Fu, 2008), the sizes of the acquirer and the target, and financial leverage of the acquirer are included as control variables in the study. The percentage of acquisition is also taken as the control variable in the study.

To test the second hypothesis, Model 2 has been estimated using multiple regression analysis. Model 2 is presented below:

$$\text{return_a} = \alpha + \beta_1 \text{mispr_a} + \beta_2 \text{mispr_t} + \beta_3 \text{size_a} + \beta_4 \text{size_t} + \beta_5 \text{prtg_acq} + \varepsilon \quad (2)$$

where:

return_a = post-merger marginal stock return of the acquiring firm

mispr_a = mispricing of the acquiring firm

mispr_t = mispricing of the target firm

size_a = size of the acquiring firm

size_t = size of the target firm

prtg_acq = the percentage of acquisition

Following prior studies that have tested similar models of takeover (Dong et al., 2006, Loughran and Vijh, 1997), multiple regression analysis has been used to estimate this model by taking post-merger stock returns of the acquirer as the dependent variable and the mispricing of acquirer as the independent variable. Following Alexandridis et al. (2010), Dong et al. (2006), and Servaes (1991) mispricing of the target firm, the size of the acquirer, and the size of the target have been added as control variables to the model. The

percentage of the acquisition has also been taken as a control variable in this model.

The third hypothesis of the study is tested by estimating Model 3 and 4 which is presented below:

$$pmm = \alpha + \beta_1 mispr_a + \beta_2 mispr_t + \beta_3 size_a + \beta_4 size_t + \beta_5 prt_acq + \varepsilon \quad (3)$$

$$pmm = \alpha + \beta_1 mispr_a + \beta_2 mispr_t + \beta_3 prt_acq + \beta_4 rel_size + \varepsilon \quad (4)$$

where:

pmm = Preannouncement premium of target's stock in the takeover

mispr_a = mispricing of the acquiring firm

mispr_t = mispricing of the target firm

size_a = size of the acquiring firm

size_t = size of the target firm

prt_acq = the percentage of acquisition

rel_size = relative size

The dependent variable of the model is the preannouncement premium and the independent variable is mispricing of the target firm. In the hypothesis construction, relationship of mispricing and preannouncement premium has been described through takeover premium. So, following the takeover premium models (Dong et al., 2006, Sudarsanam and Sorwar, 2010), mispricing of the acquirer, sizes of acquirer and target have been added as control variables in the model. Percentage of acquisition has also been included in the model as a control variable. In the model 4, the relative size variable has been included instead of the size of the acquirer and the size of the target.

3.4. DATA AND VARIABLES OF THE STUDY

The variables of the study can be divided into three groups as the dependent variables used in each model, independent variables and the control variables.

3.4.1. Dependent Variables

There are three models of the study and each model has a different dependent variable. The dependent variable for the first model is the payment method, preannouncement stock premium is the dependent variable for the second model whereas the post-merger stock returns is the dependent variable for the third model.

3.4.1.1. Payment Method

Payment method infers the method by which the takeover transaction has been paid off. There are three payment types: all cash, all stock, and the combination of cash and stock. In the model, all cash transactions have a base value of 0, all stock has a value of 1, whereas the value 2 shows the combination of cash and stock.

Table 2 shows the distribution of the takeover cases by their payment methods. In the E7 markets, 80% of the takeover cases have been paid by cash whereas this percentage goes down to 70% in the G7 markets. Only 20% of the total cases from the E7 markets involve stock as payment method while in the G7 markets 29% of the takeover cases are paid fully or partially by stocks. It could be concluded that in the G7 takeover markets, stock payment is used more compared to the E7 markets.

Table 2: Distribution of Cases by Payment Method

Payment Method	E7 Sub-sample		G7 Sub-sample		Overall Sample	
	Cases	%	Cases	%	Cases	%
All cash	492	80%	2147	70%	2639	72%
All Stock	110	18%	594	19%	704	19%
Combination of cash and stock	15	2%	321	10%	336	9%
Total	617	100%	3062	100%	3679	100%

3.4.1.2. Post-merger Marginal Stock Return of the Acquiring Firm

Most of the existing literature focused on long-term returns of the acquirer's stock to investigate the efficiency of the takeover activity (Loughran and Vijh, 1997; Mitchell and Stafford, 2001; Shleifer and Vishny, 2003). However, the present study hypothesizes that when the acquirer's stock is overvalued, the acquirer's post-merger stock returns are reduced. Following the literature of event based short-term studies (Bhagat et al., 2011; Capron and Shen, 2007), the takeover activity is taken as an event and before-after return comparison has been made.

Marginal returns refer to the excessive stock returns of the acquirer after the event of takeover. Following the prior studies that have used the one-year post-merger returns (Andre et al., 2004; Harford, 2005), this variable has been calculated by subtracting four quarter (one year) average pre-takeover returns from four quarter (one year) average post-takeover returns as depicted by equation 4. Positive value of marginal returns indicates that stock returns of acquirer have increased after the takeover and vice versa.

$$\text{return} = \bar{R}_{4+} - \bar{R}_4 \quad (5)$$

where:

return = Post-merger Marginal Stock Return

$\bar{R}_{4+}$ = Post-merger average stock returns of four quarters

$\bar{R}_4$ = Pre-merger average stock returns four quarters

3.4.1.3. Preannouncement Stock Premium

Preannouncement stock premium refers to the increase in the target's stock price during the period before the announcement date of the takeover. It is calculated for different time periods in the literature, but one-month period is the most commonly used one in the analysis as it covers significant amount of time to investigate the price variations (Antoniou et al. 2008; Schwert 1996). It is calculated by subtracting the stock price of the target at announcement date from stock price one month before the announcement date and then divided by the stock price one month before announcement as follows.

$$P_{mm} = (P_1 - P_0) / P_0 \quad (6)$$

where:

P_{mm} = Preannouncement premium

P_1 = stock price at announcement

P_0 = stock price one month before announcement

3.4.2. Independent variables

Independent variables of the study are the mispriced equity of the acquirer and the mispriced equity of the target. Even though, there are different ways of calculating mispricing, mispriced equity has been proxied by price to book ratio in the analysis. Empirical evidence suggests that price to book ratio is a good measure of firm value as stock returns are strongly correlated with it (Barberis and Huang, 2001; Daniel et al., 2001; Ang and Cheng, 2006). In this measure, market value reflects mispricing, risk and future cash flows associated with equity, whereas book value reduces irrelevant scale differences in the ratio. Blend of market value and book value makes this ratio a less noisy measure of mispricing (Daniel et al., 2001:37; Dong et al., 2006:9). As explained in the second chapter, Table 3 represents the expected relationship of mispriced equity

of the acquirer and mispriced equity of the target firm with the dependent variables in the models of the study.

Table 3: Expected Relationship of Mispriced Equity in the Models of Study

Model	Acquirer	Target
Model 1: Model of Payment Method	+	NA
Model 2: Model of Preannouncement premium	+	-
Model 3: Model of post-merger returns	-	-

3.4.3. Control Variables

Control variables of the study include the size of the acquirer, the size of the target, leverage of the acquirer, percentage of the acquisition.

3.4.3.1. Firm Size

Firm size of the acquirer as well as the target's size is included in the models as control variables in the study. Following previous studies, log of total assets has been used as a proxy for size variable (Dong, et al. 2006; Moeller, et al. 2004). Expected relationship of the size of the acquirer and the size of the target with the dependent variables of each model are exhibited at Table 4.

Table 4: Expected Relationship of Firm Size in the Models of Study

Model	Acquirer	Target
Model 1: Model of Payment Method	-	+
Model 2: Model of Preannouncement premium	+	-
Model 3: Model of post-merger returns	+	-

Firm size of the acquirer and the target has been included in all the models. Expected relationship of the size of the acquirer is positive for the preannouncement premium model and for the post-merger returns model whereas it is expected to be negative for the payment method model. Literature suggests that bigger acquirers have more cash available to pay the takeover, so they are more likely to prefer cash payments (Faccio and Masulis, 2005:43). Moreover, bigger firms prefer cash payments because they do not want to signal the market that they are overvalued (Fishman 1989:4). Size of the acquirer is expected to have a positive relationship with the preannouncement premium of the target's stock because the market gives more value to a takeover news if the acquirer is a bigger firm (Dong et al., 2006:49). Size of the acquirer is expected to have a positive relationship with the post-merger returns of the acquirer as well. Literature reveals that the acquirer loses value after the merger (Agrawal et al., 1992:1) or they do not get any significant value from the takeover (Alexandridis et al., 2010:1) however bigger acquirers perform better compared to the smaller ones (Servaes, 1991:9).

Expected relationship of the size of the target is negative for the preannouncement premium model and for the post-merger returns model whereas it is expected to be positive for the payment method returns model. It is harder for an acquirer to acquire a bigger firm on cash, so as the size of the target firm increases the probability that the acquirer will use stock in payment goes up (Dong et al., 2006:47; Stout, 1990:20). Size of the target firm is expected to have a negative relationship with the preannouncement premium of the target firm because relatively smaller target firms are easier to control by the acquirers and more synergies are expected from smaller targets, so market gives more value to the smaller targets in preannouncement period

(Dong et al., 2006:49). Expected relationship of the size of the target is negative in the post-merger returns model. As most of the takeovers result in negative returns to the acquirers, acquiring a bigger target would affect the acquirer's return more negatively (Alexandridis et al., 2010:38; Dong et al., 2006:49).

3.4.3.2. Relative Size

Relative size measures how the acquirer and the target are proportionate to each other in terms of their sizes. This variable has been calculated by dividing total assets of the acquirer with total assets of the target, then log is applied to normalize the data. Relative size variable has been used in the preannouncement premium model. As it has been discussed in the size variable, the market values the target's stock more if smaller target and larger acquirer are involved. Hence relative size is expected to have a positive relationship with preannouncement premium of the target firm.

3.4.3.3. Percentage of Acquisition

Percentage of acquisition is the percentage of total target firm that has been acquired by the acquiring firm in the current transaction. In some of the cases, the acquiring firm already owned a percentage of equity of the target and it only buys a small amount in the current takeover bid. In other cases, acquiring firm has bought a large amount of target firm's equity or assets in the current takeover bid.

Previous studies have taken the deal size into account as the volume of transaction (Faccio and Masulis, 2005:43; Moeller et al. 2004). Deal size is the dollar value of the current transaction which could be affected by the exchange rate fluctuations over time since the sample period is seventeen years. Dollar value could also be misleading as a similar deal amount of a bigger and smaller target may not have same implications on the takeover. Since the focus of this study is the current transaction, it is very important to account for the percentage of acquisition in the current takeover bid in the models. So, the percentage of acquisition has been added to

the models of study as a control variable instead of deal size and its expected relationship with the independent variables is exhibited at Table 5.

Table 5: Expected Relationship of Percentage of Acquisition in the Models of Study

Model	Expected Relationship
Model 1: Model of Payment Method	+
Model 2: Model of Preannouncement premium	+
Model 3: Model of post-merger returns	-

Percentage of acquisition is expected to have a positive relationship with the probability of stock payment in the payment method model and with the preannouncement premium in the second model whereas it is expected to have a negative relationship with the post-merger returns in the post-merger returns model. It requires more cash to acquire a greater portion of the target firm so if the percentage of acquisition increases, there are more chances that the acquirer will lean towards a stock acquisition. It is similar to the deal size which has a positive relationship with the stock payments (Faccio and Masulis, 2005:43). Percentage of acquisition is expected to have a positive relationship in the preannouncement premium model. The preannouncement premium is the market's reaction to the upcoming takeover news, if a higher percentage is going to be acquired, market would react more to the takeover news. So, there would be a larger preannouncement premium. Furthermore, percentage of acquisition is likely to have a negative relationship in the post-merger stock returns model. As literature shows that takeover has no impact or a negative impact on the post-merger returns of the acquirer (Alexandridis et al., 2010:1). Acquirer is likely to face more post-merger return losses if it acquires more.

3.4.3.4. Leverage of the Acquiring Firm

Leverage of the acquiring firm is included in the first model as a control variable following (Faccio and Masulis, 2005; Lin and Fu, 2008). There are two commonly used

measures of leverage, debt to total assets and debt to equity. Since total assets is used to calculate size of the acquirer as well, debt to equity has been used in the analysis to avoid possible multicollinearity problems. Firm's investing decisions including takeover decisions are influenced by leverage. Leverage is expected to have a positive relationship with the probability of stock payments since it is difficult for a highly leveraged acquirer to raise more debt capital to finance a cash acquisition (Faccio and Masulis, 2005:43).

3.4.4. Data Collection

The data of the study is retrieved from the mergers and acquisitions database of Thomson Reuters Eikon for the period of 2001 to 2017. Since the scope of the study does not include repurchases, all the repurchase cases that are retrieved from the Thomson Reuters Eikon database have been excluded. After excluding the repurchase cases, 8301 takeover cases were left for the period of 2001 to 2017. Out of the sample, 523 cases represented the cases where the takeover bid has been withdrawn by the acquirer. Since the scope of the study covers only completed cases of takeovers, all withdrawn cases have also been excluded from the sample leaving 7778 cases.

Missing values have been the biggest problem in the data as there were very few numbers of cases where data was available for all the variables of all three models for both the acquirer and the target firms. As the study includes three models and each model requires a different set of variables, all the cases that have no missing values for each model are included in the estimations. The sample of the study has been divided into three sub-samples on the bases of the availability of data for each model. Hence, a different sample of cases has been used in the estimation of the models.

The sample is also divided into two sub-samples as G7 and E7 markets to test each hypothesis for these markets as well. Cases are divided into G7 and E7 sub-sample on the bases of the ownership country of the acquirer, for example if acquirer belongs to G7, that case will be included in G7 sub-sample. Table 6 presents the final sample size for each sub-sample.

Table 6 shows the total number of takeover cases and the cases from the G7 markets and from the E7 markets separately. It presents that there are total of 8301 cases of takeovers during the sample period from which 83% of the acquirers come from the G7 markets while 17% come from the E7 markets. There are 7236 cases where target firm is from the E7 or the G7 markets, out of which 81% belongs to the G7 markets and 19% belongs to the E7 markets. It also shows that there are 3% cases where acquirer is from the G7 markets and target is from the E7 markets whereas in 6% of the cases, target is from the G7 markets and acquirer is from E7 countries. It is quite interesting that there are more acquisitions where acquirer is from the E7 and target is from the G7, compared to the cases where acquirer is from G7 and target is from E7. Generally, it is assumed that firms from the developed economies acquire the firms from the developing economies. Average deal size in the E7 markets is also higher than the G7 markets. Last part of the table shows the number of cases that have been used in each model.

