Corporate Governance and the Linkage
ความสัมพันธ์ของผลการสำรวจการกำกับดูแลกิจการและการตอบสนองของนักลงทุน

Jannipa Ruangviset
จันทร์นิภา เรืองวิเศษ

School of Business Administration, National Institute of Development Administration (NIDA)
คณะบริหารธุรกิจ สถาบันบัณฑิตพัฒนบริหารศาสตร์
E-mail: jannipa@yahoo.com

Abstract

Thai corporate governance (CG) practices have been reformed and heralded by the market regulators; the Office of the Securities and Exchange Commission (SEC) and the Stock Exchange of Thailand (SET), from time to time since 2001. CG scorings of voluntary listed companies are announced once a year around the fourth quarter. This study examines the linkage of CG scoring and market reactions. In addition, this research aims to find out whether the market players in the SET recognize the value of getting a CG scoring of the listed firm. The objects of this research are firstly to examine whether market players react to CG scoring announcement and secondly to investigate whether in Thai capital market abnormal returns can result from CG scoring announcement. To answer the said questions, this paper conducts event study employing 3 methodology models; mean-adjusted returns, market-adjusted returns and market-model-adjusted returns, to test the effect on stock price as a result of addition (deletion) to the CG scoring during the period of 2009 to 2013. This study finds that the market players value the CG scoring, resulting that the abnormal returns are detected for both additions and deletions. For the additions, the market price shows significant positive average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) in the first announcement day. For deletion, the market price shows significant negative AAR and CAAR in the first announcement day. However, the effects of both addition and deletion slightly die out the next 2 days after announcement (after day+1). This study, also, find that among 3 methodology models; mean-adjusted returns, market-adjusted returns, and market-model-adjusted returns, the market-adjusted returns methodology is more powerful to detect the statistical significance abnormal returns than others.

Keywords: Corporate Governance, Event Study, Corporate Governance Scoring, Abnormal Return
Paper type: Research

บทคัดย่อ

เกณฑ์ปฏิบัติเรื่องการกำกับดูแลกิจการที่ดีของประเทศไทยได้มีการพัฒนาและปรับปรุงตั้งแต่ พ.ศ. 2544 เป็นต้นมาจนถึงปัจจุบัน โดยสำนักงานคณะกรรมการกำกับหลักทรัพย์และตลาดหลักทรัพย์ และตลาดหลักทรัพย์แห่งประเทศไทย โดยในไตรมาสที่ 4 ของทุกปีจะมีการประกาศระดับคะแนนการกำกับดูแลกิจการของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทยที่เข้าร่วมโครงการ การศึกษานี้จัดทำขึ้นเพื่อศึกษาถึงความสัมพันธ์ของการกำกับดูแลกิจการและการตอบรับของนักลงทุนในตลาดหลักทรัพย์ ระหว่างปี 2552 ถึงปี 2556 ทั้งนี้ วัตถุประสงค์ของการศึกษานี้เพื่อศึกษา (1) นักลงทุนมีการตอบสนองต่อผลการประกาศผลสำรวจการกำกับดูแลกิจการ (2) การประกาศผลสำรวจการกำกับดูแลกิจการมีผลให้เกิดผลตอบแทนส่วนเกินหรือไม่ โดยการศึกษานี้ใช้วิธีวิจัยโดยการศึกษาเหตุการณ์ (Event Study) ทั้งนี้วิธีการประมาณค่าอัตราผลตอบแทนส่วนเกิน 3 วิธี ได้แก่ วิธี mean-adjusted returns วิธี market-adjusted returns และวิธี market-model-adjusted returns ได้ถูกนำมาใช้ในการศึกษาผลของราคาหลักทรัพย์ของบริษัทจดทะเบียนที่เพิ่มเข้ามาและที่ถูกตัดออกไปจากการประกาศระดับคะแนนการกำกับดูแลกิจการ ผลการศึกษาพบว่า นักลงทุนในตลาดหลักทรัพย์แห่งประเทศไทยตระหนักและให้ความสำคัญกับการประกาศระดับคะแนนการกำกับดูแลกิจการซึ่งมีผลให้มีเกิดผลตอบแทนส่วนขึ้น ทั้งนี้พบว่า ค่าผลตอบแทนส่วนเกินของบริษัทจดทะเบียนที่ได้รับการเพิ่มเข้ามาในประกาศระดับคะแนนการกำกับดูแลกิจการมีผลเป็นบวกอย่างมีนัยสำคัญในวันแรกหลังวัน

ประกาศผล และพบว่า ค่าผลตอบแทนส่วนเกินของบริษัทจดทะเบียนที่ถูกตัดออกไปมีผลเป็นลบอย่างมีนัยสำคัญในวันประกาศผลและวันแรกหลังวันประกาศผล อย่างไรก็ดีค่าผลตอบแทนส่วนเกินทั้งกรณีบริษัทจดทะเบียนที่เพิ่มเข้ามาและที่ถูกตัดออกไปจะค่อยๆ หายไปตั้งแต่วันที่สองภายหลังการประกาศผล นอกจากนี้การศึกษานี้พบว่า การประมาณค่าผลตอบแทนส่วนเกิน 3 วิธี ได้แก่ วิธี mean-adjusted returns วิธี market-adjusted returns และวิธี market-model-adjusted returns นั้น วิธี market-adjusted returns เป็นวิธีที่สามารถตรวจสอบค่าผลตอบแทนส่วนเกินที่มีนัยยะสำคัญทางสถิติได้ดีกว่าวิธีอื่น

คำสำคัญ: การกำกับดูแลกิจการ การศึกษาเหตุการณ์ ผลสำรวจการกำกับดูแลกิจการ ผลตอบแทนส่วนเกิน

1. Introduction

Corporate governance (CG) comes to the public concern since the corruptions of Asian Financial Crisis and the bankruptcy of the US former corporate such as Adelphia, Enron, Parmalat, Tyco, and WorldCom. Sawicki (2009) stated that poor corporate governance is often referenced as a major cause of the breakdown of several East Asian economies. The lack of proper disclosure and auditing exacerbated minority shareholders' exposure to abuses by controlling families and/or governments. Like other Asian countries, weak corporate governance practices leads to financial turmoil in Thailand. Regarding to Piman Limpaphayom and Connelly (2004), Thailand faced corporate governance problems at two levels. First, poor governance practices at firms created many difficulties including overinvestment and over-borrowing. Much of the excess borrowing went into projects of dubious benefit as well as unneeded and ill-advised diversification efforts. Second, Thai companies typically relied on bank financing rather than capital market financing to secure funds for growth. This leads to lack of monitoring from equity markets.

CG, therefore, is rapidly come to public interests as the instrument to lessen financial turmoil problems. Practically, the basic tenets of CG are accountability, responsibility, equitable treatment, transparency, vision, and ethics. However, before the crisis many Thai firms were incomplete applied the mentioned basic tenets of CG comparing to international standards (for example, the OECD guidelines) and expectations. By this reason, reforming of CG regulatory in Thailand is majority awareness of Thai government and the Office of the Securities and Exchange Commission (SEC) after the crisis. In addition, until now CG practices in Thai capital market are reformed and heralded from time to time by the market regulators; the SEC and the SET. The Thai Institute of Directors Association (IOD) in collaboration with the Stock Exchange of Thailand (SET) and the Office of the Securities and Exchange Commission (SEC, Thailand) had continuously assessed corporate governance practices of listed companies since 2001. During the month of October to December, the overall survey results are annually announced and published in the reports entitled "Corporate Governance Report of Thai Listed Companies (CGR)" and publicized to all listed companies and related parties in the capital market. Regarding to the CGR, it is stated that the CGR studies have significantly contributed to the improvement of good corporate governance paradigm in Thailand. SEC encourages the inclusion of CGR recognition in the company securities analysis, thus facilitating investors to incorporate CG assessment into an investment decision in the listed companies. However, there is lack of report evidence of whether the market players in the Stock Exchange of Thailand recognize the value of getting a CG scoring. Therefore, an event study of market reaction for CG scoring is taking in to account on this research.

This study, furthermore, proceeds as follows. The next section explains objective of this study. Section 3 presents summaries of literature reviews. Section 4 describes data, methodology, and hypotheses. Section 5 presents empirical results. Section 6 concludes the paper finding.

2. Objectives

To fill up the limited study of market reaction on CG scoring, the objects of this research are firstly to examine whether market players react to CG scoring announcement. If, so, to observe whether the reaction is immediately or slowly, and secondly to investigate whether abnormal returns can result from CG scoring announcement in Thai capital market. If, so, to observe whether the price response is temporary (Price-Pressure Hypothesis: PPH) or permanent (Downward-Sloping Demand Curve Hypothesis: DSDC) change.

3. Literature reviews

As mentioned on previous section, the studies providing evidence of CG announcement and market reaction is limited, especially in Thai stock market. This paper provides event study evidence on whether announcement of CG rating affects

firms' market value in Thai capital market. The directly related literature is limited. Only one research of CG and market reactions in Thai stock market has been found; Kouwenberg and Visit Phunnarungsi (2013). They conduct a study base on a short-window event study ((day -1, 0, +1 separately) and (3-day event window; days -1, 0, +1 combined)) and market model method in order to investigate the relation between firm-level CG and the market reaction to announcements of violations of rules and regulations by Thai listed firms. They find that the market reacts negatively to violation announcements: the average abnormal return market reaction is -2.2% during the 3-day event window around the announcement (days -1, 0, +1). The market reaction is especially negative when firms commit violations classified as severe: -4.1%. Their result could be implied that violation announcements are bad news for investors. However, they find no significant difference between the abnormal returns of firms with high and low CG scores: the average abnormal return is -1.1% for high CG firms and -2.7% for low CG firms, but the difference is not significant. Nevertheless, they find a significant difference in market reaction between firms with low and high past violation records. The average abnormal return is -4.4% for good firms (low past violations), while for bad firms the market reaction is -1.3%.

