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Impact of Changes in the Philippines' Credit Ratings on Stock Prices of Listed Real Estate Companies in the Philippines

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This study utilizes event study methodology to evaluate the impact of the Philippines' credit rating changes on listed real estate companies. Key rating events and corresponding stock price reactions were analyzed in 34 firms from the 1997 to 2023 dataset. The examination analyzes market reaction by combining cumulative average abnormal returns (CAARs) and t-statistics during 3, 21, 41, and 61-day events. The analysis of multiple event windows demonstrates that stock markets deliver stronger and more enduring negative reactions to downgrades than positive reactions to upgrades. The research result supports the loss aversion theory since investors display greater intensity when processing negative information. Furthermore, the research, through the lens of Efficient Market Hypothesis (EMH) and Signaling Theory, shows that although stock prices should immediately adapt to new information, stocks produce significant CAARs mainly during extended event windows, suggesting that markets take time to incorporate information fully. The market response begins slowly when downgrades occur but becomes increasingly intense. Investor reactions to credit rating changes show the greatest strength when these actions occur during market volatility. The research yields essential knowledge about how investors respond to the news while demonstrating the duration factors active in the Philippine real estate market.

Keywords: credit rating changes, event study methodology, stock price reactions, Philippine real estate sector, abnormal returns analysis

1 Introduction

Credit ratings provide essential infrastructure to financial markets because they connect investors' beliefs with their funding allocation choices (Afonso et al., 2011; Cantor & Packer, 1996). The credit rating systems operated by Moody's and Standard and Poor and Fitch act as indicators to measure the likelihood of countries fulfilling their financial obligations (Hill et al., 2010). Due to their sensitivity to ratings, the Philippines and other emerging markets face risks that shape investor conduct and correspondingly impact financial markets (Kaminsky & Schmukler, 2002). Credit ratings may significantly cause changes in investors' behavior and market response, resulting in changes in capital flow and stock prices and, therefore, changes in the overall market environment (Ferreira & Gama, 2007).

Sovereign Credit ratings are popular and regarded as resourceful risk indicators linked with investment in certain countries. They refer to the interest rate that the government has to pay on credit and similar costs, including the cost of borrowing for the corporate sector or any other market indicators like the stock exchange (Reinhart, 2002). Enhancing a country's credit standing indicates improved economic stability and growth prospects that should make investors upbeat. On the other hand, a downgrade has a downside effect in that it reduces capital flight and enhances market risks (Kaminsky & Schmukler, 2002). It could increase borrowing costs and lower investors' confidence (Calomiris & Mason, 2003; Elkhoury, 2009; Liu & Ferri, 2001). Credit ratings integrate financing market aspects of borrowing costs with investor opinions and available funding options. The investor depends on credit ratings to evaluate stability levels alongside expected returns in his investment portfolio.

Further, credit ratings can affect stock prices substantially because most of them cause market reactions in terms of changes in investor information and perceptions of risk. The empirical research findings indicate that sovereign credit rating releases can cause significant shifts in stock prices and that the change in credit has different effects on market value (Geyikci, 2023; Li et al., 2022). This study, which targets the Philippine Stock Exchange (PSE)-listed real estate companies in the Philippines,

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seeks to analyze and explain the implications of such changes in credit ratings on the stocks of these companies to help investors and policymakers.

Real estate in the Philippines is one of the country's most significant sources of income; it increased to 5.7% of the Philippines' Gross Domestic Product in 2022, while the construction industry has a 7.3% share based on the Philippine Statistics Authority (PSA). The property sector also represents 15.7% of the overall market capitalization at PSE and continues to grow, as seen in the observation made in 2022 (Bangko Sentral ng Pilipinas, n.d.; PSA, 2023). The National Economic Development Authority (NEDA) even reported that, while there was a contraction of the real estate sector by 16.7% from 2019 to 2020 because of the COVID-19 pandemic, the sector then rose by 2.2% from 2020 to 2021, and by 5.3% from 2021 to 2022 (NEDA, 2020). Similar trends can be observed in the construction sector, where the growth rate declined by 25.5% from 2019 to 2020, yet a quick recovery could be seen by noticing the growth rate of 10.1% and 12.1% in the next two years (NEDA, 2020). These recoveries further bolster the argument that the building, construction, and real estate industry is capable of availing and contributing to the Philippine economy.

This has proved helpful in the real estate business by expanding more government-supported policies like the Comprehensive Agrarian Reform Program (CARP) and the 'Build, Build Build' infrastructure plan that focuses on developing rural areas and access (Department of Agrarian Reform, 1988 Patinio, 2022). The recently enacted PPP (Public-Private Partnership) Code of the Philippines likewise seeks to enhance privatized public participation in infrastructure (PPPC, 2023). Nonetheless, different segments of real estate have been affected notably, such as commercial real estate and office space; still, it is projected that the sector will improve in 2023 because of more office take-up, particularly in Metro Manila, e-commerce business, and remittance from OFWs (Lamudi, 2023; Statista, 2023; Suarez, 2022). Such and other strategic actions are believed to bear positive repercussions on the future of the Philippine real estate industry, along with sound and sustainable economic rebuilding and redevelopment programs (Aratea & Sayson, 2024).

The Philippine real estate sector is an essential economic development catalyst that enhances employment and engineering infrastructure development and strengthens financial stability. Real estate companies face unique challenges because their capital-intensive operations make them sensitive to market changes caused by interest rates, inflation rates, and credit availability (Gyourko, 2009). These firms depend strongly on their credit ratings because these assessments determine their funding expenses, strategic investments, and market acceptability (Piccolo & Shapiro, 2022). The downgrade of corporate and sovereign credit ratings enhances debt costs while reducing cash flow and triggering negative investor sentiment that blocks growth potentials and reduces stock values (Altunbas et al., 2010). An improved credit rating allows companies to decrease capital expenditure costs, earn more investments, and establish stronger market stability. The evaluation of real estate companies listed on the Philippine Stock Exchange requires analyzing credit rating changes because of their vital industry connections.