Table 6: Numbers of Mergers and Acquisitions by Models

	Number of observations				Total	
	E7		G7			
Acquiring Firms	1448	17%	6853	83%	8301	
Target Firms	1357	19%	5879	81%	7236	
G7 acquirer G7 target					5785	84%
G7 acquirer E7 target					184	3%
G7 acquirer other country's target					884	13%
E7 acquirer E7 target					1173	81%
E7 acquirer G7 target					94	6%
E7 acquirer other country's target					181	13%
Average Size of the deal (\$million)	134		128		129	
Final Sample by Models						
	E7		G7		Total	
Model of Payment Method	617		3062		3679	
Model of Preannouncement premium	277		2576		2853	
Model of post-merger returns	610		3742		4352	

3.4.5. Managing Outliers

Heterogeneity of the data was expected since the sample of the study includes cases from fourteen economies which have diverse economic conditions. However empirical analysis requires normality in the data. Consistent with previous studies, Tukey method has been applied for detection of outliers in the sample (Huian 2015; Lemoine et al. 2016; Miles and Erhardt 2014; Ulasan 2012). Tukey method, proposed by Hoaglin et al. (1986), is among the most widely used methods for removing outliers. In this method data is sorted in ascending order and divided into four quartiles. Then the Interquartile Range (IQR) is calculated between the first quartile (Q1) and the third quartile (Q3) as follows:

$$IQR = Q3 - Q1 \quad (7)$$

Then 1.5 times IQR is added to the Q3 to calculate the upper limit of the data and 1.5 times IQR is subtracted from Q1 to calculate lower limit of the data.

$$\text{Lower limit} = Q1 - (1.5) IQR \quad (8)$$

$$\text{Upper limit} = Q3 + (1.5) IQR \quad (9)$$

Any value falling beyond these limits is statistically accepted as an outlier and is removed to attain normality in the data (Hoaglin, et al. 1986:3).

For example, P/B ratio of the acquirer has total observations of 7248 which are arranged ascendingly and Q1 and Q3 have been calculated:

Table 7: Quartiles of P/B ratio

Mean	Median	Std. Deviation	Minimum	Maximum	Quartiles		
					1st	2nd	3rd
2.967	1.803	6.099	0.037	148.139	1.107	1.803	3.607

$$IQR = 3.607 - 1.107$$

$$IQR = 2.500$$

$$\text{Lower limit} = 1.107 - (1.5) 2.500 = -2.643$$

$$\text{Upper limit} = 3.607 + (1.5) 2.500 = 7.357$$

So, any value of P/B ratio below -2.643 and above 7.357 is statistically an outlier and should be removed from the data. Maximum value of 148.139 shows that there are some values higher than the upper limit, all such cases are removed from the data to attain the normality. P/B ratio of the acquirer, P/B ratio of the target, debt to equity, post-merger returns of the acquirer have the problem of outliers and outliers are removed to normalize the data.

3.5. DESCRIPTIVE STATISTICS

Since the sample is different for the three models of the study, the descriptive statistics for the variables of each model are presented separately in this section.

3.5.1. Descriptive Statistics for the Payment Method Model

Table 8 presents the descriptive statistics of the independent variable of payment method model for all the samples. There are in total 3679 observations for this model, of which 3062 are from G7 and 617 are from E7 markets. Sample period is from January 2001 to December 2017.

As shown in Table 8, the value of mispricing of acquirer (Mispr_a) variable ranges between 0.051 and 6.264, with a mean value of 2.099 and standard deviation of 1.309 which depict that most of the values are distributed around the mean value. It is positively skewed as most of the values are around the mean but there is more data greater than the mean value. There is not much difference in the sub-samples. Percentage of acquisition (Prtg_acq) has a mean value of 0.594 and standard deviation of 0.407 which depicts that it is not much volatile as standard deviation is less than the

mean value. Higher kurtosis value of (Prtg_acq) is the result of a large number of values with value 1.000 (cases where percentage of acquisition is 100%). Mean value of (Prtg_acq) of G7 sub-sample is much greater than the E7 sub-sample which depicts that in the G7 markets, acquirers prefer acquiring more stakes in the target firms.

Table 8: Descriptive statistics for payment method model

Variables are mispricing of acquirer (mispr_a) Price/book ratio, size of acquirer (size_a) log of total assets, size of target (size_t) log of total assets, percentage of acquisition in recent transaction (prtg_acq), and financial leverage of acquirer (lv_g_a) debt/equity ratio. Sample period is 2001 to 2017.

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Overall sample							
mispr_a	3679	0.051	6.264	2.099	1.309	0.976	0.481
Prtg_acq	3679	0.020	1.000	0.594	0.407	(0.174)	(1.786)
size1_a	3679	6.292	12.157	9.490	0.976	(0.170)	(0.276)
size_t	3679	3.602	12.049	8.411	0.984	(0.095)	0.607
lv_g_a	3679	0.000	2.494	0.629	0.560	1.173	0.797
G7 sample							
mispr_a	3062	0.051	6.264	2.110	1.281	0.983	0.536
Prtg_acq	3062	0.020	1.000	0.643	0.406	(0.410)	(1.673)
size1_a	3062	6.292	12.157	9.507	1.003	(0.200)	(0.313)
size_t	3062	3.602	12.049	8.393	1.009	(0.093)	0.551
lv_g_a	3062	0.000	2.494	0.604	0.550	1.263	1.071
E7 sample							
mispr_a	617	0.090	6.188	2.041	1.441	0.967	0.236
Prtg_acq	617	0.026	1.000	0.354	0.315	1.030	(0.223)
size1_a	617	7.069	11.525	9.407	0.825	(0.037)	(0.238)
size_t	617	5.446	11.475	8.503	0.841	0.040	0.571
lv_g_a	617	0.000	2.494	0.750	0.591	0.804	(0.048)

Assets of acquiring firms (size_a) and target firms (size_t) are shown in log values, so their standard deviation is very low compared to the mean value. As expected, mean value of the size variable of acquiring firms is much larger than that of target firms since the acquirer is generally bigger than the target. Minimum values of sizes of

acquirer and target for E7 sample are much higher than the same values for G7 sample. It suggests that in E7 markets, relatively larger firms indulge into takeover activities whereas in G7 countries, smaller firms are also involved in takeovers.

Financial leverage, debt to equity ratio, of the acquiring firm (*lvg_a*) is positively skewed which shows that it has more valued greater than the mean value. Financial leverage of E7 firms is higher than G7 firms, which depicts that E7 firms use more debt on average compared to G7 firms. Range and standard deviation of debt to equity is quite high compared to other variables which depicts that it is more volatile than the other variables.

3.5.2. Descriptive Statistics for the Post-Merger Returns Model

Table 9 shows the descriptive statistics of all variables for post-merger return model. There are in total 4352 observations for this model, of which 3742 are from G7 and 610 are from E7 markets. Sample period is 2001 to 2016 for this model, 2017 cases have not been included because marginal returns cover the post-merger returns of four quarters.

Marginal return of acquirer (*return_a*) is the dependent variable in the study. It is the value of excessive returns of acquirer four quarter post-merger compared to four quarter pre-acquisition. Value of (*return_a*) is ranging from negative to positive with a mean value of -0.010. It implies that on average takeover activity decreases the acquirer returns during post-merger term period. For E7 sample, returns are more negative compared to G7 sample. It implies that acquirer from E7 markets loses more value in the post-merger period compared to acquirers from G7 markets.

Mispricing of acquirer is the independent variable in the study. Mispricing of acquirer (*misp_a*) is reasonably larger than the mispricing of target (*misp_t*) for overall sample and for the sub-samples. This gap is even greater in E7 sample which implies that acquirers and targets are more mispriced in E7 markets compared to G7 markets. Both (*misp_a*) and (*misp_t*) are positively skewed as there are more values above mean for these variables.

Size variables are shown in the log terms, so standard deviation is very low compared to the mean values which depicts that these variables are very less volatile. Percentage of acquisition (prtgc_acq) has a mean value of 0.613 and standard deviation of 0.409. (prtgc_acq) has a higher value of kurtosis for overall sample and G7 sub-sample but for E7 sub-sample kurtosis is quite low. Major reason of the less kurtosis value in the E7 sub-sample is that it has very few cases with value of 1.000 (100% of acquisition), whereas in G7 sub-sample there is a large amount of cases with value 1.000.

Table 9: Descriptive statistics for Post-merger returns model

Variables are post-merger returns of acquirer (return_a) as dependent variable, percentage of acquisition in recent transaction (prtgc_acq), mispricing of acquirer (mispr_a) price/book ratio, mispricing of target (mispr_t) price/book ratio, size of acquirer (size_a) log of assets, size of target (size_t) log of assets, sample period is 2001 to 2016.

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Overall Sample							
return_a	4352	(0.595)	0.568	(0.010)	0.166	0.221	1.334
mispr_a	4352	0.068	6.824	2.041	1.334	1.251	1.333
mispr_t	4352	0.064	6.298	1.831	1.285	1.164	0.978
size_a	4352	3.961	12.495	9.496	1.196	(0.067)	0.034
size_t	4352	3.737	12.122	8.513	1.024	0.050	0.417
prtgc_acq	4352	0.020	1.000	0.613	0.409	(0.270)	(1.758)
G7 sub-sample							
return_a	3742	(0.580)	0.564	(0.010)	0.160	0.241	1.547
mispr_a	3742	0.068	6.824	2.040	1.299	1.249	1.378
mispr_t	3742	0.064	6.295	1.841	1.277	1.134	0.901
size_a	3742	3.961	12.478	9.488	1.218	(0.064)	(0.002)
size_t	3742	3.737	12.122	8.491	1.044	0.060	0.413
prtgc_acq	3742	0.020	1.000	0.657	0.406	(0.484)	(1.612)
E7 sub-sample							
return_a	610	(0.595)	0.568	(0.012)	0.201	0.156	0.324
mispr_a	610	0.090	6.795	2.045	1.533	1.226	0.906
mispr_t	610	0.065	6.298	1.767	1.333	1.341	1.443
size_a	610	6.586	12.495	9.540	1.051	(0.053)	0.133
size_t	610	5.446	11.475	8.648	0.877	0.133	0.027
prtgc_acq	610	0.026	1.000	0.347	0.319	1.063	(0.212)

3.5.3. Descriptive Statistics for the Preannouncement Premium Model

Table 10 presents the descriptive statistics of all the variables for the preannouncement premium model. There are in total 2853 observations for this model, of which 2576 are from G7 and 277 are from E7 markets. Sample period is from January 2001 to December 2017

Preannouncement premium is the dependent variable, it ranges from -0.509 to 1.049 which is a big range but smaller values of means and standard deviation suggest that most of the values fall around mean. G7 means value for preannouncement premium is much larger than E7 sample. Since the preannouncement premium is the market's reaction to the upcoming takeover bid, so it could be argued that investor in the G7 markets are more informed of insider information and they react much more than investors from E7 markets.

Mispricing of acquirer (misp_a) and mispricing of the target (misp_t) are positively skewed which shows that they have more values above mean. Overall sample shows that values of mispricing of acquirer (misp_a) are higher than mispricing of the target (misp_t). Trend is the same in G7 and E7 samples, but gap of acquirer and target is much larger in E7 as compared to G7 sample. It shows that firms in E7 markets are much more mispriced compared to G7 markets. It also suggests that acquirer is more overvalued, and target is more undervalued in E7 markets.

Average size of acquirer (size_a) is significantly higher than size of target (size_t) for all the samples which is as expected since acquirers are generally larger in size than targets. Mean values of average size of the acquirer (size_a) and size of the target (size_t) are higher for E7 markets compared to G7 markets which shows that in E7 markets, relatively larger firms indulge in takeover activities.

Table 10: Descriptive statistics for Preannouncement Premium model

Variables are preannouncement premium (pmm) as dependent variable, percentage of acquisition in recent transaction (prtg_acq), mispricing of acquirer (mispr_a) Price/book ratio, mispricing of target (mispr_t) Price/book ratio, size of acquirer (size_a) log of total assets, size of target (size_t) log of total assets, Relative size (rel_size) assets of the acquirer/assets of the target. sample period is 2001 to 2017.

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Overall Sample							
pmm	2853	-0.504	1.049	0.258	0.275	0.341	0.193
mispr_a	2853	0.051	6.268	2.113	1.280	1.034	0.667
mispr_t	2853	0.069	5.778	1.870	1.209	1.014	0.516
size_a	2853	3.961	12.478	9.453	1.107	-0.224	0.349
size_t	2853	4.653	12.049	8.537	0.950	0.067	0.268
prtg_acq	2853	0.020	1.000	0.722	0.381	-0.808	-1.162
rel_size	2853	-0.283	4.958	0.916	0.860	0.558	1.303
G7 Sub-sample							
pmm	2576	-0.504	1.049	0.270	0.272	0.340	0.214
mispr_a	2576	0.051	6.268	2.102	1.254	1.043	0.726
mispr_t	2576	0.069	5.778	1.878	1.207	1.004	0.483
size_a	2576	3.961	12.478	9.452	1.120	-0.233	0.327
size_t	2576	4.653	12.049	8.526	0.965	0.076	0.279
prtg_acq	2576	0.020	1.000	0.762	0.364	-1.049	-0.698
rel_size	2576	-0.351	4.958	0.926	0.866	0.558	1.302
E7 Sub-sample							
pmm	277	-0.493	1.014	0.150	0.282	0.573	0.438
mispr_a	277	0.175	6.265	2.221	1.504	0.896	0.032
mispr_t	277	0.116	5.683	1.795	1.227	1.122	0.873
size_a	277	6.586	12.237	9.467	0.976	-0.075	0.427
size_t	277	6.671	10.445	8.642	0.790	0.109	-0.592
prtg_acq	277	0.027	1.000	0.355	0.338	1.014	-0.463
rel_size	277	-0.283	4.026	0.824	0.798	0.501	1.198

Furthermore, the percentage of acquisition (Prtg_acq) has a mean value of 0.722 and standard deviation of 0.381 which shows that it is not much volatile. Higher kurtosis value of (Prtg_acq) is the result of a large number of cases with 100% percentage of acquisition. Mean value of (Prtg_acq) for the G7 markets is much larger than the E7 markets which depicts that takeover bids from the G7 markets involve higher percentage of acquisition.

Relative size (rel_size) is showing negative minimum values because it is a log value and log of any value less than 1 is negative.



CHAPTER FOUR

EMPIRICAL RESULTS AND DISCUSSION

This chapter reveals the empirical results and discussion of the study. The analysis is done using the available data for each hypothesis by utilizing the three models as the payment method model, preannouncement premium model and the post-merger model for the 2001-2017 period. This chapter is organized as follows; the first part includes the correlations, collinearity statistics and the empirical analysis of the payment method model, the second part includes the correlations, collinearity statistics and the empirical analysis of the preannouncement premium model, and the third part includes the correlations, collinearity statistics and the empirical analysis of the post-merger returns model. The last part concludes.

4.1. PAYMENT METHOD MODEL

The payment method model aims to test the first hypothesis of the study which states that the overvalued equity of the acquirer significantly affects the probability of stock payment in a takeover. Multinomial logistic analysis technique has been used to estimate this model which is presented in Chapter 3.

4.1.1. Correlation Statistics

First the correlations between the variables of the model are calculated to find the relationship among variables of the study. Table 11 shows the correlations among the independent variables of the payment method model for the overall sample, G7 sub-sample and E7 sub-sample. Since the dependent variable is a multinomial variable, it has not been included in the correlation matrix. Data of 3679 cases have been included in this analysis, out of which 3062 cases are from G7 economies whereas 617 cases are from E7 economies.