Some of worldwide event study of CG announcement and market reaction are summarized as follows.

Gawer (2009) studies the market reaction to changes in CG scores with sampling of 200 companies in the European index Dow Jones Stoxx Large during the period 1999 – 2008. He concludes that there is a robust underperformance for the firms with downward revisions in CG scores. He, in addition, shows 4 main findings in his study. First, the absence of post-event long-term over-performance is only robust for the upward revised companies in CG scores. Second, the robustness of long-term underperform is confirmed for the downward revised companies in CG scores. Third, Upward revisions are followed by the uncertainty margin's (relative to the benchmark) stabilization. Forth, downward revisions are followed by the uncertainty margin's (relative to the benchmark) reduction.

Teker and Yuksel (2014) conduct event study to examine the stock price reaction of Turkish firms listed in Borsa Istanbul for the announcement of CG scores in the period of 2007 – 2013. They focus on short event window of the daily stock of 6 sampling firms (YapiKredi Bank, Sekerbank, BankAsya, TSKB, AlbarakaTurk and Is Fin.Kir) and BIST100 index for 1-day and cumulative 3-day and 10-day periods. They report that only 4 firms (Finansal Kiralama, Albaraka, TSKB and BankAsya) show a positive response for the announcement of CG scores on the 1-day while others 2 stocks (YapiKredi Bank and Sekerbank) show a negative response. When the differences on return in between stock returns and BIST100 is taking into account, only Yapikredi, BankAsya and Is Finansal Kiralama performed better and TSKB and Albaraka performed worse than the market. Moreover, when taking into account the overall difference on average return in between stock return and market return, there is excess return of 0.113% for 1-day period for the advantage of firms. However, this positive stock price reaction looks overtaken by the market considering the cumulative 3-day and 10-day periods. The BIST100 index over a 3-day period and 10-day period provides a 0.584% and a 0.979% consequently better return than the underlying stocks of firms.

4. Data, Methodology, and Hypothesis

4.1 Data

4.1.1 Scope of The Study

This study aims to find the abnormal returns of the stocks due to the CG scoring announcement effect. To investigate the effects on Thai capital, this research uses the timeframe between 2009 and 2013. In addition, this paper interests in only the firm being added and deleted from the CG scoring lists.

This paper has screened out data from other news in order to capture only the effects of CG scoring announcement change news. By this way, the stocks that had event-driven changes are eliminated. Event-driven changes are from new issues, mergers, acquisitions, bankruptcies, and other similar corporate events. Such event-driven changes are not within the scope of this study.

In this research, data was cleaned many times until they become a "clean sample". In other words, a sample in which no significant news makes a stock's daily return move more than ±5%. Note that every stock usually has daily or weekly news, but not all news affects the stock price significantly.

Before going to the "clean sample", 2 criteria are set to screen out the impact from irrelevant news.

Criteria 1: Eliminate samples that have company's name change, data missing or non-liquidity, dividend payout announcements, on merger and acquisition processes, on tender offer processes or on business restructuring processes.

Criteria 2: Eliminate samples that have raw daily return movements of more than ±5% (subjective) due to events such as news that directly benefit (harm) the industry, business expansion plan announcements, and other news that show the company's benefits (disadvantages).

In summary, the final samples chosen for this study satisfy the following criteria:

1) Free from news of major events including mergers, acquisitions, bankruptcies, and business restructuring news.

2) Free from other news that highly dominate stock price movement.

There is also the limitation of the cleaning process, which is there may exist news that are inside information or non-public in the News Center. Consequently, this might lead to contaminated samples and deviated results. However, average abnormal returns are measured for the whole period. Hence, the effects from some contaminated samples could be minimized when they are included in the overall sample.

4.1.2 Source of Data

Daily SET, SET Indices, and daily stock closing prices can be obtained from Bloomberg. All prices have been adjusted for dividends and stock splits. CG ratings of listed stocks announcements every year are available on the IOD website.

4.2 Methodology

The methodology of this research paper is called "Event Study". This method divides the test into many event windows around announcement date (AD) and event date (ED) to support hypothesis testing. In addition, the methodology in this paper broadly follows Brown and Warner (1980, 1985) methodology and Thitima Sitthipongpanich (2011)'s the guiding methodology step of event study.

The five main steps to conduct the event study as described on Thitima Sitthipongpanich (2011) are as follows.

Step 1: Identify the event date and select sample firms.

This step is to identify the event of interest and to specify the date of this event. The event date is defined as the announcement date (AD) of the event, or "day 0".

The event of interest of this research is the date that the SEC, the SET, and the IOD jointly announce the listed company CG rating at their annual Public seminar. In addition, the CG rating of the listed firm is effective on the AD. The history CG rating announcement date, during the year 2008 – 2013, represents on the table 1.

Table 1 : The History CG Rating Announcement Date

Year	CG Scoring Announcement Date
2008	November 21, 2008
2009	December 18, 2009
2010	November 24, 2010
2011	December 16, 2011
2012	October 29, 2012
2013	October 17, 2013

Source : Annual Public Seminar jointly held by the SEC, the SET, and the IOD

Step 2: Identify the time line of an event study.

There are 2 sub-period in the event time period; test period (TP) or event window and estimation period (EP). The impact of event stock prices/returns will be examined in the TP on returns. The example of the time line of event study is shown in Figure 1.

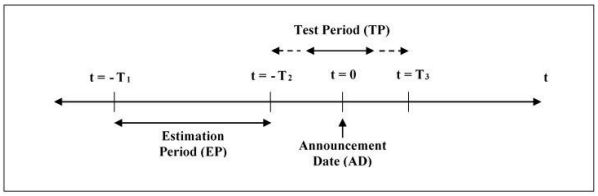


Figure 1: Time Line of an Event Study

To examine how market react to the event, the TP could be either short event window(s) around the event such as a 2-day (-1,0) period or long event window(s) such as a month or a year before or after the event date. Using of short event window is shown on many papers. For example, Lummer and McConnell (1989) researching on "Further Evidence on the Bank Lending Process and the Capital-Market Response to Bank Loan Agreements" and Bruner (1999) studying on "An analysis of value destruction and recovery in the alliance and proposed merger of Volvo and

Renault" conduct their studies by using a 2-day (-1,0) period. The long event window is also used in several papers such as Gregory (1997) applying a 60-month window and Hertzel et al. (2002) running a 36-month window on the study of "An Examination of the Long Run Performance of UK Acquiring Firms" and "Long – Run Performance following Private Placements of Equity" consequently.

The EP, in addition, is reasonably long in order to reflect the expected frequency of data availability. For example, Lummer and McConnell (1989) on the said study above using 150 days, while Small et al. (2007) using 225 days on the study "Size Does Matter: An Examination of the Economic Impact of Sarbanes-Oxley".

Step 3: Estimate the expected return for each sample stock over an estimation period (EP)

The expected return, $E(R_{i,t})$, is used as the benchmark return, which is represented the return that is not related to the event of interest, in the normal situation to compare with the actual return during the event window(s).

Researching several papers, the researchers use several choices of model to estimate expected returns on their studies. The said choices of model are Mean-Adjusted Return, Market-Adjusted Return, Market-Model-Adjusted Return, CAPM-Adjusted Return, Reference Portfolios, Matched Firm Approach and Fama-French Three Factor Model. However, in my finding, the most widely used Mean-Adjusted Return, Market-Adjusted Return, and Market-Model-Adjusted Return

As mentioned, there are many methods to calculate expected return, in my finding, the most widely used Mean-Adjusted Return, Market-Adjusted Returns and Market-Model-Adjusted Return. Therefore, this research paper will use these 3 models to calculated expected returns.

(1) Mean-Adjusted Return

The mean-adjusted return methodology concentrates on the average return over the estimation period. According to Brown and Warner (1985), each stock can use the mean return ($\bar{R}_i$) during the estimation period as its own expected return.

$$E(R_{i,t}) = \bar{R}_i \quad (1)$$

(2) Market-Adjusted Return

The market-adjusted return methodology takes into account market-wide movements which occurred at the same time as that the sampled firms experienced the events.

On market-adjusted return, the expected return ($E(R_{i,t})$) is the market return ($R_{m,t}$) at the same period of time, assuming that all stocks, on average, generate the same rate of return. Therefore, formula of expected return of market-adjusted return is;

$$E(R_{i,t}) = R_{m,t} \quad (2)$$

(3) Market-Model-Adjusted Return

The market-model-adjusted return methodology takes into account both market-wide factors and the systematic risk of each sampled security. This model is used to control the relation between stock returns and market returns, or allows for the variation in risk associated with a selected stock. It was used by many researchers such as Cooper and Woglom (2003), Liu (2004), and Small et al. (2007).

On market-model-adjusted return, the expected return is calculated base on a single factor market model. The ordinary least square (OLS) regression is used to estimate the parameters; $\hat{\alpha}_i$ and $\hat{\beta}_i$, of this model over the estimation period. Therefore, equation of expected return of market-model-adjusted return is;

$$E(R_{i,t}) = \hat{\alpha}_i + \hat{\beta}_i R_{m,t} \quad (3)$$

Step 4: Estimate the abnormal returns

An abnormal return for an individual stock is the difference between the actual return on time (t) in the event window and the expected return of an individual stock. Therefore, equation of the abnormal returns is;

$$AR_{i,t} = R_{i,t} - E(R_{i,t}) \quad (4)$$

To calculate the overall abnormal returns, it can be classified into 2 dimensions; firstly: through time and secondly: across securities.

For through time abnormal return, the sample Average Abnormal Return (AAR) for event day t is used as a measure for the abnormal price movement on that day. It is the average of abnormal returns over firms at date t.

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{i,t} \quad (5)$$

where, N is number of sample firms.