Table 11: Pearson Correlations among independent variables of payment method model

Variables are mispricing of acquirer (misp_a) stock price/book ratio, size of acquirer (size_a) log of total assets of the acquirer, size of target (size_t) log of total assets of the target, percentage of acquisition in recent transaction (prt_g_acq), Total revenues of the acquirer (Rev_a), and financial leverage of acquirer (lv_g_a) long-term debt/equity ratio. the sample period is 2001 to 2017. ** significant at the 0.01 level * significant at the 0.05 level

	misp_a	prt_g_acq	size_a	size_t	lv_g_a
Overall sample					
misp_a	1.000				
prt_g_acq	0.174**	1.000			
size_a	-0.001	-0.058**	1.000		
size_t	-0.058**	0.017	0.550**	1.000	
lv_g_a	-0.035*	-0.101**	0.235**	0.233**	1.000
N	3679	3679	3679	3679	3679
G7 sub-sample					
misp_a	1.000				
prt_g_acq	0.195**	1.000			
size_a	0.023	-0.072**	1.000		
size_t	-0.047**	0.032	0.556**	1.000	
lv_g_a	-0.037*	-0.091**	0.251**	0.267**	1.000
N	3062	3062	3062	3062	3062
E7 sub-sample					
misp_a	1.000				
prt_g_acq	0.072	1.000			
size_a	-0.132**	-0.063	1.000		
size_t	-0.114**	0.008	0.526**	1.000	
lv_g_a	-0.014	-0.012	0.187**	0.034	1.000
N	617	617	617	617	617

Analyses of the overall sample, G7 sub-sample, and E7 sub-sample have been done separately. As can be seen from Table 11, there is a positive correlation between mispricing of acquirer firms and percentage of acquisition at 1% level of significance. This relationship is present in overall sample and G7 sub-sample only. It implies that overvalued acquirers prefer acquiring more in the takeovers in G7 markets. Mispricing of the acquirer is significantly negatively correlated with the size of the target in all three samples. This depicts that overvalued acquirers prefer acquiring smaller targets. Mispricing of the acquirer has a negative correlation with financial leverage in overall sample and G7 sub-sample which suggests that overvalued acquirers have a lower level

of debt compared to the other firms. In the E7 sub-sample, mispricing of the acquirer has a negative correlation with size of the acquirer which depicts that in the E7 markets, smaller firms are more overvalued compared to the bigger ones.

Control variables also have some significant correlations. Percentage of acquisition is negatively correlated with size of the acquirer and financial leverage of the acquirer in the overall sample and the G7 sub-sample. It could be interpreted that smaller firms and firms with more debt tends to acquire less in takeovers. A positive correlation between the size of the acquirer and the size of the target firms are also very strong which suggests that the acquirer firms tend to select target firms relative to their own size (bigger firms acquire relatively bigger firms and vice versa). Positive correlations between leverage and size suggest that larger firms are more leveraged compared to smaller firms.

4.1.2. Collinearity Statistics

For a regression model, all independent variables should be independent of each other. Before running the multinomial logistic regression, it is important to check the multicollinearity statistics which identify that if correlations among the independent variables are strong enough to create problem in the regression results. Collinearity statistics are presented in Table 12, VIF values of all variables are under the acceptable level of 5 (Rogerson, 2014:266). So, it could be concluded that independent variables of the study do not create a multicollinearity problem.

Table 12: Collinearity statistics for all Independent variables

Variables	Overall sample		G7 sub-sample		E7 sub-sample	
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
misp_a	0.963	1.038	0.952	1.050	0.975	1.025
prtg_acq	0.952	1.050	0.939	1.065	0.989	1.011
size_a	0.681	1.469	0.669	1.495	0.686	1.457
size_t	0.679	1.474	0.662	1.511	0.715	1.398
lvga_a	0.920	1.087	0.906	1.104	0.959	1.042

4.1.3. Multinomial Logit Analysis Results

Table 13 represents the multinomial logit model results; the dependent variable of the model is payment method which has three values 0 for full cash payment, 1 for full stock payment and, 2 for the combination of cash and stock payment. In the model, 0 is the base value and Table 13 presents the estimated coefficients for the stock payment and the combination of stock and cash payment.

Total of 3679 cases have been included in this analysis, out of which 3062 cases are from G7 economies whereas 617 cases are from E7 economies. Analyses of the overall sample, G7 sub-sample, and E7 sub-sample have been done separately. Probabilities of Chi-square show that all the three models are good fit. The R squared value is 12.5% for overall sample, 12.3% for the G7 sub-sample whereas it is 13.7% for the E7 sub-sample. Although the significance of the coefficients is lower for the E7 sample, R squared is higher than the G7 sub-sample. This finding can be attributed to the huge difference between the number of observations of the samples. Since the G7 sample is much larger than the E7 sample, the number of observations increases the variance which results in lower R squared. The model is significant at 1% level for the overall sample and the sub-samples.

Table 13 also shows that stock payment is significantly positively affected by the mispricing of the acquirer in all the three samples at 1% significance level. It suggests that if the acquirer's equity is overvalued, the probability that the preferred payment method will be stock goes up. Although all samples show highly significant results for mispricing, the coefficient value is higher for the G7 sub-sample, which suggests that acquiring firms from developed markets are more likely to pay in stock if their equity is overvalued. For the combination of stock and cash payment, mispricing of the acquirer is also significantly positive at 1% level for all three samples. This suggests that mispricing of acquirer increases the probability of combining stock and cash payment. Strongest coefficient is the coefficient of E7 markets, which suggests to the probability to pay in the combination of cash and stock goes up if the firm whose equity is

overvalued is from a developing country. By comprehending both results, it could be argued that when the firms have overvalued equity, the probability of the payment method including stock goes up. If the acquirers are from developed economies, the probability to prefer payment in stock goes up whereas if the acquirers from developing countries, the probability to prefer payment as combination of cash and stock.

Table 13: Multinomial Logit analysis for the three samples: Payment Method Model

Multinomial model for $\text{pay_m} = \alpha + \beta_1 \text{mispr_a} + \beta_2 \text{size_a} + \beta_3 \text{size_t} + \beta_4 \text{prtq_acq} + \beta_5 \text{lvq_a} + \varepsilon$ where payment method (pay_m) have three values 1 for cash, 2 for stock and 3 for the combination of cash and stock. Here 1. payment method as cash is the base value and model calculates values for 2 and 3. Independent variables are mispricing of acquirer (mispr_a) stock price/book ratio, size of acquirer (size_a) log of total assets of the acquirer, size of target (size_t) log of total assets of the target, percentage of acquisition in recent transaction (prtq_acq), and financial leverage of acquirer (lvq_a) long-term debt/equity ratio. sample period is 2001 to the to 2017. ***significant at the 0.01 level, ** significant at the 0.05 level * significant at the 0.10 level

		Overall sample		G7 Sub-sample		E7 Sub-sample	
		coff.	sig.	coff.	sig.	coff.	sig.
0. payment method cash (base outcome)							
1. for payment method total stock	misp_a	0.342***	0.000	0.397***	0.000	0.196***	0.009
	prtq_acq	1.255***	0.000	1.051***	0.000	2.413***	0.000
	size_a	-0.665***	0.000	-0.724***	0.000	-0.282	0.115
	size_t	0.380***	0.000	0.396***	0.000	0.267	0.107
	lvq_a	0.233***	0.006	0.256***	0.007	0.106	0.591
	_cons	0.020	0.968	0.440	0.402	-2.639*	0.079
2. for payment method stock and cash	misp_a	0.238***	0.000	0.240***	0.000	0.504***	0.003
	prtq_acq	3.074***	0.000	2.759***	0.000	3.588***	0.000
	size_a	-0.672***	0.000	-0.722***	0.000	-0.005	0.992
	size_t	0.759***	0.000	0.787***	0.000	0.732	0.097
	lvq_a	0.178	0.129	0.151	0.222	0.716	0.107
	_cons	-5.072	0.000	-4.486	0.000	-13.400***	0.002
Number of obs		3679		3062		617	
LR chi ₂		711***		606.97***		97.69***	
Prob > chi ₂		0.000		0.000		0.000	
Pseudo R ₂		0.125		0.123		0.137	

The coefficient of the percentage of acquisition is also significantly positive at 1% level for all samples, which suggests that if the acquirer firms acquire higher percentages of target firms, there are more chances that they would opt stock as

payment. Coefficients of the size of the acquirer is negative and significant at 1% level for all samples except the E7 sub-sample for stock payment which depicts that as the firms get bigger, the probability of including stock in the payment method goes down. This can be explained by the proposition that bigger firms are generally cash rich, so they have enough cash to pay the takeover by cash. Coefficient values of the size of the target firms are significantly positive at 1% for all sub-samples except the E7 sub-sample which suggests that bigger the size of the target firm, more are the chances that the transaction would be settled by stock payment. Since it takes more resources to acquire a bigger firm, it is difficult for a firm to pay it in cash.

Coefficient values of leverage of the acquirer are positive and significant for the overall sample and G7 sub-sample. It depicts that the more the firms are leveraged, the probability that they will prefer to pay by stocks goes up. It is difficult for highly leveraged firms to acquire more debt to pay the acquisition by cash, so higher will be the probability that they would prefer stock payment. Results of leverage are insignificant for the E7 sub-sample which suggests that leverage does not affect the payment method in the E7 economies. Coefficient of leverage is also insignificant for the overall sample.

Furthermore, another model has been developed to control the time-specific effects on the payment method in the takeovers. Dummy variables have been developed for each sample year to control all the events happen in a certain year. Results of the model are presented in the Appendix 1 Results suggest that four out of seventeen years have significant coefficients. as the years 2007 and 2008 have negative coefficients while the coefficients of the years 2009 and 2010 are positive. Mixed directions of the coefficients make it difficult to explain the impact of year effects. Since these years are the years surrounding the global financial crises, it would require further research.

Another model has also been developed by including the type of merger in the analysis by adding the friendly mergers as a dummy variable. Results that are presented in the Appendix 2, revealed that friendly mergers increase the chances of stock payments. It shows that if the takeover is friendly and with the agreement of target's management, there are more chances that the acquirer and the target shareholders would agree to become shareholders of the same firm after the takeover.

In conclusion, we reject the null hypothesis for this model and conclude that mispricing of the acquirer significantly affects the payment method. Results suggest that if the acquirer's equity is overvalued, the chances that stock payments will be preferred will go up both in the G7 and the E7 markets.

4.2. POST-MERGER RETURNS MODEL

Hypothesis of the post-merger returns model as presented in chapter 3 is that the overvalued equity of the acquirer significantly affects the post-merger stock returns of the acquirer. Multiple regression analysis has been used for the empirical analysis of this model.

4.2.1. Correlation Statistics

In the empirical analysis, first correlations among the variables of the model are calculated to find the relationship among variables of the study. Table 14 presents the correlation among all the variables for post-merger returns model. The dependent variable is post-merger marginal returns of the acquirer, whereas mispricing of the acquirer is the independent variable of the study. According to the hypothesis of this model, mispricing of the acquirer is likely to have a negative correlation with post-merger returns of the acquirer.

Table 14 shows that mispricing of the acquirer is significantly negatively correlated to the post-merger returns of the acquirer which depicts that overvalued acquirers stock perform poorly in the post-merger period. This relationship is reasonably stronger for the E7 sub-sample compared to the G7 sub-sample. which suggests that overvaluation of the acquirer in the E7 markets affects stock returns more than in the G7 markets. Mispricing of the target is negatively correlated with marginal returns, but this relationship is only significant for the overall sample and G7 sample. This evidence suggests that undervalued target improves stock returns of the acquirer in the post-

merger period in G7 markets, whereas in E7 markets target's undervaluation does not affect post-merger stock returns of the acquirer.

Table 14: Pearson Correlations among all variables of Post-merger returns model

Variables are post-merger returns of acquirer (return_a) as dependent variable, percentage of acquisition in recent transaction (prtq_acq), mispricing of acquirer (mispr_a) market price/book ratio of the acquirer, mispricing of target (mispr_t) market price/book ratio of the target, size of acquirer (size_a) log of assets of the acquirer, size of target (size_t) log of assets of the target, sample period is 2001 to 2016. **Correlation is significant at the 0.01 level *Correlation is significant at the 0.05 level

	return_a	mispr_a	mispr_t	Size_a	size_t	prtq_acq
Overall sample						
return_a	1.000					
mispr_a	-0.198**	1.000				
mispr_t	-0.097**	0.334**	1.000			
size_a	0.027	-0.044**	0.120**	1.000		
size_t	-0.001	-0.055**	-0.040**	0.651**	1.000	
prtq_acq	-0.013	0.171**	0.032*	-0.124**	-0.025	1.000
N	4352	4352	4352	4352	4352	4352
G7 sub-sample						
return_a	1.000					
mispr_a	-0.192**	1.000				
mispr_t	-0.104**	0.333**	1.000			
size_a	0.039*	-0.032*	0.136**	1.000		
size_t	-0.018	-0.044**	-0.034*	0.655**	1.000	
prtq_acq	-0.017	0.194**	0.024	-0.139**	-0.012	1.000
N	3742	3742	3742	3742	3742	3742
E7 sub-sample						
return_a	1.000					
mispr_a	-0.224**	1.000				
mispr_t	-0.069	0.343**	1.000			
size_a	0.040	-0.118**	0.011	1.000		
size_t	0.094*	-0.131**	-0.076	0.618**	1.000	
prtq_acq	0.003	0.082*	0.061	0.009	-0.008	1.000
N	610	610	610	610	610	610

Furthermore, the size of the acquirer is positively correlated with post-merger returns of the acquirer, but this relationship is significant at 5% level only for the G7 sub-sample. It depicts that bigger acquirers perform better in the post-merger period.

Other control variables do not have any significant correlation with the dependent variable of the study. There are two other reasonably strong correlations. First one is the correlation between size of acquirer and size of target which suggests that the acquirers prefer to acquire targets according to their own size. Large acquirers would select larger targets and vice versa. Second correlation is between mispricing of acquirer and the target, which implies that acquirers tend to acquire targets with equity valuations that match their own valuations.

4.2.2. Collinearity Statistics

Table 15 shows the collinearity results of the independent variables of the post-merger returns model. There have been some stronger correlations between independent variables of the study but VIF stats are well under the upper limit of 5 (Rogerson, 2014:266). It could be concluded that there is not an issue of multicollinearity in the independent variables of this model.

Table 15: Collinearity statistics for Independent variables

Variables	Overall sample		G7 sub-sample		E7 sub-sample	
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
mispr_a	0.858	1.165	0.852	1.174	0.862	1.160
mispr_t	0.850	1.177	0.844	1.184	0.872	1.146
size_a	0.541	1.848	0.527	1.898	0.611	1.636
size_t	0.559	1.789	0.549	1.822	0.610	1.638
prtg_acq	0.951	1.052	0.933	1.072	0.992	1.008

4.2.3. Results of Regression Analysis

Table 16 shows the multiple regression model results with post-merger marginal returns as dependent variable and mispricing of the acquirer is the independent variable. Mispricing of the target, size of the acquirer, size of the target, and percentage of the acquisition variables have been taken as control variables in this model. Data of 4352 cases have been included in this analysis, out of which 3742 cases are from G7

economies whereas 610 cases are from E7 economies. Analyses of the overall sample, G7 sub-sample, and E7 sub-sample have been done separately.

Table 16: Multiple Regression analysis of three samples

It is a multiple regression model ($\text{return_a} = \alpha + \beta_1 \text{mispr_a} + \beta_2 \text{mispr_t} + \beta_3 \text{size_a} + \beta_4 \text{size_t} + \beta_5 \text{prtg_acq} + \varepsilon$) where post-merger returns of acquirer (return_a) as dependent variable, percentage of acquisition in recent transaction (prtg_acq), mispricing of acquirer (mispr_a) market price/book ratio of the acquirer, mispricing of target (mispr_t) market price/book ratio of the target, size of acquirer (size_a) log of assets of the acquirer, size of target (size_t) log of assets of the target, sample period is 2001 to 2016. ***significant at the 0.01 level, ** significant at the 0.05 level, * significant at the 0.10 level

	Overall sample		G7 sub-sample		E7 sub-sample	
	coef	sig.	coef	sig.	coef	sig.
(Constant)	0.075***	0.001	0.090***	0.000	-0.066	0.454
mispr_a	-0.024***	0.000	-0.023***	0.000	-0.029***	0.000
mispr_t	-0.004*	0.078	-0.005**	0.028	0.002	0.737
size_a	0.005*	0.061	0.005**	0.016	-0.009	0.378
size_t	0.002	0.554	-0.001	0.872	0.022*	0.063
prtg_acq	0.007	0.267	0.006	0.390	0.014	0.580
F		37.856***		31.458***		7.206***
Sig.		0.000		0.000		0.000
Adj R ²		0.041		0.040		0.048
Obs.		4352		3742		610
Durbin-Watson		1.848		1.854		1.731

Values of F statistics suggest that all three models are good fit and significant. R squared values are 4.1% for the overall sample, 4% for the G7 sub-sample, and 4.5% for the E7 sub-sample. R squared values are quite low for all three models, but the literature reveals that similar types of models have R squared values as low as 2% to 3% (Dong et al., 2006:48; Moeller, et al. 2004:36). Even though most of the independent variables are showing insignificant results for the E7 sub-sample, still lesser number of observations make the R squared value higher than the other samples.

The coefficient for mispricing of the acquirer is significantly negative for all samples. It suggests that overvalued acquirers perform poorly in the post-merger period. It confirms the proposition that the acquisition which is influenced by the overvalued equity of the acquirer, results in a decrease in stock returns. The coefficient of the

mispricing of the acquirer is higher for the E7 sub-sample than the G7 sub-sample which implies that the overvalued acquirers from E7 markets experience higher decreases in post-merger stock returns, compared to the acquirers from G7 markets. The coefficient of mispricing of the target is also negative but it is only significant for the overall sample and G7 sub-sample. It shows that the undervalued target increases the post-merger returns of the acquirer in G7 markets. It could be argued that undervalued targets are acquired cheaply by the acquirer which results in value creation whereas in E7 markets undervaluation of the target is not associated with post-merger returns of the acquirer.

The coefficient of the size of the acquirer is positive and significant for the G7 sub-sample and the overall sample whereas for the E7 markets, the coefficient is negative but insignificant. It suggests that bigger firms from G7 markets perform better in the post-merger period and yield higher returns. On the other hand, in E7 markets, size of the acquirer does not affect post-merger returns. Size of the target and percentage of acquisition are insignificant for all samples which implies that they do not affect the post-merger returns of the acquirer.

Moreover, two separate models have been formed to control the time-specific effects, and the impact of friendly takeovers on the post-merger returns. The year dummies and the friendly takeover dummies have been included in the models. Results that are presented in Appendix 3 and Appendix 4, show that both of these variables do not have a significant impact on the post-merger returns of the acquirer.

In conclusion of all the results, we reject the null hypothesis for this model and conclude that mispricing of the acquirer affects the post-merger performance of the acquirer's stock in G7 and E7 markets. Overvalued acquirers experience negative post-merger returns in the takeovers.

4.3. PREANNOUNCEMENT PREMIUM MODEL

Hypothesis of the preannouncement premium model is that undervalued equity of the target firm significantly affects the preannouncement premium. Two models have been formed to test this hypothesis. In the first model, size of the acquirer and size of the

target have been included to control the effects of firm size of the acquirer and the target. Second model includes the relative size variable to control the effects of the size. Multiple regression analysis has been used to estimate these models presented in Chapter 3.

4.3.1. Correlation Statistics

In the empirical analysis, first the correlations among the variables of the model are calculated to find the relationship among variables of the study. Table 17 shows correlations among all the variables of preannouncement premium model. Preannouncement premium of the target's stock is the dependent variable in this model which is expected to be negatively correlated with mispriced equity of the target according to the hypothesis. However, Table 17 shows that mispricing of the target does not have a significant correlation with preannouncement premium. There is a positive correlation between premium and mispricing of the acquirer, but it is only significant for the overall sample and the G7 sub-sample. This suggests that the market perceive the target firm's stocks more valuable if it is being acquired by an overvalued acquirer.

Preannouncement premium is significantly positively correlated with the percentage of acquisition in the overall sample and the G7 sample. This implies that if the acquirer plans to acquire more, there would be more price run-ups in the target's stock. Furthermore, there is a negative correlation between the target's size and the preannouncement premium which suggests that smaller target firms experience more price run-ups during preannouncement period.

Among other correlations, there is a strong positive correlation between mispricing of target and acquirer. It shows that acquirers select targets with the equity valuation that matches their own valuation. Strong positive correlation between sizes of acquirer and target suggest that acquirers select targets relative to their own size. Relative size has been derived from the assets of the acquirer and the assets of the target, so it is strongly correlated with the size variables. Relative size is positively correlated with the size of the acquirer and negatively correlated with the size of the target. Since

relative size has not been used in the same model with other size variables, it would not create a multicollinearity issue.

Table 17: Pearson Correlations among all variables of Preannouncement Premium model

Variables are preannouncement premium of the target's stock (pmm) as dependent variable, percentage of acquisition in recent transaction (prtg_acq), mispricing of acquirer (mispr_a) market price/book ratio of the acquirer, mispricing of target (mispr_t) market price/book ratio of the target, size of acquirer (size_a) log of total assets of the acquirer, size of target (size_t) log of total assets of the target, Relative size (rel_size) assets of the acquirer/assets of the target. The sample period is 2001 to 2017. ** Correlation is significant at the 0.01 level *Correlation is significant at the 0.05 level.

	pmm	mispr_a	mispr_t	size_a	size_t	prtg_acq	rel_size
Overall sample							
pmm	1.000						
mispr_a	0.114**	1.000					
mispr_t	0.014	0.354**	1.000				
size_a	0.013	0.006	0.137**	1.000			
size_t	-0.061**	-0.037*	-0.019	0.660**	1.000		
prtg_acq	0.309**	0.143**	0.026	-0.116**	0.008	1.000	
rel_size	0.085**	0.048**	0.197**	0.558**	-0.255**	-0.158**	1.000
N	2853	2853	2853	2853	2853	2853	2853
G7 sub-sample							
pmm	1.000						
mispr_a	0.133**	1.000					
mispr_t	0.019	0.364**	1.000				
size_a	0.010	0.013	0.143**	1.000			
size_t	-0.064**	-0.038	-0.026	0.664**	1.000		
prtg_acq	0.304**	0.164**	0.021	-0.129**	0.017	1.000	
rel_size	0.084**	0.059**	0.213**	0.553**	-0.255**	-0.186**	1.000
N	2576	2576	2576	2576	2576	2576	2576
E7 sub-sample							
pmm	1.000						
mispr_a	0.013	1.000					
mispr_t	-0.058	0.290**	1.000				
size_a	0.058	-0.058	0.078	1.000			
size_t	0.019	-0.038	0.061	0.609**	1.000		
prtg_acq	0.100	0.126*	0.017	-0.021	0.065	1.000	
rel_size	0.053	-0.034	0.035	0.620**	-0.244**	-0.090	1.000
N	277	277	277	277	277	277	277

Percentage of acquisition is positively correlated with the mispricing of the acquirer which depicts that overvalued acquirers acquire more in the takeovers. Lastly, there is a significant negative correlation between percentage of acquisition and size of the acquirer which suggests that smaller acquirers acquire more in the takeovers.

4.3.2. Collinearity statistics

Table 18 shows the collinearity statistics for the preannouncement model. It is the assumption of the regression analysis that all independent variables should not have strong correlation with each other. So, it is important to check the collinearity statistics before running the regression analysis. Table 15 shows that correlations among independent variables do not create any issue of multicollinearity in both of the models as VIF values are well under the upper limit of 5 (Rogerson, 2014:266).

Table 18: Collinearity statistics for all Independent variables

Variables	Overall sample		G7 Sub-sample		E7 Sub-sample	
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
Model including Size of acquirer and size of the target in the control variables						
mispr_a	0.856	1.169	0.842	1.188	0.895	1.118
mispr_t	0.840	1.190	0.829	1.206	0.906	1.104
size_a	0.526	1.900	0.512	1.952	0.621	1.609
size_t	0.544	1.839	0.532	1.881	0.622	1.607
prtg_acq	0.952	1.051	0.934	1.071	0.974	1.027
Model including relative size in the control variables						
mispr_a	0.857	1.167	0.843	1.186	0.900	1.111
mispr_t	0.842	1.188	0.831	1.204	0.914	1.095
prtg_acq	0.952	1.050	0.935	1.070	0.977	1.024
rel_size	0.935	1.070	0.918	1.089	0.989	1.011

4.3.3 Results of Regression Analysis

Table 19 shows the multiple regression model results where preannouncement premium of the target is the dependent variable and the mispricing of the target is the independent variable. Mispricing of the acquirer, sizes of the acquirer and the target, and the percentage of acquisition are control variables in the model. Data of 2853 cases have been included in this analysis, out of which 2576 cases are from G7 economies whereas 277 cases are from E7 economies. Analyses of the overall sample, G7 sub-sample, and E7 sub-sample have been done separately. F statistics show that the Model with overall sample and G7 sub-sample are good fit and significant, whereas E7 model has yielded insignificant results. Insignificant model of E7 sub-sample suggests that these variables do not affect the preannouncement premium in the E7 markets. R squared values are 12.0% for the overall sample, and 12.1 % for the G7 sub-sample.

Coefficients of mispricing of the target are negative and significant at 1% level for the overall sample and at 5% for the G7 sub-sample. It suggests that undervalued targets experience more price run-ups during the preannouncement period. It could also be argued that preannouncement premium is in fact the price adjustments in undervalued equity of the targets. When the market gets the news of takeover before the announcement, it gives more value to the undervalued targets and stock prices of targets go up. Coefficients of mispricing of acquirer are positive and significant at 1% level for the overall sample and the G7 sub-sample. It provides evidence that the market reacts to the news of takeover more positively if the acquirer is overvalued. It confirms the proposition that the market takes it as a positive signal for the target if an overvalued firm acquires its control.

Percentage of acquisition is significant and positive for all three samples. It proposes that the target would experience more preannouncement stock price run-ups if the acquirer plans to acquire a higher percentage of the total shares of the target firm. The reasonably greater coefficient of the percentage of acquisition for G7 compared to E7 markets suggests that investors give more importance to the percentage of acquisition in G7 markets.

Table 19: Multiple Regression analysis of three samples

Regression models are $pmm = \alpha + \beta_1 \text{mispr}_a + \beta_2 \text{mispr}_t + \beta_3 \text{size}_a + \beta_4 \text{size}_t + \beta_5 \text{prtg_acq} + \epsilon$ and $pmm = \alpha + \beta_1 \text{mispr}_a + \beta_2 \text{mispr}_t + \beta_3 \text{prtg_acq} + \beta_4 \text{rel_size} + \epsilon$ where preannouncement premium of the target's stock (pmm) as dependent variable, percentage of acquisition in recent transaction (prtg_acq), mispricing of acquirer (mispr_a) market price/book ratio of the acquirer, mispricing of target (mispr_t) market price/book ratio of the target, size of acquirer (size_a) log of total assets of the acquirer, size of target (size_t) log of total assets of the target, Relative size (rel_size) assets of the acquirer/assets of the target. The sample period is 2001 to 2017. ***significant at the 0.01 level, ** significant at the 0.05 level, * significant at the 0.10 level

	Overall sample		G7 Sub-sample		E7 Sub-sample	
	coef	sig.	coef	sig.	coef	sig.
Model including Size of acquirer and size of the target in control variables						
(Constant)	0.105**	0.031	0.105**	0.037	0.008	0.969
Mispr_a	0.017***	0.000	0.019***	0.000	0.005	0.698
Mispr_t	-0.011***	0.010	-0.011**	0.012	-0.016	0.261
Size_a	0.043***	0.000	0.044***	0.000	0.026	0.238
size_t	-0.051***	0.000	-0.053***	0.000	-0.013	0.622
Prtg_acq	0.231***	0.000	0.237***	0.000	0.085*	0.094
F		77.718***		70.840***		1.060
Sig.		0.000		0.000		0.383
Adj. R ²		0.120		0.121		0.019
Obs.		2853		2576		277
Durbin-Watson		1.868		1.907		1.830
Model including relative size in the control variables						
(Constant)	0.035**	0.015	0.027*	0.091	0.119	0.006
Mispr_a	0.017***	0.000	0.020***	0.000	0.004	0.729
Mispr_t	-0.012***	0.008	-0.012***	0.010	-0.016	0.281
Prtg_acq	0.232***	0.000	0.237***	0.000	0.087*	0.088
rel_size	0.045***	0.000	0.047***	0.000	0.023	0.282
F		96.534***		87.821***		1.248
Sig.		0.000		0.000		0.291
Adj. R ²		0.118		0.119		0.018
Obs.		2853		2576		277
Durbin-Watson		1.869		1.909		1.830

Size of the acquirer positively affects the preannouncement premium for the overall sample and the G7 sub-sample. It could be argued that if there is a bigger acquirer in the takeover, the target experiences more stock price run-ups during the

preannouncement period. Bigger acquirers are generally more reputable and their involvement in a takeover is taken as a positive signal by the market. The coefficient for the size of the target is negative for the overall sample but it is only significant for the overall sample and G7 sub-sample. It implies that smaller targets from G7 markets experience more stock price run-ups. While in E7 markets, size of the target does not affect the preannouncement premium. It implies that the market believes that there is more room for improvement and possibilities of synergies in the smaller targets compared to the larger ones, so they give more value to the smaller targets in the preannouncement period.

In the second model, relative size has been taken as a control variable. As it could be seen in the second part of Table 16, this model is also significant for the overall sample and for the G7 sub-sample whereas it is insignificant for the E7 sub-sample. Insignificant model of E7 sub-sample suggests that these variables do not affect the preannouncement premium in the E7 markets. R squared values are 11.8% for the overall sample, and 11.9 % for the G7 sub-sample.

Coefficient of mispricing of the acquirer is negative and significant at 1% level for the overall sample and the G7 sub-sample. Mispricing of the acquirer is also negative and significant at 1% level for both the overall sample and the G7 sample. It was significant at 5% level for the G7 sub-sample in the previous model. Coefficients of percentage of acquisition is positive and significant at 1% level of significance for the overall sample and the G7 sub-sample. Coefficient of relative size is positive and significant at 1% level for the overall sample and the G7 sub-sample. It depicts that target's stock experience more preannouncement premium if it is going to be acquired by a relatively bigger acquirer.

Besides this, two separate models have been formed to control the time-specific effects, and the impact of friendly takeovers on the preannouncement premium. The year dummies and the friendly takeover dummies have been included in the model. However, results that are presented in Appendix 5 and Appendix 6, reveal that none of these two have any significant impact on the preannouncement premium.

In conclusion, we reject the null hypothesis and conclude that mispricing of the target affects the preannouncement premium of the target in takeovers for the overall sample and the G7 sub-sample. However, we do not reject the null hypothesis for the E7 sub-sample and conclude that undervaluation of the target does not influence the preannouncement premium in E7 markets. Different levels of stock market development, difference in corporate governance systems in G7 and E7 markets might be the reason of these different results. Further research is recommended to investigate the factors that affect the preannouncement premium in E7 markets.