For across securities abnormal return, the stock's cumulative abnormal return over the window is computed by summing the stock's abnormal returns over the window and denoting it CAR.

$$CAR_i(t_1, t_2) = \sum_{j=t_1}^{t_2} AR_{i,j} \quad (6)$$

where, $AR_{i,j}$ is abnormal return on security i in the interval j, while interval j is the range from time t_1 to t_2

Afterwards, cumulative average abnormal returns is calculated and denoting it CAAR across firms. It is a measure of the abnormal performance over the event period.

$$CAAR_i(t_1, t_2) = \frac{1}{N}\sum_{i=1}^{T} CAR_i(t_1, t_2) \quad (7)$$

where, N is number of sample firms.

Step 5: Test the significance of abnormal returns

The statistical significance of abnormal returns test is the cross-sectional dispersion of each metric to estimate its variance. Most event studies use a parametric test of t-statistics including Brown and Warner (1985), Barber and Lyon (1997), Lynch and Mendenhall (1997), and Kouwenberg and Visit Phunnarungsi (2013).

Under the assumption that abnormal returns are cross-sectional independent and identically normally distributed, for AAR_t abnormal return measure, whether or not the AAR_t is different from zero can be test by t-statistic below;

$$t_{AAR} = AAR_t / S_{CS_t} \quad (8)$$

For $CAAR_i$ cumulative average abnormal returns measure, whether or not the $CAAR_i$ is different from zero can be test by t-statistic below;

$$T_{CAAR} = \frac{CAAR_t}{S_{CS}/\sqrt{N}} \approx T_{N-1} \quad (9)$$

where, S_{CS} is given by;

$$S_{CS} = \left[\frac{1}{N}\sum_{i=1}^{N}[AR_i(t) - AAR(t)]^2/(N-1)\right]^{1/2} \quad (10)$$

4.2 Hypothesis

Harris and Gural (1986) indicate that the Efficient Market hypothesis (EMH) predicts that share prices reflect all publicly available information. Thus, purchase or sale of a large number of shares will have no impact on price.

On the other hand, the study of Scholes (1972) argues the study of EMH of Harris and Gural (1986). Scholes (1972) proposed 2 hypotheses; downward-sloping demand curve hypothesis (DSDC) and price-pressure hypothesis (PPH), which predict that a large stock purchase (sale) will cause the price to increase (decrease) even if no new information is associated with the transaction.

Downward-sloping demand curve hypothesis (DSDC) assumes that securities are not close substitutes for each other. Therefore, the long-term demand is less than perfectly elastic. For DSDC, equilibrium prices change when demand curves shift to eliminate excess demand (downward-sloping demand curve). Security price reversals are not expected because the new price reflects the new equilibrium distribution of security holders.

Price-pressure hypothesis (PPH) assumes that investors who accommodate demand shifts must be compensated for the transaction costs and portfolio risks that they bear when they agree to immediately buy or sell securities which they otherwise would not trade. For PPH, the demand shift does not change the equilibrium value of a stock. Therefore, security price will reverse to its equilibrium level after the event and flatten out

Ergin (2012) states that CG rating influences the way market players evaluate firm's stock price. In addition, Klapper and Love (2004) and Durnev and Kim (2005) examine the effect of CG on firm value. Both papers conclude that the adoption of good CG practices helps to increase shareholder value. This study, thus, investigates the effect of CG on firm value indirectly and tests whether market players value CG scoring. To answer this question, this paper focuses on addition (deletion) Thai listed companies of CG scoring. The first hypothesis is that the announcement of addition firms of CG scoring is good news

for market players, a sign of transparency, and thus the market players react positively.

Hypothesis 1: The market players react positively to announcement of addition of CG scoring.

By the contrast, the announcement of deletion firms of CG scoring is bad news for market players, a sign of potential negligence or expropriation, and thus the market players react negatively.

Hypothesis 2: The market players react negatively to announcement of deletion of CG scoring.

Summary of Event Window of This Research

This research uses a short-window event study to investigate market reaction to announcement of CG rating of listed stock. To investigate the result, 2 models will be used to calculate expected returns; Market-Adjusted Returns and Market-Model-Adjusted Return. Moreover, this paper uses the estimation period from 165 days prior to announcement day which is consistent to the previous event studies of Thai stock market. This paper, furthermore, focuses on average abnormal return (AAR) and cumulative average abnormal return (CAAR) for days -1, 0, +1, and 0,1 where day 0 is the announcement date (AD) of the CG rating of listed stock. The timeline of event window of this research is shown on figure 2.

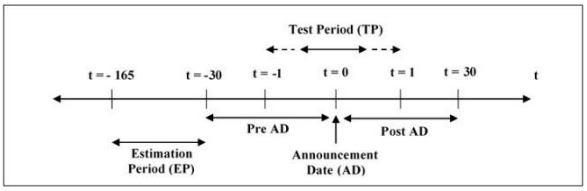


Figure 2: Time Line of Event Study of This Research

For daily abnormal return, a positive (negative) abnormal return for additions (deletions) can be observed on the pre AD in the full anticipation case.

The expectations for addition case in each event window are as follows (The predictions are symmetric for deletion case):

(1) Abnormal return should be *positive* in the Pre Announcement Window (AD-30, AD) and for day -1 if there is an anticipation of the news.

(2) Abnormal return should be *positive* in the Post Announcement Window (AD, AD+30) and for day +1 if there is no anticipation of the news because investors *purchase* stocks after the announcement date. This window can be observed as a strategy to make profit.

To examine the DSDC and PPH hypothesis, this research creates long event window from AD-10 to AD+10 and it is divided into 3 sub-periods in order to test the hypotheses. Moreover, in order to test the early expectation effect the pre AD period is added.

1) Pre announcement window runs from 10 days prior to announcement day (AD-10) to announcement day (AD).

2) Run-up window runs from the announcement day (AD) through the day after the announcement (AD+1)

3) Post AD Permanent window runs from the day after the announcement (AD+1) until the end day 10 (AD+10)

4) Total permanent effect window runs from the announcement day (AD) until the end day 10 (AD+10)

For daily abnormal return, a positive (negative) abnormal return for additions (deletions) can be observed on the pre AD in the full anticipation case. A large positive (negative) abnormal return on announcement day (day 0) and one day after AD is noticeable because market players adjust their portfolio on that day in order to make profit (cut loss).

For the long window, the expectations for addition case in each event window are as follows (The predictions are symmetric for deletion case):

(1) Abnormal return should be positive in the Pre Announcement Window (AD-10, AD) if there is an anticipation of the news.

(2) Abnormal return should be positive in the Run-up Window (AD, AD+1) if there is no anticipation of the news because investors purchase stocks after the announcement date. This window can be observed as a strategy to make profit.

(3) In the post AD permanent window (AD+1, AD+10), abnormal return should be positive if it supports DSDC or should be zero if it supports PPH.

(4) The Total Permanent Window (AD, AD+10) shows the total magnitude of abnormal return from the CG scoring announcement news. It expects that the price reversal is not fully reverse and it remains positive over the total permanent window. Thus, abnormal return should be positive in this window in order to support DSDC.

In summary, the downward-sloping demand curve hypothesis (DSDC) assumes that stock price will move from the pre announcement price level to the new equilibrium level and stay at that level permanently. As a result, the cumulative abnormal return remains positive in the post announcement window. On the other hand, the price-pressure hypothesis (PPH) believes that the stock price will converge back to the pre announcement price level instead of staying at the new equilibrium level. Therefore, the cumulative abnormal return will not be positive in the post announcement window because the price reversal totally offsets the abnormal returns.

5. Empirical Results

Table 2 presents average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) for additions during a period of 30 days before and 30 days after the CG scoring announcement (day 0), while table 3 displays the same results for deletions.

Panel A, panel B and panel C of tables 2 and 3 contains results for the Mean-Adjusted Returns, the Market-Adjusted Returns and the Market Model Adjusted Returns methodologies consequently.

5.1 Daily Abnormal Returns

5.1.1 Daily Abnormal Returns: Addition Sample

According to Tables 2, as expected, the results of addition samples from 3 methods show the different from zero positive AAR and CAAR on the announcement day (day 0) and on the day immediately after CG scoring announcement (day +1).

5.1.1.1 The Mean-Adjusted Returns

For AAR, on event day (day 0) AAR is 0.4348% with an insignificant cross-sectional t-statistic of 0.7274. On day+1, AAR is 2.0159% with a significant cross-sectional t-statistic of 3.3720 (at 1% significant level).

For CAAR, CAAR of both day 0 and day+1 is positive significantly different from zero. Day 0, CAAR is 6.3202% with a significant cross-sectional t-statistic of 66.9274 (at 1% significant level). CAAR on day+1 is 8.3361% with a cross-sectional t-statistic of 31.0907 (at 1% significant level).

5.1.1.2 The Market-Adjusted Returns

For AAR, on event day (day 0) AAR is 0.6586% with an insignificant cross-sectional t-statistic of 0.1156. On day+1, AAR is 1.9829% with a significant cross-sectional t-statistic of 4.7677 (at 1% significant level).

For CAAR, CAAR of both day 0 and day+1 is positive significantly different from zero. Day 0, CAAR is 2.4129% with a significant cross-sectional t-statistic of 24.6942 (at 1% significant level). CAAR on day+1 is 4.3958% with a cross-sectional t-statistic of 15.1341 (at 1% significant level).

5.1.1.3 Market-Model-Adjusted Returns

For AAR, on event day (day 0) AAR is 0.5079% with an insignificant cross-sectional t-statistic of 1.6219. On day+1, AAR is 1.7695% with a significant cross-sectional t-statistic of 5.6510 (at 1% significant level).

For CAAR, CAAR of both day 0 and day+1 is positive significantly different from zero. Day 0, CAAR is 1.4309% with a significant cross-sectional t-statistic of 14.8398 (at 1% significant level). CAAR on day+1 is 3.2004% with a cross-sectional t-statistic of 11.5881 (at 1% significant level).