CONCLUSION

Firms need to grow to ensure that their revenues, profits and firm value increase. Generally, firms grow internally through acquiring new assets, new technologies to expand their business. However, firms can also grow externally by investing in other firms in the takeover market. There are number of motives that drive firms to acquire other firms such as synergies, tax considerations, and diversification. Nevertheless, mispricing of the acquirer and the target firms could also serve as a motive of takeover. If a firm's equity is undervalued, this creates an opportunity for other firms to purchase it for less than its true value, hence the undervalued firm becomes a target. On the other hand, overvalued equity of a firm could motivate it to acquire other firms by paying its stocks in return. So, overvaluation of the acquirer is expected to increase the chances of stock payment in the takeovers.

Overvalued equity may be caused by higher performance forecasts and expectations by the stock market. If a firm does not meet these market expectations, it experiences values losses. When managers fail to meet the market expectations, they seek investment opportunities to justify the overvalued equity. Takeover is a very attractive investment option for the managers in such a situation. Under this performance pressure, managers of an overvalued firm analyze the target bids optimistically which could result in value destruction. As a result, it is expected that overvalued equity of the acquirer may lead to a decrease in the stock returns of the acquirer.

The undervaluation of the target's equity may also influence how its stock price changes during the takeover process. The process of the takeover starts with the takeover bid announcement where the acquiring firm places its offer to the target firm. Generally, the market gets the information of the bid at the time of bid announcement, but a sharp increase in the target's stock in the preannouncement period depicts that the stock market gets the news of takeover before the announcement of the bid. Although the market does not have the actual information of the bid, still stock price of the target firm

increases. Hence, this increase may be influenced by the undervaluation of the target's equity.

In light of the above explanations, the aim of this study is to investigate the impact of mispriced equity of acquirer and target firms on the takeover market. It specifically provides evidence on the impact of mispriced equity on the choice of payment method, preannouncement premium of the target's stock, and post-merger returns of the acquirer's stock. Three models have been developed to estimate the impact of mispricing on each of the variables separately. The analysis is also carried out for developed and emerging market sub-samples to test for any differences. Logistic regression and multiple regression techniques have been used for the empirical analyses. Sample of the study includes mergers and acquisitions cases from G7 (as representatives of developed economies) and E7 (as representatives of developing economies) economies for the period of January 2001 to December 2017.

The present study aims to contribute to the mergers and acquisitions literature as well as to the mispricing literature in three ways. First, to the best of our knowledge, it is the first study that investigates the impact of mispriced equity on preannouncement premium of the target's stock. Second, it is the first study that has investigated the relationship of mispriced equity and the takeover market for the G7 and the E7 economies comparatively. Third, in this study percentage of acquisition has been included in the takeover models as a control variable which is unique to this study.

The first model of the study aimed to investigate the factors determining the payment method in takeovers. The main focus was to test for the impact of overvalued equity of the acquirer on the choice of payment method. The other independent variables included in the model were size of the acquirer, size of target, leverage of the acquirer, and percentage of the acquisition. The model was tested using multinomial logistic regression.

Empirical findings of the first model show that overvalued acquirers prefer to use their own stocks as part of payment in both the G7 and the E7 markets. In G7 markets, overvalued acquirers prefer to pay in stocks, while in E7 markets, they prefer paying with the combination of cash and stock. These findings provide support for Shleifer and

Vishny's (2003:20) argument that overvalued acquirers prefer using their equity as a cheaper currency for buying other firms.

The results also suggest that bigger acquirers prefer to pay by cash for the takeover. These findings confirm the proposition that bigger acquirers have excess cash available for the takeover and because it gives positive signals to the market that their firm's stock is fairly valued, bigger firms prefer paying cash (Fishman, 1989:14; Dong et al., 2006:49). On the other hand, bigger target firms are more likely to receive stocks as payment since the takeovers with larger target firms require larger payments which makes it difficult to pay by cash. Percentage of acquisition was found to be significantly positively related to the stock payments. As the percentage of acquisition increases, larger payments are required which makes it harder for the acquirer to pay by cash.

Further analysis as presented in Appendix 2 suggests that friendly takeovers increase the chances of stock payments. In friendly takeovers, the managements of both firms agree on the takeover, so there are more chances that both firms agree to work as a one big firm. Time, on the other hand, is found to have some mixed effects during the world financial crises period from 2007 to 2009, but these results are not conclusive as exhibited in Appendix 1.

The hypothesis one is supported for both the E7 markets and G7 markets and it is concluded that overvalued equity of the acquirer positively affects the stock payments in the takeovers in both developed and developing economies.

The second model investigated the factors affecting post-merger returns of the acquirer. Primary objective of the model is to find the impact of overvaluation of the acquirer on post-merger returns of the acquirer. Other variables include mispricing of the target, size of the acquirer, size of the target, percentage of the acquisition.

Empirical findings of the post-merger return data showed that acquirers experience negative returns during the post-merger period. Average post-merger returns of the acquirer are -1% in G7 markets, and -1.2 in E7 markets. This suggests that acquirers lose more value after the takeover takes place in E7 markets compared to the G7 markets. Results also exhibit that overvalued acquirers experience higher post-

merger negative returns which provides support for the proposition that if takeovers are influenced by mispriced equity then they destroy firm value (Jensen, 2004:552).

Bigger acquirers from G7 markets experience higher post-merger returns compared to the smaller ones whereas size of the acquirer does not affect the post-merger returns in the E7 markets. This can be interpreted as the market perceiving the takeovers by bigger firms more positively. On the other hand, as the target firm gets bigger, it creates a negative effect on the post-merger returns of the acquirer only in the G7 markets. The relationship was found to be insignificant in the E7 sub-sample. It could be concluded that larger acquirers and relatively smaller targets yield higher post-merger returns. Moreover, the percentage of acquisition negatively affects the post-merger returns of the acquirer which depicts that the acquirer's stock price is affected more negatively as the percentage acquired goes up. In a separate analysis as presented in Appendix 3 and 4, time and friendliness of takeover are not found to have any effects on post-merger returns of the acquirer.

The second hypothesis is accepted for both the E7 and the G7 markets and it is concluded that overvalued acquirers lose more value following the takeover both in developed and developing economies.

Third model of the study investigated the determinants of preannouncement premium of the target firm's stock. Main objective of the model is to find the impact of mispricing of the target's stock on preannouncement premium. The mispricing of the acquirer, size of the acquirer, size of the target, percentage of acquisition variables have also been included in the model.

Empirical findings showed that stocks of the target firms experience a huge premium before the bid announcement. Preannouncement premium is 29% for the overall sample, 30% for the G7 sub-sample, and 16% for the E7 sub-sample. Higher levels of premium in G7 sub-sample may imply that stock market reaction is much more efficient in G7 markets, which is also consistent with the stronger form of efficiency suggested by the literature for G7 countries. Results also showed that undervalued target firms experience more preannouncement premium in G7 markets. It depicts that a major portion of the preannouncement premium represents the correction of the prior

undervaluation in the target's stock. When the market gets the information of the takeover bid, it corrects the undervaluation and stock prices of the target firms go up. However, mispricing of the target does not have any impact on the preannouncement premium in the E7 markets. Difference in corporate governance systems, difference in level of market development between developed and developing markets, as suggested by Lebedev et al (2015:651), might be the reason of these different results.

Overvaluation of the acquirer positively affects the preannouncement premium in the G7 markets only. It depicts that the market values the target's stock higher if it is being acquired by an overvalued acquirer. Moreover, smaller targets experience more preannouncement premium only in G7 markets which may indicate that the market believes that takeover of a smaller firm may result in producing more synergies. The presence of a bigger acquirer increases the chances of higher preannouncement premium of the target's stock in G7 markets which depicts that the market perceives this positively. The percentage of acquisition is also positively related to the preannouncement premium in G7 markets. That is, as the percentage of acquisition goes up, the increase in the price of the target firm's stock will be higher. A further analysis revealed that time and friendliness of takeover do not affect preannouncement premium of the target as exhibited in Appendix 5 and Appendix 6.

Hypothesis three is accepted for the G7 markets whereas it is rejected for the E7 markets. It is concluded that undervalued equity of the target firm increases the preannouncement premium in developed economies. However, mispricing of the target firm does not affect the preannouncement premium in developing economies.

Above mentioned results are crucial for investors, managers of firms, policy makers and researchers. The findings would help the investors to better understand and evaluate the relationship of the choice of payment with the valuation of the acquiring firm. They may draw conclusions on how their valuation matches with the management's valuation of the acquirer's stock. Hence, they take it as a signal of the true value of the firm as also suggested by literature. This result, in return, would assist managers understand how the market perceives their decision of payment method in

case of a takeover. The findings may also help the investors to understand the price movement of the target's stock in preannouncement period.

The findings of the study would also help the managers of the acquiring firms in the decision making of the choice of the payment in the takeovers. It would also help the managers of the acquiring firms to understand how overvaluation of the equity affects the post-merger performance of the acquirer. Furthermore, these findings may also help the managers to understand that the market gets the information of the takeover bid in the preannouncement period and how the market interprets this information for the target's stock.

Apart from this, the findings of this study have implications for the policymakers as they regulate the stock market. Large amounts of preannouncement premium reveal that insiders from the acquiring firm may use private information to their own advantage. Although there are already some rules about insider trading in most of the countries, policy makers need to revisit those rules.

The study also has some limitations which could be divided into three. The first limitation is the missing values in the data. Each case in the data includes variables from acquiring and target firms. One missing value resulted in dropping the whole case leading to loss of almost 50% of all cases. For this reason, the data used for the analysis was limited compared to the whole population. Hence the findings must be interpreted taking this into consideration.

The second limitation was the calculation of the independent variable, namely mispriced equity. As explained before, there are many different proxies used for measuring mispricing. Due to limited access to data, it was not possible to calculate and use a model-based measure of mispriced equity in the analysis. Consequently, multiples-based measure of mispriced equity, P/B ratio was used. Since this ratio includes both mispricing and growth opportunities, the findings include also the effect of growth opportunities. The stand-alone effect of mispricing could not be tested. A comparative study could be conducted by taking both types of measures of mispriced equity to get more reliable results.

The third limitation is about the sample selection of the study. This study has taken G7 markets as a representative of developed markets and E7 markets as a representative of developing markets. However, it could be argued that E7 markets may not represent the developing markets in a true sense as these are the leading emerging markets which are expected to become developed in coming years. A future study could be done by taking different emerging markets as representative of developing markets as the sample to gain further insight.

Furthermore, this study has taken three aspects of the takeover market into consideration; the payment method, preannouncement premium of the target's stock, and the post-merger returns of the acquirer. A further study may also include other aspects of the takeover market such as the impact of mispricing on the takeover premium or success of the takeover bid. A further study could also investigate the relationship of mispricing and takeovers in the world economic crises time period as this study has found some inconclusive results in the world economic crises time.

Lastly, a future study is recommended to find the determinants of preannouncement premium in developing economies since the model used in this study was insignificant for developing economies whereas it was significant for developed economies. This may be due to different determinants being active in developing markets.

REFERENCES

Agrawal, A., Jaffe, J.F. and Mandelker, G.N. (1992). "The post-merger performance of acquiring firms: a re-examination of an anomaly." *The Journal of Finance*. 47(4): 1605-1621.

Akbar, M. and Baig, H.H. (2010). *Reaction of stock prices to dividend announcements and market efficiency in Pakistan*,
<http://121.52.153.178:8080/xmlui/handle/123456789/5734>, (27-06-2018).

Al-Sharkas, A.A., Hassan, M.K. and Lawrence, S. (2008). "The impact of mergers and acquisitions on the efficiency of the US banking industry: Further evidence." *Journal of Business Finance & Accounting*. 35(1-2): 50-70.

Alexakis, C., Patra, T. and Poshakwale, S. (2010). "Predictability of stock returns using financial statement information: evidence on semi-strong efficiency of emerging Greek stock market." *Applied Financial Economics*. 20(16): 1321-1326.

Alexandridis, G., Petmezas, D. and Travlos, N.G. (2010). "Gains from mergers and acquisitions around the world: New evidence." *Financial Management*. 39(4): 1671-1695.

Amihud, Y., Lev, B. and Travlos, N.G. (1990). "Corporate control and the choice of investment financing: The case of corporate acquisitions." *The Journal of Finance*. 45(2): 603-616.

Andre, P., Kooli, M. and L'her, J.-F. (2004). "The long-run performance of mergers and acquisitions: Evidence from the Canadian stock market." *Financial Management*. 27-43.

Ang, J.S. and Cheng, Y. (2006). "Direct evidence on the market-driven acquisition theory." *Journal of Financial Research*. 29(2): 199-216.

Antoniou, A., Arbour, P. and Zhao, H. (2008). "How much is too much: are merger premiums too high?" *European Financial Management*. 14(2): 268-287.

Araujo Lima, E.J. and Tabak, B.M. (2004). "Tests of the random walk hypothesis for equity markets: evidence from China, Hong Kong and Singapore." *Applied Economics Letters*. 11(4): 255-258.

Auerbach, A.J. and Reishus, D. (1987). "The impact of taxation on mergers and acquisitions" *Mergers and Acquisitions* (pp. 69-86), Chicago, University of Chicago Press.

Aybar, B. and Ficici, A. (2009). "Cross-border acquisitions and firm value: An analysis of emerging-market multinationals." *Journal of International Business Studies*. 40(8): 1317-1338.

Ball, R. (1978). "Anomalies in relationships between securities' yields and yield-surrogates." *Journal of Financial Economics*. 6(2-3): 103-126.

Balvers, R., Wu, Y. and Gilliland, E. (2000). "Mean reversion across national stock markets and parametric contrarian investment strategies." *The Journal of Finance*. 55(2): 745-772.

Barberis, N. and Huang, M. (2001). "Mental accounting, loss aversion, and individual stock returns." *The Journal of Finance*. 56(4): 1247-1292.

Barberis, N., Shleifer, A. and Vishny, R. (1998). "A model of investor sentiment." *Journal of Financial Economics*. 49(3): 307-343.

Barney, J.B. (1988). "Returns to bidding firms in mergers and acquisitions: Reconsidering the relatedness hypothesis." *Strategic Management Journal*. 9(S1): 71-78.

Bauer, P. (2004). "Determinants of capital structure: empirical evidence from the Czech Republic." *Czech Journal of Economics and Finance*. 54(1-2): 2-21.

Bhagat, S., Malhotra, S. and Zhu, P. (2011). "Emerging country cross-border acquisitions: Characteristics, acquirer returns and cross-sectional determinants." *Emerging Markets Review*. 12(3): 250-271.

Bittlingmayer, G. (1998). *The market for corporate control (including takeovers)*, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=81808, (27-06-2018).

Bliss, R.T. and Rosen, R.J. (2001). "CEO compensation and bank mergers." *Journal of Financial Economics*. 61(1): 107-138.

Bondt, W.F. and Thaler, R. (1985). "Does the stock market overreact?" *The Journal of Finance*. 40(3): 793-805.

Borges, M.R. (2010). "Efficient market hypothesis in European stock markets." *The European Journal of Finance*. 16(7): 711-726.

Bradley, M., Jarrell, G.A. and Kim, E. (1984). "On the existence of an optimal capital structure: Theory and evidence." *The Journal of Finance*. 39(3): 857-878.

Brigham, E.F. and Ehrhardt, M.C. (2009) *Financial Management*, New Delhi, India, Cengage Learning.

Brigham, E.F. and Houston, J.F. (2012) *Fundamentals of financial management*, New Delhi, India, Cengage Learning.

Bruner, R.F. (1988). "The use of excess cash and debt capacity as a motive for merger." *Journal of Financial and Quantitative Analysis*. 23(2): 199-217.

Bruner, R.F. (2002). "Does M&A pay? A survey of evidence for the decision-maker." *Journal of Applied Finance*. 12(1): 48-68.

Buffett, W.E. (2002) *Chairman's Letter, Berkshire Hathaway Annual Report 2002*, www.berkshirehathaway.com/2002ar/2002ar.pdf, (28-05-2018).

Buguk, C. and Brorsen, B.W. (2003). "Testing weak-form market efficiency: Evidence from the Istanbul Stock Exchange." *International Review of Financial Analysis*. 12(5): 579-590.

Capron, L. and Shen, J.C. (2007). "Acquisitions of private vs. public firms: Private information, target selection, and acquirer returns." *Strategic Management journal*. 28(9): 891-911.

Chang, K.-P. and Ting, K.-S. (2000). "A variance ratio test of the random walk hypothesis for Taiwan's stock market." *Applied Financial Economics*. 10(5): 525-532.

Chang, P.C. (1988). "A measure of the synergy in mergers under a competitive market for corporate control." *Atlantic Economic Journal*. 16(2): 59-62.

Chang, S. (1998). "Takeovers of privately held targets, methods of payment, and bidder returns." *The Journal of Finance*. 53(2): 773-784.

Chari, A., Ouimet, P.P. and Tesar, L.L. (2004). *Cross border mergers and acquisitions in emerging markets: The stock market valuation of corporate control*, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=559923, (27-06-2018).

Chau, M. and Vayanos, D. (2006). "Strong-form efficiency with monopolistic insiders." *The Review of Financial Studies*. 21(5): 2275-2306.

Chen, V.Z., Li, J. and Shapiro, D.M. (2011). "Are OECD-prescribed “good corporate governance practices” really good in an emerging economy?" *Asia Pacific Journal of Management*. 28(1): 115-138.

Chi, J.D. and Gupta, M. (2009). "Overvaluation and earnings management." *Journal of Banking & Finance*. 33(9): 1652-1663.

Chi, J., Sun, Q. and Young, M. (2011). "Performance and characteristics of acquiring firms in the Chinese stock markets." *Emerging Markets Review*. 12(2): 152-170.

Chordia, T., Roll, R. and Subrahmanyam, A. (2005). "Evidence on the speed of convergence to market efficiency." *Journal of Financial Economics*. 76(2): 271-292.

Chordia, T., Roll, R. and Subrahmanyam, A. (2008). "Liquidity and market efficiency." *Journal of Financial Economics*. 87(2): 249-268.

Chung, D. and Hrazdil, K. (2010). "Liquidity and market efficiency: A large sample study." *Journal of Banking & Finance*. 34(10): 2346-2357.

Claessens, S. and Yurtoglu, B.B. (2013). "Corporate governance in emerging markets: A survey." *Emerging Markets Review*. 15: 1-33.

Cornell, B. and Sirri, E.R. (1992). "The reaction of investors and stock prices to insider trading." *The Journal of Finance*. 47(3): 1031-1059.

Cornett, M.M. and De, S. (1991). "Common stock returns in corporate takeover bids: Evidence from interstate bank mergers." *Journal of Banking & Finance*. 15(2): 273-295.

Crawford, D. (1989). *The structure of corporate mergers: Accounting, tax, and form-of-payment choices*,

https://elibrary.ru/ip_restricted.asp?rpage=https%3A%2F%2Felibrary%2Eru%2Fitem%2Easp%3Fid%3D7542859, (27-06-2018).

D'mello, R. and Shroff, P.K. (2000). "Equity undervaluation and decisions related to repurchase tender offers: An empirical investigation." *The Journal of Finance*. 55(5): 2399-2424.

Daniel, K., Hirshleifer, D. and Subrahmanyam, A. (1998). "Investor psychology and security market under-and overreactions." *The Journal of Finance*. 53(6): 1839-1885.

Daniel, K.D., Hirshleifer, D. and Subrahmanyam, A. (2001). "Overconfidence, arbitrage, and equilibrium asset pricing." *The Journal of Finance*. 56(3): 921-965.

Daniel, K., Hirshleifer, D. and Subrahmanyam, A., (1998). "Investor psychology and security market under-and overreactions." *The Journal of Finance*, 53(6): 1839-1885.

De Long, J.B., Shleifer, A., Summers, L.H. and Waldmann, R.J. (1990). "Noise trader risk in financial markets." *Journal of Political Economy*. 98(4): 703-738.

DeLong, G. and Deyoung, R. (2007). "Learning by observing: Information spillovers in the execution and valuation of commercial bank M&As." *The Journal of Finance*. 62(1): 181-216.

Devos, E., Kadapakkam, P.-R. and Krishnamurthy, S. (2008). "How do mergers create value? A comparison of taxes, market power, and efficiency improvements as explanations for synergies." *The Review of Financial Studies*. 22(3): 1179-1211.

Diamond, D.W. and Verrecchia, R.E. (1981). "Information aggregation in a noisy rational expectations economy." *Journal of financial Economics*. 9(3): 221-235.

Dobson, H. (2004). *Japan and the G7/8: 1975-2002*, Japan, Routledge.

Doğan, B. and Değer, O. (2018). "The Energy Consumption and Economic Growth in the E7 Countries: Cointegration in Panel Data with Structural Breaks." *Journal for Economic Forecasting*.(1): 63-75.

Dong, M., Hirshleifer, D., Richardson, S. and Teoh, S.H. (2006). "Does investor misvaluation drive the takeover market?" *The Journal of Finance*. 61(2): 725-762.

Dong, M., Hirshleifer, D. and Teoh, S.H. (2012). "Overvalued equity and financing decisions." *The Review of Financial Studies*. 25(12): 3645-3683.

Eckbo, B.E., Giammarino, R.M. and Heinkel, R.L. (1990). "Asymmetric information and the medium of exchange in takeovers: Theory and tests." *The Review of Financial Studies*. 3(4): 651-675.

Eliasson, S. (2011). *Synergies in Mergers and Acquisitions: A Qualitative Study of Technical Trading Companies*. (Unpublished Masters Thesis). Sweden, Jönköping University.

Erickson, M. (1998). "The effect of taxes on the structure of corporate acquisitions." *Journal of Accounting Research*. 36(2): 279-298.

Faccio, M. and Masulis, R.W. (2005). "The choice of payment method in European mergers and acquisitions." *The Journal of Finance*. 60(3): 1345-1388.

Fama, E.F. (1970). "Efficient capital markets: A review of theory and empirical work." *The Journal of Finance*. 25(2): 383-417.

Fama, E.F. (1995). "Random walks in stock market prices." *Financial Analysts Journal*. 51(1): 75-80.

Fama, E.F. (1998). "Market efficiency, long-term returns, and behavioral finance." *Journal of Financial Economics*. 49(3): 283-306.

Fama, E.F., Fisher, L., Jensen, M.C. and Roll, R. (1969). "The adjustment of stock prices to new information." *International Economic Review*. 10(1): 1-21.

Figlewski, S. (1984). "Hedging performance and basis risk in stock index futures." *The Journal of Finance*. 39(3): 657-669.

Fishman, M.J. (1989). "Preemptive bidding and the role of the medium of exchange in acquisitions." *The Journal of Finance*. 44(1): 41-57.

Foerster, S.R. and Sapp, S.G. (2005). "The dividend discount model in the long-run: a clinical study." *Journal of Applied Finance*. 15(2): 1-22.

Francis, J., Olsson, P. and Oswald, D.R. (2000). "Comparing the accuracy and explainability of dividend, free cash flow, and abnormal earnings equity value estimates." *Journal of Accounting Research*. 38(1): 45-70.

Frank, M.Z. and Goyal, V.K. (2003). "Testing the pecking order theory of capital structure." *Journal of Financial Economics*. 67(2): 217-248.

Frankel, R. and Lee, C. (1998). "Accounting valuation, market expectation, and the book-to-market effects." *Journal of Accounting and Economics*. 25: 283-319.

Franks, J.R., Harris, R.S. and Mayer, C. (1988). "Means of payment in takeovers: Results for the United Kingdom and the United States". *Corporate takeovers: Causes and consequences* (pp. 221-264), Chicago, University of Chicago Press.

Frazzini, A., Kabiller, D. and Pedersen, L.H. (2013). Buffett's alpha, National Bureau of Economic Research. <https://www.nber.org/papers/w19681>, (25-04-2018).

Frennberg, P. and Hansson, B. (1993). "Testing the random walk hypothesis on Swedish stock prices: 1919–1990." *Journal of Banking & Finance*. 17(1): 175-191.

Fu, F., Lin, L. and Officer, M.S. (2013). "Acquisitions driven by stock overvaluation: Are they good deals?" *Journal of Financial Economics*. 109(1): 24-39.

Fuller, K., Netter, J. and Stegemoller, M. (2002). "What do returns to acquiring firms tell us? Evidence from firms that make many acquisitions." *The Journal of Finance*. 57(4): 1763-1793.

Gao, Y. and Oler, D. (2012). "Rumors and pre-announcement trading: why sell target stocks before acquisition announcements?" *Review of Quantitative Finance and Accounting*. 39(4): 485-508.

Gibson, M.S. (2003). "Is corporate governance ineffective in emerging markets?" *Journal of Financial and Quantitative Analysis*. 38(1): 231-250.

Givoly, D. and Lakonishok, J. (1979). "The information content of financial analysts' forecasts of earnings: Some evidence on semi-strong inefficiency." *Journal of Accounting and Economics*. 1(3): 165-185.

Gjerde, O., Knivsflå, K.H. and Sættem, F. (2001). "The stock market and investment in the small and open Norwegian economy." *Empirical Economics*. 26(3): 565-580.

Goold, M. and Campbell, A. (1998). "Desperately seeking synergy." *Harvard Business Review*. 76(5): 130-143, 188.

Gordon, J.N. (2003). *An American perspective on the new German anti-takeover law*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=336420, (28-04-2018).

Gort, M. (1969). "An economic disturbance theory of mergers." *The Quarterly Journal of Economics*. 1: 624-642.

Graham, J.R., Lemmon, M.L. and Wolf, J.G. (2002). "Does corporate diversification destroy value?" *The Journal of Finance*. 57(2): 695-720.

Grinblatt, M. and Titman, S. (1989). "Mutual fund performance: An analysis of quarterly portfolio holdings." *Journal of business*. 393-416.

Grinblatt, M. and Titman, S. (2002). *Financial Policy and Corporate Strategy*. New York, Irwin Professional Publishing,

Grossman, S.J. and Stiglitz, J.E. (1980). "On the impossibility of informationally efficient markets." *The American Economic Review*. 70(3): 393-408.

Gubbi, S.R., Aulakh, P.S., Ray, S., Sarkar, M. and Chittoor, R. (2010). "Do international acquisitions by emerging-economy firms create shareholder value? The case of Indian firms." *Journal of International Business Studies*. 41(3): 397-418.

Halov, N. and Heider, F. (2011). "Capital structure, risk and asymmetric information." *The Quarterly Journal of Finance*. 1(04): 767-809.

Hansen, R.G. (1987). "A theory for the choice of exchange medium in mergers and acquisitions." *Journal of Business*. 75-95.

Harford, J. (1999). "Corporate cash reserves and acquisitions." *The Journal of Finance*. 54(6): 1969-1997.

Harford, J. (2005). "What drives merger waves?" *Journal of Financial Economics*. 77(3): 529-560.

Harford, J., Humphery-Jenner, M. and Powell, R. (2012). "The sources of value destruction in acquisitions by entrenched managers." *Journal of Financial Economics*. 106(2): 247-261.

Harford, J., Klasa, S. and Walcott, N. (2009). "Do firms have leverage targets? Evidence from acquisitions." *Journal of Financial Economics*. 93(1): 1-14.

Hawthornthwaite, J. and Cookson, G. (2008). *The world in 2050: Beyond the BRICs: A broader look at emerging market growth prospects*, London, Price water house Coopers.

He, T. (2009). "International scientific collaboration of China with the G7 countries." *Scientometrics*. 80(3): 571-582.

Healy, P.M., Palepu, K.G. and Ruback, R.S. (1992). "Does corporate performance improve after mergers?" *Journal of Financial Economics*. 31(2): 135-175.

Hietala, P., Kaplan, S.N. and Robinson, D.T. (2002). *What is the price of hubris? Using takeover battles to infer overpayments and synergies*, National Bureau of Economic Research. <https://www.nber.org/papers/w9264>, (28-04-2018).

Hirshleifer, D. and Titman, S. (1990). "Share tendering strategies and the success of hostile takeover bids." *Journal of Political Economy*. 98(2): 295-324.

Hitt, M.A., Hoskisson, R.E. and Ireland, R.D. (1990). "Mergers and acquisitions and managerial commitment to innovation in M-form firms." *Strategic Management Journal*. 29-47.

Hoaglin, D.C., Iglewicz, B. and Tukey, J.W. (1986). "Performance of some resistant rules for outlier labeling." *Journal of the American Statistical Association*. 81(396): 991-999.

Holt, S. (2015) *How to predict the impact of an acquisition on share prices*. The globe and mail.
<https://www.theglobeandmail.com/globe-investor/investment-ideas/how-to-predict-the-impact-of-an-acquisition-on-share-prices/article23309206/>, (20-04-2018)

Houston, J.F., James, C.M. and Ryngaert, M.D. (2001). "Where do merger gains come from? Bank mergers from the perspective of insiders and outsiders." *Journal of financial Economics*. 60(2-3): 285-331.

Houston, J.F. and Ryngaert, M.D. (1994). "The overall gains from large bank mergers." *Journal of Banking & Finance*. 18(6): 1155-1176.

Hudson, R., Dempsey, M. and Keasey, K. (1996). "A note on the weak form efficiency of capital markets: The application of simple technical trading rules to UK stock prices-1935 to 1994." *Journal of Banking and Finance*. 20(6): 1121-1132.

Huian, M.C. (2015). "The usefulness of accounting information on financial instruments to investors assessing non-financial companies. An empirical analysis on the Bucharest Stock Exchange." *Accounting and Management Information Systems*. 14(4): 48.

Hussin, B.M., Ahmed, A.D. and Ying, T.C. (2010). "Semi-Strong Form Efficiency: Market Reaction to Dividend and Earnings Announcements in Malaysian Stock Exchange." *IUP Journal of Applied Finance*. 16(5).

Islam, A. and Khaled, M. (2005). "Tests of weak-form efficiency of the Dhaka stock exchange." *Journal of Business Finance & Accounting*. 32(7-8): 1613-1624.

Jackson, G. and Hoepner, M. (2001). "An emerging market for corporate control? The Mannesmann takeover and German corporate governance."
<http://hdl.handle.net/10419/43731>, (28-04-2018).

Jarrell, G.A. and Poulsen, A.B. (1989). "Stock trading before the announcement of tender offers: insider trading or market anticipation?" *Journal of Law, Economics, & Organization*. 5(2): 225-248.

Jegadeesh, N. and Titman, S. (1993). "Returns to buying winners and selling losers: Implications for stock market efficiency." *The Journal of Finance*. 48(1): 65-91.

Jegadeesh, N. and Titman, S. (1995). "Overreaction, delayed reaction, and contrarian profits." *The Review of Financial Studies*. 8(4): 973-993.