Regarding to the finding of AAR and CAAR of 3 methods, all methods yield the same results. Only AARs on day+1 are significantly positive, while AARs on day 0 are positive but insignificantly different from zero. Moreover, CAARs of 3 methods give the same results, which are all are significantly positive different from zero. However, when taking in to account of the AAR, the findings show that after day+1 the price level converge back to the pre announcement price level instead of staying at the new equilibrium. Also, after day+1 the CAAR price level is reversal to nearly the same as on pre announcement price level. These results support the price-pressure hypothesis (PPH).

For the addition, the excess returns are not immediately reacted to the CG scoring news on event day (day 0). The abnormal returns on day+1 are significant positive reacted to the news. However, the abnormal returns are slightly died out after day+1. The findings of the additions indicate that the degree of market reaction to the good news is slightly strong but not rapid.

Table 2: Average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) for additions during a period of 30 days before and 30 days after the CG scoring announcement (day 0)

Panel A: Mean-Adjusted Returns

Day	N	AAR	t-test	CAAR	t-test
-30	140	0.6024%	1.0077	0.6024%	2.5484**
-29	140	0.2843%	0.4755	0.8867%	5.9470***
-28	140	0.6688%	1.1187	1.5555%	6.8659***
-27	140	0.5678%	0.9498	2.1233%	8.7631***
-26	140	0.3545%	0.5930	2.4778%	8.0980***
-25	140	0.1556%	0.2603	2.6334%	13.3836***
-24	140	0.5845%	0.9777	3.2178%	12.9644***
-23	140	0.3950%	0.6608	3.6129%	17.6686***
-22	140	0.6895%	1.1533	4.3024%	11.2607***
-21	140	0.7975%	1.3340	5.0999%	20.0616***
-20	140	0.7891%	1.3200	5.8890%	23.5096***
-19	140	0.8532%	1.4272	6.7423%	26.8678***
-18	140	-0.7609%	-1.2727	5.9814%	19.4105***
-17	140	-0.4100%	-0.6857	5.5714%	17.0280***
-16	140	0.5500%	0.9200	6.1214%	27.2033***
-15	140	-0.0322%	-0.0538	6.0892%	30.1754***
-14	140	-0.2485%	-0.4156	5.8408%	27.8594***
-13	140	-1.0024%	-1.6767*	4.8384%	29.3507***
-12	140	0.7697%	1.2875	5.6081%	20.8132***
-11	140	0.4242%	0.7096	6.0324%	28.9012***
-10	140	-0.0163%	-0.0272	6.0161%	20.1904***
-9	140	0.3406%	0.5697	6.3567%	30.7498***
-8	140	0.0921%	0.1541	6.4488%	26.1113***
-7	140	0.2591%	0.4335	6.7080%	25.2857***
-6	140	-0.4250%	-0.7109	6.2830%	24.7934***
-5	140	-0.0071%	-0.0119	6.2758%	29.1195***
-4	140	0.5712%	0.9555	6.8471%	31.9937***
-3	140	0.1085%	0.1814	6.9555%	30.3736***
-2	140	-0.3506%	-0.5864	6.6050%	27.2962***
-1	140	-0.7196%	-1.2036	5.8854%	26.3558***
0	140	0.4348%	0.7274	6.3202%	66.9274***
1	140	2.0159%	3.3720***	8.3361%	31.0907***
2	140	-1.1531%	-1.9287*	7.1831%	29.8319***
3	140	-0.4760%	-0.7962	6.7071%	37.9431***
4	140	0.3877%	0.6485	7.0948%	44.9343***
5	140	0.2820%	0.4716	7.3768%	36.4367***
6	140	-0.1912%	-0.3198	7.1855%	39.4175***
7	140	0.2239%	0.3745	7.4094%	33.9243***
8	140	-0.2807%	-0.4695	7.1288%	41.9601***
9	140	-0.3786%	-0.6333	6.7501%	30.4322***
10	140	-0.1402%	-0.2345	6.6099%	35.6227***
11	140	-0.4736%	-0.7922	6.1364%	18.2946***
12	140	0.2623%	0.4387	6.3986%	25.6491***
13	140	-0.2707%	-0.4528	6.1279%	30.8928***
14	140	0.6358%	1.0634	6.7636%	23.3372***
15	140	0.1582%	0.2646	6.9219%	30.4551***
16	140	-0.9744%	-1.6299	5.9475%	32.0465***
17	140	0.4108%	0.6871	6.3583%	27.7165***
18	140	-0.1964%	-0.3286	6.1618%	34.0582***
19	140	-0.2097%	-0.3508	5.9521%	38.1358***
20	140	0.6654%	1.1131	6.6175%	27.9879***
21	140	-0.0654%	-0.1094	6.5522%	29.6447***
22	140	0.3172%	0.5305	6.8693%	38.9383***
23	140	0.0984%	0.1646	6.9677%	51.8601***
24	140	-0.2809%	-0.4699	6.6868%	30.9879***
25	140	-0.0225%	-0.0377	6.6642%	45.9728***
26	140	0.0817%	0.1366	6.7459%	29.9811***
27	140	0.5266%	0.8809	7.2725%	33.4456***
28	140	0.1442%	0.2412	7.4167%	39.4155***
29	140	-0.3831%	-0.6407	7.0337%	29.3736***
30	140	0.0705%	0.1179	7.1041%	45.8669***

N is number of firm.

*** , ** , * denote statistically significant at 1% level, 5% level and 10% level consequently.

Panel B: Market-Adjusted Returns

Day	N	AAR	t-test	CAAR	t-test
-30	140	-0.0269%	-0.0646	-0.0269%	-0.1146
-29	140	-0.3699%	-0.8893	-0.3968%	-2.3567**
-28	140	-0.2086%	-0.5016	-0.6054%	-2.6031**
-27	140	-0.0227%	-0.0546	-0.6281%	-2.6715**
-26	140	0.5762%	1.3854	-0.0519%	-0.1717
-25	140	0.0070%	0.0169	-0.0449%	-0.2173
-24	140	0.7202%	1.7315	0.6753%	2.6973***
-23	140	-0.0547%	-0.1314	0.6206%	3.2331***
-22	140	0.1815%	0.4365	0.8021%	2.0992**
-21	140	0.5211%	1.2528	1.3232%	5.2276***
-20	140	0.3722%	0.8950	1.6955%	6.3368***
-19	140	0.9719%	2.3368	2.6674%	10.5445***
-18	140	0.2354%	0.5659	2.9027%	9.4475***
-17	140	-0.4642%	-1.1162	2.4385%	7.5815***
-16	140	0.0756%	0.1819	2.5141%	11.1724***
-15	140	-0.3975%	-0.9557	2.1167%	10.0876***
-14	140	-0.5875%	-1.4127	1.5291%	6.2684***
-13	140	-0.3455%	-0.8308	1.1836%	6.3882***
-12	140	-0.2363%	-0.5682	0.9473%	3.5085***
-11	140	0.3101%	0.7457	1.2574%	5.7312***
-10	140	0.0941%	0.2263	1.3516%	4.5831***
-9	140	0.6425%	1.5448	1.9941%	8.6863***
-8	140	0.4934%	1.1862	2.4874%	9.9948***
-7	140	-0.5888%	-1.4157	1.8986%	7.0325***
-6	140	0.0488%	0.1174	1.9474%	8.7115***
-5	140	0.5242%	1.2604	2.4716%	11.4975***
-4	140	-0.1959%	-0.4711	2.2757%	11.4531***
-3	140	0.2131%	0.5124	2.4888%	10.6790***
-2	140	-0.8280%	-1.9908**	1.6608%	6.9903***
-1	140	0.0935%	0.2248	1.7543%	8.0542***
0	140	0.6586%	1.5835	2.4129%	24.6942***
1	140	1.9829%	4.7677***	4.3958%	15.1341***
2	140	-0.4005%	-0.9630	3.9953%	17.3596***
3	140	-1.4280%	-3.4335***	2.5673%	13.5252***
4	140	0.2963%	0.7124	2.8635%	18.0326***
5	140	0.0312%	0.0749	2.8947%	14.2999***
6	140	-0.2819%	-0.6778	2.6128%	13.9097***
7	140	0.0415%	0.0999	2.6543%	12.0670***
8	140	0.2317%	0.5572	2.8861%	17.1824***
9	140	0.2295%	0.5518	3.1156%	12.7716***
10	140	-0.2165%	-0.5205	2.8991%	14.7782***
11	140	-0.1149%	-0.2763	2.7842%	8.3950***
12	140	-0.0624%	-0.1500	2.7218%	11.3822***
13	140	-0.3337%	-0.8024	2.3881%	12.3218***
14	140	0.6406%	1.5402	3.0286%	10.4830***
15	140	0.4908%	1.1800	3.5194%	16.9232***
16	140	-0.1031%	-0.2479	3.4163%	19.6417***
17	140	-0.0219%	-0.0526	3.3944%	14.8152***
18	140	0.0090%	0.0218	3.4034%	19.3200***
19	140	-0.1245%	-0.2993	3.2790%	21.3986***
20	140	0.2224%	0.5347	3.5013%	15.0642***
21	140	0.0908%	0.2184	3.5922%	15.3633***
22	140	0.2124%	0.5108	3.8046%	23.0913***
23	140	0.0725%	0.1743	3.8771%	27.6863***
24	140	-0.0185%	-0.0445	3.8586%	20.0818***
25	140	-0.0586%	-0.1408	3.8000%	27.5564***
26	140	0.0221%	0.0532	3.8222%	16.7821***
27	140	-0.0164%	-0.0394	3.8058%	17.1549***
28	140	0.3589%	0.8629	4.1646%	24.5027***
29	140	0.6072%	1.4600	4.7719%	20.5239***
30	140	0.0766%	0.1842	4.8485%	34.1790***

N is number of firm.