Jensen, M. and Bennington, G. (1970). "Random Walks and Technical Theories: Some Additional Evidence." *Journal of Finance*. 25(2): 469-482.

Jensen, M.C. (2004). "The agency costs of overvalued equity and the current state of corporate finance." *European Financial Management*. 10(4): 549-565.

Jensen, M.C. and Ruback, R.S. (1983). "The market for corporate control: The scientific evidence." *Journal of Financial Economics*. 11(1-4): 5-50.

Jung, K., Kim, Y.-C. and Stulz, R. (1996). "Timing, investment opportunities, managerial discretion, and the security issue decision." *Journal of Financial Economics*. 42(2): 159-186.

Karampatsas, N., Petmezas, D. and Travlos, N.G. (2014). "Credit ratings and the choice of payment method in mergers and acquisitions." *Journal of Corporate Finance*. 25: 474-493.

Ke, B. and Ramalingegowda, S. (2005). "Do institutional investors exploit the post-earnings announcement drift?" *Journal of Accounting and Economics*. 39(1): 25-53.

Keasey, K., Thompson, S. and Wright, M. (1997). *Corporate governance: Economic and financial issues*, Oxford, Oxford university press.

Keown, A.J. and Pinkerton, J.M. (1981). "Merger announcements and insider trading activity: An empirical investigation." *The Journal of Finance*. 36(4): 855-869.

Kim, J.Y. (2011). *Sources Of Synergy In Mergers And Acquisitions*. (Unpublished Doctoral Dissertation). New York, Cornell University.

King, D.A. (2004). "The scientific impact of nations." *Nature*. 430(6997): 311.

King, M.R. (2009). "Prebid Run-Ups Ahead of Canadian Takeovers: How Big Is the Problem?" *Financial Management*. 38(4): 699-726.

Klapper, L.F. and Love, I. (2004). "Corporate governance, investor protection, and performance in emerging markets." *Journal of Corporate Finance*. 10(5): 703-728.

Kothari, S., Loutskina, E. and Nikolaev, V. (2006). "Agency theory of overvalued equity as an explanation for the accrual anomaly."

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=871750, (28-04-2018).

Kothari, S.P., Shu, S. and Wysocki, P.D. (2009). "Do managers withhold bad news?" *Journal of Accounting Research*. 47(1): 241-276.

Laamanen, T. (2007). "On the role of acquisition premium in acquisition research." *Strategic Management Journal*. 28(13): 1359-1369.

Lakonishok, J., Shleifer, A. and Vishny, R.W. (1994). "Contrarian investment, extrapolation, and risk." *The Journal of Finance*. 49(5): 1541-1578.

Laurence, M.M. (1986). "Weak-form efficiency in the Kuala Lumpur and Singapore stock markets." *Journal of Banking & Finance*. 10(3): 431-445.

Lea, R. (2017). "The Bank: resilient growth and rising inflation, but no hurry to raise interest rates." *Growth*. 7800(608): 674.

Lebedev, S., Peng, M.W., Xie, E. and Stevens, C.E. (2015). "Mergers and acquisitions in and out of emerging economies." *Journal of World Business*. 50(4): 651-662.

Lee, C., Myers, J. and Swaminathan, B. (1999). "What is the Intrinsic Value of the Dow?" *The Journal of Finance*. 54(5): 1693-1741.

Lee, C. and Swaminathan, B. (2000). "Price momentum and trading volume." *The Journal of Finance*. 55(5): 2017-2069.

Lehmann, B.N. (1990). "Fads, martingales, and market efficiency." *The Quarterly Journal of Economics*. 105(1): 1-28.

Lemoine, J., Darriet, E., Kmiec, R. and Roland-Levy, C. (2016). "Financial threat during the economic crisis: Connections with the social representation of the economic crisis and the willingness to act." *International Review of Social Psychology*. 29(1).

Levy, R.A. (1967). "Relative strength as a criterion for investment selection." *The Journal of Finance*. 22(4): 595-610.

Lim, K.P. and Hooy, C.W. (2013). "Non-Linear Predictability in G7 Stock Index Returns." *The Manchester School*. 81(4): 620-637.

Lin, L. and Fu, F. (2008). *Mergers driven by stock overvaluation: Are they good deals?* Singapore Management University, Working Paper.

https://ink.library.smu.edu.sg/cgi/viewcontent.cgi?article=4249&context=lkcsb_research, (28-04-2018).

Lin, Z.H.H.X.T. (2007). "Can Securities Analysts Improve the Efficiency of Capital Market in China ." *Journal of Financial Research*. 2: 1-10.

Linn, S.C. and Switzer, J.A. (1994). *The relation between the method-of-payment used in corporate acquisitions and subsequent firm performance* ((Unpublished Doctoral Dissertation) Quebec, Canada, Concordia University.

Lo, A.W. and Mackinlay, A.C. (1988). "Stock market prices do not follow random walks: Evidence from a simple specification test." *The Review of Financial Studies*. 1(1): 41-66.

Loughran, T. and Vijh, A.M. (1997). "Do long-term shareholders benefit from corporate acquisitions?" *The Journal of Finance*. 52(5): 1765-1790.

Macey, J.R. and Miller, G.P. (1995). "Corporate governance and commercial banking: A comparative examination of Germany, Japan, and the United States." *Stanford Law Review*. 73-112.

Malkiel, B.G. (2005). "Reflections on the efficient market hypothesis: 30 years later." *Financial Review*. 40(1): 1-9.

Malmendier, U., Opp, M.M. and Saidi, F. (2016). "Target revaluation after failed takeover attempts: Cash versus stock." *Journal of Financial Economics*. 119(1): 92-106.

Manne, H.G. (1965). "Mergers and the market for corporate control." *Journal of Political Economy*. 73(2): 110-120.

Manso, G. (2011). "Motivating innovation." *The Journal of Finance*. 66(5): 1823-1860.

Martin, K.J. (1996). "The method of payment in corporate acquisitions, investment opportunities, and management ownership." *The Journal of Finance*. 51(4): 1227-1246.

Masulis, R.W. (1983). "The impact of capital structure change on firm value: Some estimates." *The Journal of Finance*. 38(1): 107-126.

Masulis, R.W., Wang, C. and Xie, F. (2007). "Corporate governance and acquirer returns." *The Journal of Finance*. 62(4): 1851-1889.

Mauro, M.P. (2000). *Stock returns and output growth in emerging and advanced economies*, IMF Working Paper, WP/00/89, International Monetary Fund.

Mello, A.S. and Parsons, J.E. (1992). "Measuring the agency cost of debt." *The Journal of Finance*. 47(5): 1887-1904.

Miles, P. and Erhardt, N. (2014). "Top management diversity is just good business: Using CSR measures to explore the diversity-firm performance link." *Journal of Business and Economics*. 5(4): 449-461.

Mitchell, M.L. and Stafford, E. (2001). "Managerial decisions and long-term stock price performance." *Journal of Business*. 73(3): 287-329.

Modigliani, F. and Miller, M.H. (1958). "The cost of capital, corporation finance and the theory of investment." *The American Economic Review*. 48(3): 261-297.

Modigliani, F. and Miller, M.H. (1963). "Corporate income taxes and the cost of capital: a correction." *The American Economic Review*. 53(3): 433-443.

Moeller, S.B., Schlingemann, F.P. and Stulz, R.M. (2003). Do shareholders of acquiring firms gain from acquisitions?, National Bureau of Economic Research.
<https://www.nber.org/papers/w9523>, (28-04-2018).

Moeller, S.B., Schlingemann, F.P. and Stulz, R.M. (2004). "Firm size and the gains from acquisitions." *Journal of Financial Economics*. 73(2): 201-228.

Moeller, S.B., Schlingemann, F.P. and Stulz, R.M. (2005). "Wealth destruction on a massive scale? A study of acquiring-firm returns in the recent merger wave." *The Journal of Finance*. 60(2): 757-782.

Morck, R., Shleifer, A. and Vishny, R.W. (1990). "Do managerial objectives drive bad acquisitions?" *The Journal of Finance*. 45(1): 31-48.

Morck, R., Shleifer, A., Vishny, R.W., Shapiro, M. and Poterba, J.M. (1990). "The stock market and investment: is the market a sideshow?" *Brookings Papers on Economic Activity*. 1990(2): 157-215.

Mueller, D.C. and Sirower, M.L. (2003). "The causes of mergers: tests based on the gains to acquiring firms' shareholders and the size of premia." *Managerial and Decision Economics*. 24(5): 373-391.

Mueller, D.C. and Yurtoglu, B.B. (2007). "Corporate governance and the returns to acquiring firms' shareholders: an international comparison." *Managerial and Decision Economics*. 28(8): 879-896.

Mulherin, J.H. and Boone, A.L. (2000). "Comparing acquisitions and divestitures." *Journal of Corporate Finance*. 6(2): 117-139.

Myers, S.C. (1977). "Determinants of corporate borrowing." *Journal of Financial Economics*. 5(2): 147-175.

Myers, S.C. (1984). "The capital structure puzzle." *The Journal of Finance*. 39(3): 574-592.

Myers, S.C. and Majluf, N.S. (1984). "Corporate financing and investment decisions when firms have information that investors do not have." *Journal of Financial Economics*. 13(2): 187-221.

Nasseh, A. and Strauss, J. (2004). "Stock prices and the dividend discount model: did their relation break down in the 1990s?" *The Quarterly Review of Economics and Finance*. 44(2): 191-207.

Nielsen, J.F. and Melicher, R.W. (1973). "A financial analysis of acquisition and merger premiums." *Journal of Financial and Quantitative Analysis*. 8(2): 139-148.

Ohlson, J.A. (1995). "Earnings, book values, and dividends in equity valuation." *Contemporary Accounting Research*. 11(2): 661-687.

Oviatt, B.M. (1988). "Agency and transaction cost perspectives on the manager-shareholder relationship: Incentives for congruent interests." *Academy of Management Review*. 13(2): 214-225.

Pastor, L. and Stambaugh, R.F. (2003). "Liquidity risk and expected stock returns." *Journal of Political Economy*. 111(3): 642-685.

Pilloff, S.J. (1996). "Performance changes and shareholder wealth creation associated with mergers of publicly traded banking institutions." *Journal of Money, Credit and Banking*. 28(3): 294-310.

Piotroski, J.D. and Roulstone, D.T. (2004). "The influence of analysts, institutional investors, and insiders on the incorporation of market, industry, and firm-specific information into stock prices." *The Accounting Review*. 79(4): 1119-1151.

Pontiff, J. and Schall, L.D. (1998). "Book-to-market ratios as predictors of market returns." *Journal of financial Economics*. 49(2): 141-160.

Poshakwale, S. (1996). "Evidence on weak form efficiency and day of the week effect in the Indian stock market." *Finance India*. 10(3): 605-616.

Pound, J. and Zeckhauser, R. (1990). "Clearly heard on the street: The effect of takeover rumors on stock prices." *Journal of Business*. 291-308.

Rahatullah, M.K. (2014). "Financial synergy in mergers and acquisitions. Evidence from Saudi Arabia." *Aestimatio*.(9): 182.

Rajan, R.G. and Zingales, L. (1995). "What do we know about capital structure? Some evidence from international data." *The Journal of Finance*. 50(5): 1421-1460.

Rangan, S. (1998). "Earnings management and the performance of seasoned equity offerings¹." *Journal of financial Economics*. 50(1): 101-122.

Rani, N., Yadav, S.S. and Jain, P. (2012). "The impact of domestic mergers and acquisitions on acquirer shareholders' wealth in India." *Global Journal of Flexible Systems Management*. 13(4): 179-193.

Reilly, F.K. and Brown, K.C. (2002). *Investment analysis and portfolio management*, United States, Cengage Learning.

Rhodes–Kropf, M., Robinson, D.T. and Viswanathan, S. (2005). "Valuation waves and merger activity: The empirical evidence." *Journal of Financial Economics*. 77(3): 561-603.

Roll, R. (1986). "The hubris hypothesis of corporate takeovers." *Journal of Business*. 197-216.

Rozeff, M.S. and Zaman, M.A. (1988). "Market efficiency and insider trading: New evidence." *Journal of Business*. 25-44.

Sadka, R. (2006). "Momentum and post-earnings-announcement drift anomalies: The role of liquidity risk." *Journal of Financial Economics*. 80(2): 309-349.

Schulmerich, M., Leporcher, Y.-M. and Eu, C.-H. (2015). Modern portfolio theory and its problems. *Applied Asset and Risk Management* (pp, 101-173), Springer, New York.

Schumaker, R.P. and Chen, H. (2008). "Evaluating a news-aware quantitative trader: The effect of momentum and contrarian stock selection strategies." *Journal of the American Society for Information Science and Technology*. 59(2): 247-255.

Schwert, G.W. (1996). "Markup pricing in mergers and acquisitions." *Journal of Financial Economics*. 41(2): 153-192.

Schwert, G.W. (2003). "Anomalies and market efficiency." *Handbook of the Economics of Finance*. 1: 939-974.

Servaes, H. (1991). "Tobin's Q and the Gains from Takeovers." *The Journal of Finance*. 46(1): 409-419.

Seyhun, H.N. (1986). "Insiders' profits, costs of trading, and market efficiency." *Journal of Financial Economics*. 16(2): 189-212.

Shahbaz, M., Shafiullah, M., Papavassiliou, V.G. and Hammoudeh, S. (2017). "The CO₂-growth nexus revisited: A nonparametric analysis for the G7 economies over nearly two centuries." *Energy Economics*. 65: 183-193.

Shaver, J.M. (2006). "A paradox of synergy: Contagion and capacity effects in mergers and acquisitions." *Academy of Management Review*. 31(4): 962-976.

Shiller, R.J. (1999). "Human behavior and the efficiency of the financial system." *Handbook of Macroeconomics*. 1: 1305-1340.

Shiller, R.J., Fischer, S. and Friedman, B.M. (1984). "Stock prices and social dynamics." *Brookings Papers on Economic Activity*. 1984(2): 457-510.

Shiller, R.J., Kon-Ya, F. and Tsutsui, Y. (1991). "Investor behavior in the October 1987 stock market crash: The case of Japan." *Journal of the Japanese and International Economies*. 5(1): 1-13.

Shim, J. and Okamuro, H. (2011). "Does ownership matter in mergers? A comparative study of the causes and consequences of mergers by family and non-family firms." *Journal of Banking & Finance*. 35(1): 193-203.

Shleifer, A. (2000). *Inefficient markets: An introduction to behavioural finance*, Oxford. Oxford University Press.

Shleifer, A. and Vishny, R.W. (2003). "Stock market driven acquisitions." *Journal of Financial Economics*. 70(3): 295-311.

Siganos, A. (2013). "Google attention and target price run ups." *International Review of Financial Analysis*. 29: 219-226.

Sims, C.A. (1984). "Martingale-like behavior of prices and interest rates."

<https://conservancy.umn.edu/handle/11299/55388>, (28-04-2018)

Sinha, R. (2004). "The role of hostile takeovers in corporate governance." *Applied Financial Economics*. 14(18): 1291-1305.

Smith, G. and Ryoo, H.-J. (2003). "Variance ratio tests of the random walk hypothesis for European emerging stock markets." *The European Journal of Finance*. 9(3): 290-300.

Stein, J.C. (1988). "Takeover threats and managerial myopia." *Journal of Political Economy*. 96(1): 61-80.