*** , ** , * denote statistically significant at 1% level, 5% level and 10% level consequently.

Table 2 (Continued)

Panel C: Market-Model-Adjusted Returns

Day	N	AAR	t-test	CAAR	t-test
-30	140	0.0953%	0.3043	0.0953%	0.4139
-29	140	-0.0595%	-0.1901	0.0358%	0.2229
-28	140	-0.0940%	-0.3002	-0.0582%	-0.2663
-27	140	0.1349%	0.4307	0.0766%	0.3261
-26	140	0.2106%	0.6725	0.2872%	0.9779
-25	140	0.0818%	0.2611	0.3690%	1.8023*
-24	140	0.4912%	1.5687	0.8602%	3.4556***
-23	140	-0.0095%	-0.0304	0.8507%	4.6199***
-22	140	0.1905%	0.6085	1.0412%	2.7226***
-21	140	0.5737%	1.8320	1.6149%	6.3508***
-20	140	0.1694%	0.5411	1.7843%	7.1599***
-19	140	0.9279%	2.9634	2.7122%	10.7201***
-18	140	-0.0133%	-0.0424	2.6990%	8.8820***
-17	140	-0.1763%	-0.5631	2.5227%	8.0837***
-16	140	0.0130%	0.0414	2.5356%	11.1445***
-15	140	-0.1633%	-0.5214	2.3723%	11.4970***
-14	140	-0.3629%	-1.1589	2.0095%	8.8837***
-13	140	-0.3866%	-1.2345	1.6229%	9.4518***
-12	140	-0.0008%	-0.0026	1.6221%	6.0394***
-11	140	0.3332%	1.0640	1.9553%	9.3693***
-10	140	-0.1433%	-0.4575	1.8120%	6.1338***
-9	140	0.3570%	1.1403	2.1691%	10.4815***
-8	140	0.1073%	0.3427	2.2764%	9.1198***
-7	140	-0.3519%	-1.1238	1.9245%	7.1132***
-6	140	-0.6488%	-2.0718	1.2757%	5.6560***
-5	140	0.2618%	0.8360	1.5375%	7.0167***
-4	140	0.1159%	0.3700	1.6534%	8.2017***
-3	140	0.1638%	0.5230	1.8171%	8.1363***
-2	140	-0.6032%	-1.9263	1.2140%	5.2391***
-1	140	-0.2909%	-0.9290	0.9231%	4.2941***
0	140	0.5079%	1.6219	1.4309%	14.8398***
1	140	1.7695%	5.6510***	3.2004%	11.5881***
2	140	-0.5834%	-1.8631*	2.6170%	11.4184***
3	140	-1.0480%	-3.3469**	1.5690%	8.5868***
4	140	0.1649%	0.5265	1.7339%	10.9844***
5	140	0.2354%	0.7516	1.9692%	9.7423***
6	140	-0.0535%	-0.1710	1.9157%	10.5074***
7	140	0.0597%	0.1906	1.9754%	9.0331***
8	140	0.1914%	0.6114	2.1668%	13.4270***
9	140	-0.2108%	-0.6732	1.9560%	8.2760***
10	140	-0.0587%	-0.1876	1.8973%	9.9135***
11	140	-0.3173%	-1.0135	1.5799%	4.9284***
12	140	-0.0447%	-0.1427	1.5352%	6.6211***
13	140	-0.4190%	-1.3382	1.1162%	5.7481***
14	140	0.4907%	1.5670	1.6069%	5.5499***
15	140	0.2268%	0.7244	1.8337%	8.7109***
16	140	-0.5719%	-1.8265	1.2618%	6.7525***
17	140	0.0834%	0.2665	1.3452%	6.0017***
18	140	0.0427%	0.1363	1.3879%	7.7732***
19	140	-0.1300%	-0.4152	1.2579%	8.2536***
20	140	0.1726%	0.5513	1.4305%	6.2017***
21	140	-0.0438%	-0.1398	1.3867%	6.3480***
22	140	0.2642%	0.8437	1.6509%	10.3570***
23	140	0.1351%	0.4313	1.7860%	13.3330***
24	140	-0.1491%	-0.4763	1.6368%	8.6770***
25	140	0.0361%	0.1154	1.6730%	11.8852***
26	140	0.0349%	0.1116	1.7079%	7.6134***
27	140	-0.0296%	-0.0947	1.6783%	7.7414***
28	140	0.0103%	0.0329	1.6886%	9.6258***
29	140	0.1141%	0.3644	1.8027%	7.7346***
30	140	-0.0431%	-0.1377	1.7596%	11.7186***

N is number of firm

*** , ** , * denote statistically significant at 1% level, 5% level and 10% level consequently.

5.1.2 Daily Abnormal Returns: Deletion Sample

According to Tables 3, as expected, the results of deletion samples from 3 methods show the different from zero negative AAR and CAAR on the announcement day (day 0) and on the day immediately after CG scoring announcement (day +1).

5.1.2.1 The Mean-Adjusted Returns

Most days have negative AARs and CAARs and insignificant different from zero.

5.1.2.2 The Market-Adjusted Returns

For AAR, on event day (day 0) AAR is -0.9427% with a significant cross-sectional t-statistic of -2.0274 (at 1% significant level). On day+1, AAR is -2.6678% with a significant cross-sectional t-statistic of -5.7376 (at 1% significant level).

For CAAR, on event day (day 0) CAAR is -0.5856% with an insignificant cross-sectional t-statistic. CAAR on day+1, day+2 and day+3 is -3.2534%, -3.1912% and -2.7180% consequently. All, moreover, are at 1% significant level.

5.1.2.3 Market-Model-Adjusted Returns

For AAR, on event day (day 0) AAR is -0.9694% with significant cross-sectional t-statistic of -2.5059 (at 1% significant level). On day+1, AAR is -2.6773% with a significant cross-sectional t-statistic of -6.9204 (at 1% significant level).

For CAAR, on event day (day 0) CAAR is 0.0022 with an insignificant cross-sectional t-statistic. CAAR on day+1, is -2.6740 with a significant cross-sectional t-statistic of -1.7985 (at 10% significant level).

Regarding to the finding of AAR and CAAR of 3 methods; mean-adjusted returns, market-adjusted returns and market-model-adjusted returns, each method gives different results. For the deletion, this paper bases the results on the Market-Adjusted Returns methodology as it seems to have less prediction bias. When taking in to account of the AAR, the findings show that after day+1 the price level converge back to the pre announcement price level instead of staying at the new equilibrium. Also, after day+1 the CAAR price level is reversal to nearly the same as on pre announcement price level. The results of deletions, like the results' addition, are also support the price-pressure hypothesis (PPH). In addition, according to the findings, the announcement of deletion firms of CG scoring is bad news for market players. Therefore, the market players react negatively.

Table 3: Average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) for deletions during a period of 30 days before and 30 days after the CG scoring announcement (day 0)

Panel A: Mean-Adjusted Returns

Day	N	AAR	t-test	CAAR	t-test
-30	98	3.7693%	0.0163	1.1924%	3.7243***
-29	98	-1.2806%	-0.0016	1.0173%	2.3650**
-28	98	9.8350%	-0.0067	1.7758%	3.4953***
-27	98	5.3904%	0.0285	2.1609%	3.5754***
-26	98	-2.6013%	-0.0420	2.1933%	3.2573***
-25	98	3.8053%	-0.0016	2.4923%	3.3982***
-24	98	-2.5560%	-0.0094	1.5625%	1.9030*
-23	98	7.7171%	0.0061	2.5393%	2.7884***
-22	98	4.0229%	-0.0198	2.5383%	2.6938***
-21	98	1.4069%	-0.0016	3.2196%	3.2600***
-20	98	-2.3083%	0.0036	3.6246%	3.5375***
-19	98	-1.7086%	0.0036	3.8833%	3.5548***
-18	98	23.1215%	-0.0016	3.7542%	3.2874***
-17	98	-0.4507%	-0.0121	3.2257%	2.7524***
-16	98	-10.4327%	-0.0069	2.5636%	2.0649**
-15	98	3.3438%	0.0141	2.8314%	2.2216**
-14	98	4.7318%	-0.0226	2.8723%	2.1793**
-13	98	2.0432%	-0.0069	1.6828%	1.2525
-12	98	-7.0689%	0.0090	1.9996%	1.4717
-11	98	0.0742%	0.0036	2.8169%	2.0413
-10	98	-1.5033%	-0.0309	2.3209%	1.6516
-9	98	0.0770%	-0.0016	2.4677%	1.7231*
-8	98	-0.9784%	-0.0016	2.3036%	1.5799
-7	98	-4.7757%	-0.0125	2.3909%	1.6225
-6	98	-1.0047%	-0.0071	2.3157%	1.5545
-5	98	0.1033%	-0.0182	2.5010%	1.6561
-4	98	0.6482%	0.0205	2.8646%	1.8763
-3	98	1.1754%	-0.0126	2.5423%	1.6558
-2	98	1.6770%	-0.0072	2.5952%	1.6846*
-1	98	-0.4507%	-0.0016	2.4609%	1.5939
0	98	-0.9784%	-0.0156	1.5548%	1.0036
1	98	-0.9812%	-0.0158	-1.1287%	-0.7161
2	98	1.6546%	-0.0306	-0.9206%	-0.5817
3	98	-0.9729%	0.0274	0.2294%	0.1440
4	98	-0.4507%	0.0266	1.0883%	0.6780
5	98	-0.9756%	0.0603	2.0697%	1.2659
6	98	0.0742%	0.0114	2.1441%	1.3015
7	98	-0.9756%	0.0086	2.3067%	1.3678
8	98	-1.5089%	-0.0067	2.0095%	1.1779
9	98	0.6075%	0.0035	2.0081%	1.1567
10	98	-1.5089%	-0.0016	1.8155%	1.0355
11	98	0.6075%	-0.0016	1.4532%	0.8196
12	98	-0.4507%	0.0236	1.5013%	0.8365
13	98	-0.4507%	0.0302	1.2737%	0.6988
14	98	3.1673%	0.0080	1.9281%	1.0493
15	98	-3.0215%	0.0079	2.3500%	1.2599
16	98	-0.4507%	0.0148	2.2967%	1.2156
17	98	-0.4507%	-0.0016	2.4088%	1.2642
18	98	-0.9729%	0.0214	2.2885%	1.1882
19	98	1.1078%	0.0728	2.4844%	1.2813
20	98	-2.0092%	-0.0558	2.2375%	1.1436
21	98	-0.9756%	0.0204	2.7511%	1.3900
22	98	-1.5089%	-0.0104	2.3811%	1.1980
23	98	-0.9840%	0.0308	2.1081%	1.0481
24	98	-1.5260%	-0.0059	2.0600%	1.0180
25	98	-4.3079%	-0.0145	1.4352%	0.7048
26	98	-2.7235%	-0.0125	0.9843%	0.4811
27	98	-5.1574%	-0.0016	0.8464%	0.4066
28	98	7.0891%	0.0093	0.9563%	0.4546
29	98	-1.5743%	-0.0213	0.9547%	0.4481
30	98	1.2300%	-0.0194	0.9811%	0.4590

N is number of firm.