Stout, L.A. (1990). "Are Takeover Premiums Really Premiums? Market Price, Fair Value, and Corporate Law." *The Yale Law Journal*. 99(6): 1235-1296.

Stowe, J.D., Robinson, T.R., Pinto, J.E. and Mcleavey, D.W. (2002). *Analysis of Equity Investments: Valuation*, United States, Association for Investment Management and Research (AIMR).

Sudarsanam, S. and Mahate, A.A. (2003). "Glamour acquirers, method of payment and post-acquisition performance: the UK evidence." *Journal of Business Finance & Accounting*. 30(1-2): 299-342.

Sudarsanam, S. and Sorwar, G. (2010). "Determinants of takeover premium in cash offers: An option pricing approach." *Journal of Business Finance & Accounting*. 37(5-6): 687-714.

Summers, L.H. (1986). "Does the stock market rationally reflect fundamental values?" *The Journal of Finance*. 41(3): 591-601.

Tas, O. and Dursunoglu, S. (2005). Testing random walk hypothesis for Istanbul stock exchange. International Trade and Finance Association Conference Papers.

<https://services.bepress.com/cgi/viewcontent.cgi?referer=https://scholar.google.com.tr/&httpsredir=1&article=1035&context=itfa> (20-04-2018)

Tetlock, P.C. (2007). "Giving content to investor sentiment: The role of media in the stock market." *The Journal of Finance*. 62(3): 1139-1168.

Titman, S. and Wessels, R. (1988). "The determinants of capital structure choice." *The Journal of Finance*. 43(1): 1-19.

Tomschik, D. (2015). *The impact of macroeconomic variables on capital structure: A comparison between companies in E7 and G7 countries*. (Unpublished Bachelor Thesis). Netherlands, University of Twente.

Travlos, N.G. (1987). "Corporate takeover bids, methods of payment, and bidding firms' stock returns." *The Journal of Finance*. 42(4): 943-963.

Ulasan, B. (2012). "Openness to international trade and economic growth: a cross-country empirical investigation."

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2087930, (20-04-2018)

Varaiya, N.P. and Ferris, K.R. (1987). "Overpaying in corporate takeovers: The winner's curse." *Financial Analysts Journal*. 64-70.

Verrecchia, R.E. (1980). "The rapidity of price adjustments to information." *Journal of Accounting and Economics*. 2(1): 63-92.

Walsh, J.P. (1989). "Doing a deal: Merger and acquisition negotiations and their impact upon target company top management turnover." *Strategic Management Journal*. 10(4): 307-322.

Wansley, J.W., Lane, W.R. and Yang, H.C. (1987). "Gains to bidder firms in cash and securities transactions." *Financial Review*. 22(4): 403-414.

Warr, R.S., Elliott, W.B., Koëter-Kant, J. and Öztekin, Ö. (2012). "Equity mispricing and leverage adjustment costs." *Journal of Financial and Quantitative Analysis*. 47(3): 589-616.

Weitzel, U. and McCarthy, K.J. (2011). "Theory and evidence on mergers and acquisitions by small and medium enterprises." *International Journal of Entrepreneurship and Innovation Management*. 14(2-3): 248-275.

Weston, J.F., Siu, J.A. and Johnson, B.A. (2001). *Takeovers, restructuring, and corporate governance*, United Kingdom, Prentice Hall.

Worthington, A. and Higgs, H. (2004). "Transmission of equity returns and volatility in Asian developed and emerging markets: a multivariate GARCH analysis." *International Journal of Finance & Economics*. 9(1): 71-80.

APPENDICES

APPENDIX 1: Multinomial Logit Analysis with Year Dummy: Payment Method Model

Multinomial model for $(\text{Pay_m} = \alpha + \beta_1 \text{mispr_a} + \beta_2 \text{size_a} + \beta_3 \text{size_t} + \beta_4 \text{prt_acq} + \beta_5 \text{lv_a} + \beta_{xy} + \varepsilon)$ where payment method (pay_m) have three values 1 for cash, 2 for stock and 3 for the combination of cash and stock. Here 1. payment method as cash is the base value and model calculates values for 2 and 3. Independent variables are mispricing of acquirer (mispr_a) stock price/book ratio, size of acquirer (size_a) log of total assets of the acquirer, size of target (size_t) log of total assets of the target, percentage of acquisition in recent transaction (prt_acq), and financial leverage of acquirer (lv_a) long-term debt/equity ratio. 16 year dummy variables included in the model (y). sample period is 2001 the the to 2017

Variables	1. for payment method total stock				2. for payment method stock and cash			
	Coef.	Std.Err.	z	P>z	Coef.	Std.Err.	z	P>z
y1	0.076	0.375	0.200	0.838	-0.669	0.492	-1.360	0.174
y2	-0.418	0.359	-1.170	0.244	-1.346	0.523	-2.570	0.010
y3	-0.068	0.334	-0.200	0.839	-1.860	0.594	-3.130	0.002
y4	-0.184	0.318	-0.580	0.564	-0.699	0.387	-1.810	0.071
y5	0.037	0.300	0.120	0.901	-0.602	0.367	-1.640	0.102
y6	-0.392	0.306	-1.280	0.200	-1.449	0.409	-3.540	0.000
y7	-0.683	0.311	-2.200	0.028	-0.709	0.356	-1.990	0.046
y8	-0.549	0.323	-1.700	0.088	-0.519	0.371	-1.400	0.162
y9	0.768	0.295	2.610	0.009	-0.377	0.381	-0.990	0.323
y10	0.797	0.296	2.690	0.007	0.259	0.357	0.730	0.468
y11	0.521	0.310	1.680	0.093	0.240	0.372	0.650	0.519
y12	-0.361	0.328	-1.100	0.271	-0.486	0.377	-1.290	0.197
y13	-0.425	0.361	-1.180	0.239	-0.099	0.387	-0.260	0.798
y14	0.043	0.324	0.130	0.894	-0.251	0.374	-0.670	0.502
y15	-0.010	0.328	-0.030	0.975	-0.204	0.372	-0.550	0.583
y16	-0.228	0.339	-0.670	0.502	-0.900	0.418	-2.150	0.031
mispr_a	0.367	0.034	10.820	0.000	0.243	0.048	5.060	0.000
Prtg_acq	1.331	0.123	10.850	0.000	3.115	0.237	13.140	0.000
size_a	-0.693	0.062	-11.230	0.000	-0.730	0.088	-8.270	0.000
size_t	0.404	0.062	6.530	0.000	0.789	0.090	8.760	0.000
lv_g_a	0.193	0.086	2.250	0.025	0.147	0.120	1.230	0.217
_cons	0.018	0.567	0.030	0.974	-4.316	0.791	-5.460	0.000
Number of obs			3679					
LR chi2			865					
Prob > chi2			0.000					
Pseudo R2			0.152					

APPENDIX 2 Multinomial Logit Analysis with Friendly Takeover Dummy: Payment Method Model

Multinomial model for $\text{Pay_m} = \alpha + \beta_1 \text{mispr_a} + \beta_2 \text{size_a} + \beta_3 \text{size_t} + \beta_4 \text{prtg_acq} + \beta_5 \text{lv_a} + \beta_6 \text{frnd} + \varepsilon$ where payment method (pay_m) have three values 1 for cash, 2 for stock and 3 for the combination of cash and stock. Here 1. payment method as cash is the base value and model calculates values for 2 and 3. Independent variables are mispricing of acquirer (mispr_a) stock price/book ratio, size of acquirer (size_a) log of total assets of the acquirer, size of target (size_t) log of total assets of the target, percentage of acquisition in recent transaction (prtg_acq), and financial leverage of acquirer (lv_a) long-term debt/equity ratio, Friendly takeover as dummy (frnd). sample period is 2001 the the to 2017

	Variables	Coef.	Std.Err.	z	P>z
1. for payment method total stock	frnd	0.366	0.189	1.940	0.053
	misp_a	0.343	0.033	10.490	0.000
	prtg_acq	1.183	0.123	9.600	0.000
	size_a	-0.667	0.060	-11.080	0.000
	size_t	0.388	0.061	6.370	0.000
	lv_g_a	0.232	0.084	2.770	0.006
	_cons	-0.319	0.522	-0.610	0.541
2. for payment method stock and cash	frnd	0.252	0.338	0.740	0.457
	misp_a	0.238	0.046	5.120	0.000
	prtg_acq	3.021	0.244	12.390	0.000
	size_a	-0.672	0.087	-7.770	0.000
	size_t	0.763	0.089	8.570	0.000
	lv_g_a	0.178	0.118	1.510	0.130
	_cons	-5.300	0.778	-6.810	0.000
	Number of obs			3678	
	LR chi2			715	
	Prob > chi2			0.000	
	Pseudo R2			0.125	

APPENDIX 3: Multiple Regression Analysis with Year Dummy: Post-merger Returns Model)

It is a multiple regression model ($\text{return_a} = \alpha + \beta_1 \text{mispr}_a + \beta_2 \text{mispr}_t + \beta_3 \text{size}_a + \beta_4 \text{size}_t + \beta_5 \text{prtg_acq} + \beta_x y_x + \varepsilon$) where post-merger returns of acquirer (return_a) as dependent variable, percentage of acquisition in recent transaction (prtg_acq), mispricing of acquirer (mispr_a) market price/book ratio of the acquirer, mispricing of target (mispr_t) market price/book ratio of the target, size of acquirer (size_a) log of assets of the acquirer, size of target (size_t) log of assets of the target, 16 year dummy variables included in the model (y). sample period is 2001 to 2016.

Variables	coeff.	st.Err.	t	sig.
y1	0.097	0.049	1.980	0.048
y3	-0.031	0.039	-0.800	0.422
y4	-0.041	0.037	-1.110	0.267
y5	-0.021	0.037	-0.580	0.561
y6	-0.060	0.036	-1.670	0.095
y7	0.000	0.036	-0.010	0.989
y8	0.024	0.037	0.660	0.509
y9	0.047	0.037	1.280	0.200
y10	0.054	0.037	1.460	0.144
y11	0.057	0.037	1.510	0.131
y12	0.039	0.037	1.070	0.285
y13	0.060	0.038	1.590	0.112
y14	0.023	0.037	0.640	0.524
y15	0.007	0.037	0.190	0.850
y16	0.044	0.037	1.180	0.240
y17	-0.028	0.040	-0.700	0.483
Mispr_a	0.020	0.004	4.830	0.000
Mispr_t	-0.008	0.004	-1.770	0.077
Size_a	0.047	0.006	7.670	0.000
size_t	-0.055	0.007	-7.760	0.000
Prtg_acq	0.237	0.013	18.250	0.000
_cons	0.076	0.058	1.300	0.193
F	77.530			
Sig.	0.000			
Adj R ²	0.142			
Obs.	2853			
Durbin-Watson	1.830			

APPENDIX 4: Multiple Regression Analysis with Friendly Takeover Dummy: Post-Merger Returns Model

It is a multiple regression model ($\text{return}_a = \alpha + \beta_1 \text{mispr}_a + \beta_2 \text{mispr}_t + \beta_3 \text{size}_a + \beta_4 \text{size}_t + \beta_5 \text{prtg}_{acq} + \beta_6 \text{frnd} + \varepsilon$) where post-merger returns of acquirer (return_a) as dependent variable, percentage of acquisition in recent transaction (prtg_{acq}), mispricing of acquirer (mispr_a) market price/book ratio of the acquirer, mispricing of target (mispr_t) market price/book ratio of the target, size of acquirer (size_a) log of assets of the acquirer, size of target (size_t) log of assets of the target, Friendly takeover as dummy (frnd). sample period is 2001 to 2016.

Variables	coeff.	St.Err.	t	sig.
(Constant)	0.090	0.053	1.693	0.091
Mispr_a	0.017	0.004	4.141	0.000
Mispr_t	-0.012	0.004	-2.702	0.007
Size_a	0.047	0.006	7.662	0.000
size_t	-0.056	0.007	-7.815	0.000
Prtg_acq	0.225	0.014	16.449	0.000
frnd	0.025	0.020	1.243	0.214
F	57.501			
Sig.	0.000			
Adj R ²	0.122			
Obs.	2853			
Durbin-Watson	1.879			

APPENDIX 5: Multiple Regression Analysis with Year Dummy: Preannouncement Premium Model

Regression model $pmm = \alpha + \beta_1 \text{mispr}_a + \beta_2 \text{mispr}_t + \beta_3 \text{size}_a + \beta_4 \text{size}_t + \beta_5 \text{prtg}_{acq} + \beta_x y_x + \epsilon$ where preannouncement premium of the target's stock (Pmm) as dependent variable, percentage of acquisition in recent transaction (prtg_acq), mispricing of acquirer (mispr_a) market price/book ratio of the acquirer, mispricing of target (mispr_t) market price/book ratio of the target, size of acquirer (size_a) log of total assets of the acquirer, size of target (size_t) log of total assets of the target, 16 year dummy variables included in the model (y). The sample period is 2001 to 2017.

Variables	coff.	St.Err.	t	sig.
mispr_a	-0.022	0.002	-11.180	0.000
mispr_t	-0.002	0.002	-1.060	0.291
size_a	-0.003	0.003	-1.210	0.228
size_t	0.001	0.003	0.200	0.841
prtg_acq	0.006	0.006	0.900	0.367
y1	0.041	0.021	1.930	0.054
y3	0.066	0.017	3.860	0.000
y4	-0.024	0.016	-1.470	0.141
y5	0.025	0.016	1.570	0.116
y6	-0.004	0.016	-0.290	0.774
y7	-0.040	0.015	-2.610	0.009
y8	-0.024	0.016	-1.540	0.125
y9	0.062	0.016	3.860	0.000
y10	-0.011	0.016	-0.680	0.496
y11	-0.062	0.017	-3.760	0.000
y12	0.017	0.016	1.060	0.291
y13	0.017	0.017	0.980	0.326
y14	-0.025	0.017	-1.480	0.138
y15	-0.017	0.017	-0.980	0.325
y16	0.016	0.016	1.000	0.318
_cons	0.062	0.026	2.400	0.017
F	19.48			
Sig.	0.000			
Adj R ²	0.083			
Obs.	4352			

APPENDIX 6: Multiple Regression with Friendly Takeover Dummy: for Preannouncement Premium Model

Regression model $pmm = \alpha + \beta_1 \text{mispr_a} + \beta_2 \text{mispr_t} + \beta_3 \text{size_a} + \beta_4 \text{size_t} + \beta_5 \text{prt_g_acq} + \beta_6 \text{frnd} + \varepsilon$ preannouncement premium of the target's stock (Pmm) as dependent variable, percentage of acquisition in recent transaction (prt_g_acq), mispricing of acquirer (mispr_a) market price/book ratio of the acquirer, mispricing of target (mispr_t) market price/book ratio of the target, size of acquirer (size_a) log of total assets of the acquirer, size of target (size_t) log of total assets of the target, Friendly takeover as dummy (frnd). The sample period is 2001 to 2017.

Variables	coff.	St.Err.	t	sig.
(Constant)	0.038	0.022	1.766	0.078
frnd	0.002	0.002	1.217	0.224
mispr_a	-0.022	0.002	-11.213	0.000
mispr_t	-0.002	0.002	-0.689	0.491
size_a	0.000	0.003	-0.053	0.958
size_t	0.013	0.006	2.293	0.022
prt_g_acq	-0.007	0.008	-0.934	0.350
F	22.610			
Sig.	0.000			
Adj R ²	0.033			
Obs.	4352			
Durbin-Watson	1.836			