*** , ** , * denote statistically significant at 1% level, 5% level and 10% level consequently.

Panel B: Market-Adjusted Returns

Day	N	AAR	t-test	CAAR	t-test
-30	98	-0.1687%	-0.3629	-0.1687%	-0.5371
-29	98	-0.0174%	-0.0375	-0.1862%	-0.4296
-28	98	-0.1680%	-0.3614	-0.3542%	-0.6826
-27	98	-0.4933%	-1.0610	-0.8475%	-1.3859
-26	98	-0.0949%	0.2041	-0.9424%	-1.4066
-25	98	0.2438%	0.5242	-0.6987%	-0.9565
-24	98	0.2786%	0.5993	-0.4200%	-0.5193
-23	98	0.6740%	1.4495	0.2539%	0.2817
-22	98	-0.4897%	1.0532	-0.2358%	-0.2540
-21	98	0.5933%	1.2760	0.3575%	0.3674
-20	98	-0.0350%	-0.0753	0.3225%	0.3205
-19	98	0.7613%	1.6372	1.0837%	1.0052
-18	98	0.6786%	1.4594	1.7623%	1.5666
-17	98	0.0798%	0.1717	1.8422%	1.5979
-16	98	-0.2155%	-0.4635	1.6267%	1.3399
-15	98	-0.7502%	-1.6134	0.8765%	0.7028
-14	98	0.4585%	0.9860	1.3350%	1.0311
-13	98	-0.2504%	-0.5385	1.0846%	0.8189
-12	98	-0.6459%	-1.3892	0.4386%	0.3274
-11	98	-0.2741%	-0.5896	0.1645%	0.1208
-10	98	0.2382%	0.5122	0.4027%	0.2898
-9	98	-0.6859%	-1.4752	-0.2833%	-0.2000
-8	98	0.2628%	0.5651	-0.0205%	-0.0142
-7	98	-0.1303%	-0.2802	-0.1508%	-0.1034
-6	98	0.1810%	0.3894	0.0302%	0.0205
-5	98	0.0546%	0.1175	0.0849%	0.0568
-4	98	0.0937%	0.2016	0.1786%	0.1181
-3	98	0.0258%	0.0556	0.2044%	0.1343
-2	98	-0.2378%	-0.5114	-0.0334%	-0.0218
-1	98	0.3905%	0.8397	0.3571%	0.2331
0	98	-0.9427%	-2.0274**	-0.5856%	-0.3808
1	98	-2.6678%	-5.7376***	-3.2534%	-2.0785**
2	98	0.0622%	0.1337	-3.1912%	-2.0282**
3	98	0.4733%	1.0178	-2.7180%	-1.7158*

Day	N	AAR	t-test	CAAR	t-test
4	98	1.0277%	2.2102**	-1.6903%	-1.0577
5	98	0.9262%	1.9919**	-0.7641%	-0.4699
6	98	0.0383%	0.0824	-0.7258%	-0.4430
7	98	-0.0780%	-0.1678	-0.8038%	-0.4790
8	98	0.3057%	0.6576	-0.4980%	-0.2935
9	98	0.5410%	1.1634	0.0429%	0.0249
10	98	-0.2397%	-0.5154	-0.1967%	-0.1127
11	98	-0.3452%	-0.7425	-0.5420%	-0.3074
12	98	0.1502%	0.3230	-0.3918%	-0.2197
13	98	-0.2983%	-0.6416	-0.6901%	-0.3813
14	98	0.2449%	0.5267	-0.4452%	-0.2442
15	98	0.5987%	1.2876	0.1535%	0.0830
16	98	0.3667%	0.7887	0.5202%	0.2777
17	98	-0.0462%	-0.0993	0.4740%	0.2510
18	98	0.2122%	0.4564	0.6862%	0.3590
19	98	0.3557%	0.7651	1.0420%	0.5413
20	98	-0.2296%	-0.4938	0.8124%	0.4186
21	98	0.9043%	1.9448	1.7167%	0.8745
22	98	0.1030%	0.2215	1.8197%	0.9239
23	98	-0.0925%	-0.1990	1.7271%	0.8667
24	98	0.1462%	0.3144	1.8733%	0.9344
25	98	-0.2519%	-0.5418	1.6214%	0.8036
26	98	0.3504%	0.7536	1.9718%	0.9732
27	98	-0.4248%	-0.9136	1.5470%	0.7509
28	98	-0.0859%	-0.1848	1.4611%	0.7016
29	98	0.3572%	0.7683	1.8183%	0.8619
30	98	-0.0445%	-0.0957	1.7738%	0.8374

N is number of firm.

*** , ** , * denote statistically significant at 1% level, 5% level and 10% level consequently.

Panel C: Market-Model-Adjusted Returns

Day	N	AAR	t-test	CAAR	t-test
-30	98	0.3514%	0.9084	0.3514%	1.0926
-29	98	-0.0479%	-0.1237	0.3036%	0.7219
-28	98	0.1342%	0.3470	0.4378%	0.8561
-27	98	-0.1272%	-0.3287	0.3107%	0.5054
-26	98	-0.1778%	-0.4595	0.1329%	0.1818
-25	98	0.3498%	0.9042	0.4827%	0.6291
-24	98	-0.2001%	-0.5171	0.2827%	0.3440
-23	98	0.7428%	1.9200	1.0255%	1.1927
-22	98	-0.3519%	-0.9095	0.6736%	0.7148
-21	98	0.6584%	1.7020	1.3321%	1.3401
-20	98	0.0468%	0.1210	1.3789%	1.3462
-19	98	0.5897%	1.5242	1.9685%	1.8002
-18	98	0.4575%	1.1825	2.4260%	2.1497
-17	98	-0.0378%	-0.0978	2.3882%	2.0284
-16	98	-0.4468%	-1.1548	1.9414%	1.6069
-15	98	-0.3126%	-0.8081	1.6288%	1.3292
-14	98	0.3112%	0.8045	1.9400%	1.5563
-13	98	-0.5354%	-1.3839	1.4046%	1.1023
-12	98	-0.3423%	-0.8847	1.0624%	0.8170
-11	98	0.1482%	0.3832	1.2106%	0.9110
-10	98	-0.0963%	-0.2490	1.1143%	0.8278
-9	98	-0.4591%	-1.1866	0.6552%	0.4817
-8	98	0.0616%	0.1591	0.7168%	0.5186
-7	98	-0.0315%	-0.0815	0.6853%	0.4898
-6	98	0.0071%	0.0184	0.6924%	0.4914
-5	98	0.0795%	0.2054	0.7718%	0.5456
-4	98	0.2516%	0.6503	1.0234%	0.7215
-3	98	-0.1155%	-0.2987	0.9079%	0.6373
-2	98	-0.0931%	-0.2407	0.8148%	0.5608
-1	98	0.1579%	0.4082	0.9727%	0.6656
0	98	-0.9694%	-2.5059**	0.0032%	0.0022
1	98	-2.6773%	-6.9204***	-2.6740%	-1.7985*
2	98	0.1638%	0.4234	-2.5102%	-1.6544
3	98	0.7243%	1.8723*	-1.7859%	-1.1671
4	98	0.9667%	2.4988**	-0.8192%	-0.5213
5	98	0.9994%	2.5832**	0.1801%	0.1132
6	98	0.0897%	0.2318	0.2698%	0.1663
7	98	0.0273%	0.0706	0.2971%	0.1810
8	98	0.1029%	0.2660	0.4000%	0.2409
9	98	0.3055%	0.7896	0.7055%	0.4196
10	98	-0.1846%	-0.4771	0.5209%	0.3045
11	98	-0.3471%	-0.8971	0.1739%	0.1007
12	98	0.0717%	0.1854	0.2456%	0.1400
13	98	-0.2985%	-0.7716	-0.0529%	-0.0297
14	98	0.3943%	1.0193	0.3415%	0.1902
15	98	0.5265%	1.3608	0.8679%	0.4774
16	98	0.1745%	0.4511	1.0425%	0.5690
17	98	0.0195%	0.0504	1.0620%	0.5747
18	98	0.1323%	0.3419	1.1942%	0.6381
19	98	0.3152%	0.8148	1.5094%	0.8038
20	98	-0.2831%	-0.7318	1.2264%	0.6447
21	98	0.7723%	1.9964	1.9987%	1.0441
22	98	-0.0695%	-0.1797	1.9292%	1.0009
23	98	-0.1256%	-0.3248	1.8035%	0.9315
24	98	0.1154%	0.2984	1.9190%	0.9731
25	98	-0.3480%	-0.8995	1.5710%	0.7876
26	98	0.0778%	0.2011	1.6488%	0.8153
27	98	-0.3388%	-0.8758	1.3099%	0.6452
28	98	-0.0744%	-0.1924	1.2355%	0.6085
29	98	0.2241%	0.5793	1.4596%	0.7189
30	98	-0.0419%	-0.1082	1.4178%	0.6983

N is number of firm.

*** , ** , * denote statistically significant at 1% level, 5% level and 10% level consequently.

5.2 Long Window Statistics for Daily Abnormal Returns

For the long window analysis, this paper will capture the window during a period of 10 days before and 10 days after the CG scoring announcement (day 0). The findings of long window statistics will be used to confirm whether the abnormal returns change temporary or permanent.

Table 4 presents cumulative average abnormal returns (CAAR) of special window; pre announcement day (pre AD), run-up, post AD permanent and total permanent for additions, while table 5 displays the same results for deletions. Figures 3 and 4 plot CAAR for additions and deletions respectively.

5.2.1 Long Window Statistics for Daily Abnormal Returns: Additions

Table 4: Long Window Statistics for Daily Abnormal Returns for firms added to CG Scoring

Panel A: Mean-Adjusted Abnormal Returns

Specific Event Window	Event Days	N	CAAR	t-stat
Pre AD	AD-10, AD	140	0.2879%	2.2573**
Run-up	AD, AD+1	140	2.4507%	10.6026***
Post AD permanent	AD+1, AD+10	140	0.2897%	1.6035
Total permanent	AD, AD+10	140	0.7245%	4.0103***

Panel B: Market-Adjusted Abnormal Returns

Specific Event Window	Event Days	N	CAAR	t-stat
Pre AD	AD-10, AD	140	1.1554%	8.6050***
Run-up	AD, AD+1	140	2.6415%	10.6112***
Post AD permanent	AD+1, AD+10	140	0.4862%	2.5215**
Total permanent	AD, AD+10	140	1.1448%	5.9367***

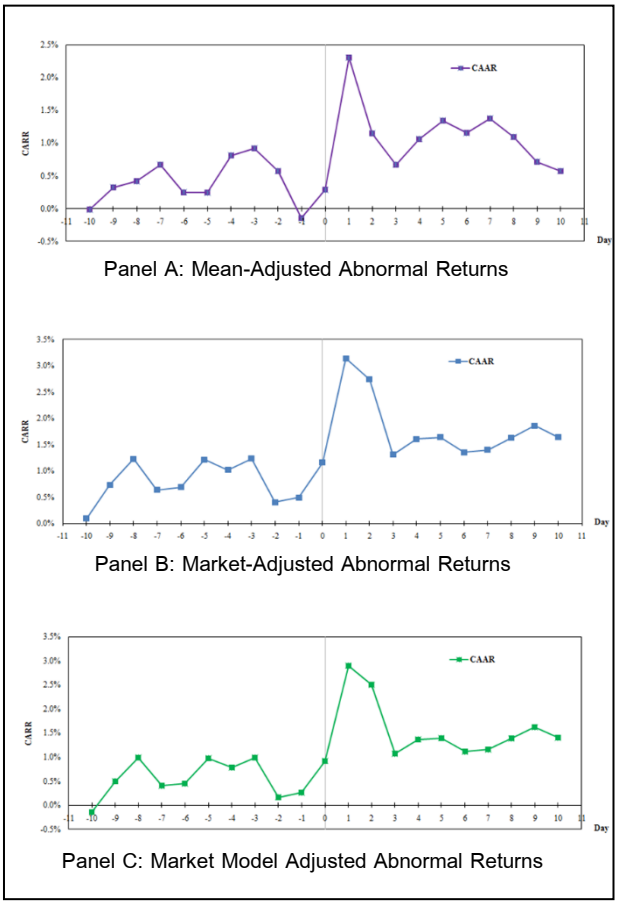
Panel C: Market Model Adjusted Abnormal Returns

Specific Event Window	Event Days	N	CAAR	t-stat
Pre AD	AD-10, AD	140	0.9180%	7.0746***
Run-up	AD, AD+1	140	2.2774%	9.6069***
Post AD permanent	AD+1, AD+10	140	0.4663%	2.4903**
Total permanent	AD, AD+10	140	0.9742%	5.2024***

N is number of firm.

*** denotes statistically significant at 1% level.

** denotes statistically significant at 5% level.



Panel A: Mean-Adjusted Abnormal Returns

Panel B: Market-Adjusted Abnormal Returns

Panel C: Market Model Adjusted Abnormal Returns

Figure 3: The Cumulative average abnormal returns (CAAR) for additions from AD-10 to AD+10

5.2.1.1 Mean-Adjusted Returns

In the Pre AD window (AD-10, AD), CAAR shows a significant small positive abnormal returns at 0.2879% with a cross-sectional t-statistic of 2.2573 (at 5% significant level). Based on the early prediction in table 2, this result indicates anticipation to the non-public news because there is a small positive abnormal return in the pre AD window. The interpretation of this unexpected evidence is stocks being added are slightly over-performing the market before AD. This anomaly pattern, thus, is assumed to be caused by other non-public news.

In run-up window (AD, AD+1), CAAR shows statistically significant positive at 2.4507% with a cross-sectional t-statistic of 10.6026 (at 1% significant level). This window also reflects the market players' reaction to CG scoring announcement. Speculators, who anticipate in the Thai stock market, will adjust their portfolios on AD and on average will gain 2.4507% from purchasing addition stocks. Positive abnormal returns in the run-up window are

consistent with both the price-pressure hypothesis (PPH) and downward-sloping demand curve hypothesis (DSDC). A Plot in figure 3 panel A, shows the sharp move of positive abnormal returns during the run-up window.

In post AD permanent window (AD+1, AD+10), CAAR shows a small positive abnormal returns at 0.4862% with a cross-sectional t-statistic of 2.5215 (at 1% significant level). This small positive abnormal returns in post AD permanent window are nearly the same price level in pre AD window.

In total permanent window (AD, AD+10), CAAR shows a small positive abnormal returns at 1.1448% with a cross-sectional t-statistic of 5.9367 (at 1% significant level). Comparing to the results in pre AD window, this small positive price level in total permanent window (AD, AD+10) is reversed nearly to the equilibrium level.

5.2.1.2 Market-Adjusted Returns

Except for the findings in post AD permanent window (AD+1, AD+10), the rest results in Pre AD, run-up, post AD, and total permanent window the results from the market-adjusted returns (Table 4 Panel B) for the additions are consistent with the results from the mean-adjusted returns (Table 4 Panel A).

In the Pre AD window (AD-10, AD), CAAR shows a significant small positive abnormal returns at 1.1154% with a cross-sectional t-statistic of 8.6050 (at 1% significant level).

In run-up window (AD, AD+1), CAAR shows statistically significant positive at 2.6415% with a cross-sectional t-statistic of 10.6112 (at 1% significant level).

In post AD permanent window (AD+1, AD+10), CAAR shows a small statistically significant positive at 0.4862% with a cross-sectional t-statistic of 2.5215 (at 1% significant level).

In total permanent window (AD, AD+10), CAAR shows a small positive abnormal returns at 0.7245% with a cross-sectional t-statistic of 4.0103 (at 1% significant level). Comparing to the results in pre AD window, this small positive price level in total permanent window (AD, AD+10) is reversed closely to the pre announcement price level.

With the strong evidence that stock price converges back to the pre AD price level instead of staying at the new equilibrium level. Therefore, the CAAR is less positive in the post announcement window because the price reversal nearly offsets the abnormal returns. This is evidence supporting the price-pressure hypothesis (PPH).

5.2.1.3 Market Model Adjusted Returns

The results from the market model adjusted returns for the additions (Table 4 Panel C) are consistent with the results from the Market-Adjusted Returns (Table 4 Panel B).

In the Pre AD window (AD-10, AD), CAAR shows a significant small positive abnormal returns at 0.9180% with a cross-sectional t-statistic of 7.0746 (at 1% significant level). As stated early, the statistic significant positive abnormal returns are unexpected to find in this window. This evidence shows that there is leakage of information seems to take place.

In run-up window (AD, AD+1), CAAR shows statistically significant positive at 2.2774% with a cross-sectional t-statistic of 9.6069 (at 1% significant level). This evidence is following the expectation. Market players, who anticipate in the Thai stock market, will adjust their portfolios on AD and on average will gain 2.2774% from purchasing addition stocks.

In post AD permanent window (AD+1, AD+10), CAAR shows a small statistically significant positive at 0.4862% with a cross-sectional t-statistic of 2.5215 (at 1% significant level).

In total permanent window (AD, AD+10), CAAR shows a small positive abnormal returns at 0.9742% with a cross-sectional t-statistic of 5.2024 (at 1% significant level). This evidence shows that a small positive price level in total permanent window (AD, AD+10) converges back to the pre announcement price level. Figure 3 presents the plot that clearly supports the conclusion.

In summary, this paper finds that market players positively react to firms' added to CG scoring. The price level sharply moves from the pre AD price level to the new equilibrium level. However, the market reaction is just temporary because after day +1 (AD+1) the price level is not stay at that new equilibrium level permanently. Therefore, this finding of addition is consistent with the price-pressure hypothesis (PPH).

5.2.2 Long Window Statistics for Daily Abnormal Returns: Deletions

5.2.2.1 Mean-Adjusted Returns

In the Pre AD window (AD-10, AD), CAAR shows statistic insignificant negative abnormal returns at -1.2620%. Based on the early prediction in table 3, this result indicates non anticipation to the news because the abnormal return is not significantly difference from zero.

In run-up window (AD, AD+1), CAAR shows statistic insignificant negative abnormal returns at -1.9596%.

In post AD permanent window (AD+1, AD+10), CAAR shows statistically significant negative at -5.0375% with a cross-sectional t-statistic of -2.8730 (at 1% significant level).

In total permanent window (AD, AD+10), CAAR shows negative abnormal returns at -6.0158% with a cross-sectional t-statistic of -3.4310 (at 1% significant level).

5.2.2.2 Market-Adjusted Returns

In the pre AD window (AD-10, AD), CAAR has negative abnormal returns at -0.7500% with a cross-sectional t-statistic of -5.6872 (at 5% significant level). The result of the negative abnormal returns statistic different from zero indicates leakage of information taking place in pre AD window.

In run-up window (AD, AD+1), like the results calculating from market-adjusted returns, the negatives exist with a larger number than in pre AD. CAAR in run-up windows presents negative abnormal returns at -3.6467%with a cross-sectional t-statistic of -12.3973 (at 1% significant level). This indicates that the deleted stocks from CG scoring are not in demand for a long time and they underperformed the market.

In post AD permanent window (AD+1, AD+10), CAAR shows positive abnormal return at 0.3888% but not significantly different from zero.

In total permanent window (AD, AD+10), CAAR shows a small negative abnormal returns of -0.5538% with a cross-sectional t-statistic of -2.2033 (at 5% significant level). This evidence shows that a small negative price level in total permanent window (AD, AD+10) converges back to the pre announcement price level. Figure 4 presents the plot that clearly supports the conclusion.

Table 5: Long Window Statistics for Daily Abnormal Returns for firms deleted from CG Scoring

Panel A: Mean-Adjusted Abnormal Returns

Specific Event Window	Event Days	N	CAAR	t-stat
Pre AD	AD-10, AD	98	-1.2620%	-0.8146
Run-up	AD, AD+1	98	-1.9596%	-1.2433
Post AD permanent	AD+1, AD+10	98	-5.0375%	-2.8730***
Total permanent	AD, AD+10	98	-6.0158%	-3.4310***

Panel B: Market-Adjusted Abnormal Returns

Specific Event Window	Event Days	N	CAAR	t-stat
Pre AD	AD-10, AD	98	-0.7500%	-5.6872**
Run-up	AD, AD+1	98	-3.6105%	-12.3973***
Post AD permanent	AD+1, AD+10	98	0.3888%	1.5469
Total permanent	AD, AD+10	98	-0.5538%	-2.2033**

Panel C: Market Model Adjusted Abnormal Returns

Specific Event Window	Event Days	N	CAAR	t-stat
Pre AD	AD-10, AD	98	-1.2074%	-0.8199
Run-up	AD, AD+1	98	-3.6467%	-2.4527**
Post AD permanent	AD+1, AD+10	98	-0.5177%	0.3026
Total permanent	AD, AD+10	98	-0.4518%	-0.2640

N is number of firm.

*** denotes statistically significant at 1% level.

** denotes statistically significant at 5% level.

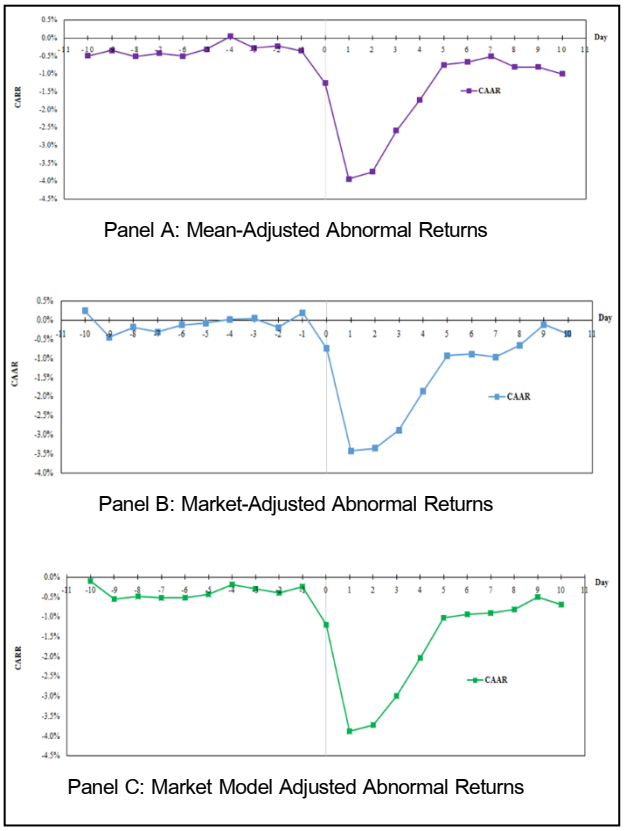
5.2.2.3 Market Model Adjusted Returns

In the Pre AD window (AD-10, AD), CAAR shows statistic insignificant negative abnormal returns at -1.2074%.

In run-up window (AD, AD+1), the negatives exist with a larger number than in pre AD. Figure 4 presents the plot that clearly supports the evidence of this large negative number. Moreover, CAAR in run-up windows presents negative abnormal returns at -3.6467% with a cross-sectional t-statistic of -2.4527 (at 5% significant level).

In post AD permanent window (AD+1, AD+10) and total permanent window (AD, AD+10) no leakage of information seem to take place, since CAAR is insignificant.

In summary, for the deletions from the CG scoring, this paper finds that the results from 3 measurement methods; mean-adjusted returns, market-adjusted returns, and market model adjusted returns, are not consistent. With evidence observing, the market-adjusted returns method seems to detect abnormal returns better than the other 2 methods. This paper finds evidence that market players



Panel A: Mean-Adjusted Abnormal Returns

Panel B: Market-Adjusted Abnormal Returns

Panel C: Market Model Adjusted Abnormal Returns

Figure 4: The Cumulative average abnormal returns for deletions from AD-10 to AD+10

temporary react to CG scoring announcement. However, a small negative price level in total permanent window (AD, AD+10) converges back to the pre announcement price level. This evidence supports the price-pressure effect hypothesis (PPH). Figure 4 presents the plot that clearly supports the PPH conclusion.

5.3 Power of measurement methods

As stated previously, for the additions the results of AARs and CAARs from the mean-adjusted returns, the market-adjusted returns, and the market-model-adjusted returns are consistent. While for deletions the results of AARs and CAARs from those 3 methods are not consistent. This research finds that the market-adjusted returns methodology is more powerful to detect statistic different from zero negative abnormal returns than other 2 methods, especially for the deletion case. However, this research findings seem to be contradict to the results of mean-adjusted returns power stating on Brown and Warner (1980, 1985), who state that market-adjusted return and market model adjusted returns are quite small. Moreover, they also suggest that simple statistic models as the mean-adjusted returns method often yield comparable results to the more sophisticated models as market-adjusted return and market model adjusted returns.

With the ambiguous results, it is quite difficult to conclude which measurement methods are suitable to conduct the event study. Therefore, to produce the event study researchers have to more carefully taking into account of event characteristic, event testing window (short or long window) sample characteristic and systematic risk of each sample stock.

6. Conclusion

The studies providing evidence of CG announcement and market reaction are limited, especially in Thai stock market. This paper, thus, provides event study evidence on whether announcement of CG rating affects firms' market value in Thai capital market. To find out the results, this paper conducts event study and employs 3 methodology models; mean-adjusted return, market-adjusted return and market-model-adjusted return to test the effect on stock price as a result of inclusion or exclusion from the annual CG scoring announcement in the period of 2009 to 2013.

An addition and a deletion to the CG scoring news is a fully anticipated reaction by the market. For additions, the excess returns are not immediately reacted to the CG scoring news on event day (day 0). The abnormal returns on day+1 of 1.9829% are significantly positive reacted to the news. If, for this case, speculators adjust their portfolios on announcement day on average will gain around 1.98% from purchasing addition stocks. However, the abnormal returns are slightly died out after day+1. The findings indicate that the degree of market reaction to the good news is slightly strong but not rapid. The less strong efficient market of Thai capital market could be a reason behind the lagged action.

For the deletion, the abnormal returns are immediately and significantly negative reacted to the CG scoring news on event day (day 0). The abnormal returns on day+1 are also significantly negative reacted to the news. Like the additions' results, the abnormal returns are slightly died out after day+1. The findings of the deletions indicate that the degree of market reaction to the bad news is slightly significant and rapid.

With the strong evidence of additions and deletions, it could be implied that Thai stock market is not efficient since market players can use only publicly available information to construct trading rules that earn economically significant abnormal returns. However, this public information does not

permanently remain at new price level equilibrium. This paper finds that the abnormal return price level slightly converges back to the price level on announcement day instead of staying at the new equilibrium. This research finding evidence supports the price-pressure effect hypothesis (PPH).

Based on these research findings, in addition, it could be concluded that Thai market players temporary react to the CG scoring announcement. After Day+1, the abnormal return price level slightly converges back to the price level on announcement day instead of staying at the new equilibrium. This, at some point in time, could be implied that the investors pay more interests on other factors rather than the CG scoring announcement. The market regulators; the SEC and the SET might have to aware about these market players' reaction.

For the power of measurement methods, this paper finds that market-adjusted returns methodology seems to have less prediction bias than other 2 methods; mean-adjusted returns and market model adjusted model. However, there are ambiguous results among various research findings. Thus, it is quite difficult to conclude which measurement methods are suitable to conduct the event study. With this reason, to produce the event study researchers have to more carefully taking into account of event characteristic, event testing window (short or long window) sample characteristic and systematic risk of each sample stock.

7. Limitation and Further Development

The major limitations of this study are a short time period (the period 2009 to 2013) and the limited number of samples being added to and deleted from the CG scoring during the study period. Therefore, this study explores just only the whole group of stocks being added (deleted) to CG scoring. A follow-up study may be worth undertaking when a larger sample of cases covering a much longer period available. Resulting that, further researches may be explored the study of sub-group CG scoring (Excellent, Very Good and Good) analysis.

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