The need to analyze the relationship between credit ratings has become more relevant because of recent economic developments. Major credit rating agencies changed their assessment of emerging economies, including the Philippines, when the COVID-19 pandemic affected worldwide capital markets (Eckhold et al., 2024). The changes in credit ratings affect investment flows because corporate ratings use sovereign ratings as a standard that determines financing costs for real estate firms (Case et al., 2005). Previous studies have shown limited interest in establishing the stock price effects that emerge from changes in credit ratings applied to Philippine real estate organizations. The lack of studies about price reactions in Philippine real estate firms represents a critical research gap that justifies this detailed market analysis to compare their responses against other industry sectors.

Several past studies confirmed a direct connection between sovereign credit ratings and financial markets as rating transitions steer investor attitudes and worldwide market performance (Cantor & Packer, 1996; Kaminsky & Schmukler, 2002). Most research tackles general stock market dynamics without investigating how credit rating changes affect individual sectors. The dependence of real estate firms on debt financing leads to heightened stock price reactions when credit ratings change compared to less debt-driven industries (Abueg et al., 2021; Geyikci, 2023). This research fills the knowledge gap by studying the stock market changes in Philippine Stock Exchange-listed real estate companies resulting from credit rating alterations. The research uses credit rating announcement

event windows to determine how the market reacts to new information through its gradual price movements across time within an emerging economy context.

This investigation generates useful findings that benefit financial researchers, investors, corporate leaders, and policymakers. Investors who study the relationship between credit ratings and stock prices gain better tools to handle portfolios and analyze risks (Bautista, 2003). Through analysis of empirical evidence, policymakers gain the capability to estimate the total economic consequences of shifts in credit ratings for the development of strategic response strategies (Aquino, 2006). The better theoretical comprehension gained by financial analysts and industry stakeholders about how credit ratings affect market behavior supports improved market predictions and investment choices. This study contributes empirical evidence linking credit risk factors with investor sentiment and real estate stock market performance in the Philippine sector for future financial planning.

The remaining portion of this research will be structured as follows: Section 2 will be a literature review, Section 3 will be the methodology section, Section 4 will be the results section, Section 5 will be the summary and conclusion, and Section 6 will be the implications, limitations, and future researches section.

2 Review of Related Literature

Analysis of the relationship between sovereign credit ratings and stock market returns has been of great interest in finance and economics. This paper entails a review of the literature that examines the impact of sovereign credit ratings on stock prices concerning real estate firms. The following section presents the literature on methodologies, findings, and gaps relevant to the present study on PSE-listed companies in the Philippines.

2.1 Theoretical Framework

Studying the impact of sovereign credit ratings on stock prices involves applying various finance and economics theories. This research is based on the Efficient Market Hypothesis (EMH) (Fama, 1970), the Signaling theory (Spence, 1973), and the Loss Aversion Theory (Kahneman & Tversky, 1979) to create a framework for analyzing the effects of credit rating changes on PSE-listed real estate firms.

Based on the Efficient Market Hypothesis postulated by Fama (1970), it was implied that stock prices incorporate all available information about the stock, and thus, achieving average excess return without extra risk is not possible. The EMH identifies three forms of market efficiency: weak, semi-strong, and strong. The weak form claims that all past price information has been incorporated into the current stock prices, whereas the strong form holds that all public and non-public information is impounded in stock prices. The semi-strong form, most relevant to this research, posits that all publicly available information, including new credit ratings, is rapidly and accurately impounded into share prices. This means that any new information, for instance change in credit ratings of Philippine firms by Moody, S&P, and Fitch, among others, should be immediately reflected in the market prices of the affected firms if the market is under semi-strong efficiency (Malkiel, 2003).

According to the semi-strong form of market efficiency, the possibility of earning excess returns through analyzing public information, such as credit rating changes, is negated because the market prices would immediately reflect the new information. This study will analyze the stock prices of Philippine real estate investment and services firms listed on the PSE with S&P credit rating changes. It will also determine whether stock prices in the Philippines respond efficiently to such information. In an efficient market, prices should quickly respond to credit rating risk or opportunity changes. This supports Fama's stock market efficiency hypothesis, which states that the stock market reflects information and continues reacting to changes in information as they occur (Fama, 1970). Strong empirical evidence from studies like the ones conducted by Binder (1998) and Kothari and Warner (2007) confirm that stock prices instantly reflect the new public information that backs the semi-strong form of EMH.

Another theory that works hand in hand with the EMH is the Signaling Theory formulated by Spence in 1973, which provides a critical viewpoint on the effect of information asymmetry on markets. According to signaling theory, it is possible to transfer essential information from one party

to another with less information, such as credit rating agencies, to investors. For example, an increase in the Philippines' S&P sovereign credit rating would give investors credible information that the environment for credit in the Philippines is improving, reducing the perceived credit risk. These positive signals normally increase investor demand for stocks, which, in turn, increases stock prices. On the other hand, a downgrade works as a warning sign pointing out that there can be certain problems with the economic performance of the country in question, which may weaken investors' confidence and, as a result, the stock prices. Several empirical studies by Akerlof (1970) and Ross (1977) stressed the relevance of signaling in conditions of information asymmetry in the markets and how they affect the investors' decisions and the market itself.

Moreover, according to the Loss Aversion Theory, investors demonstrate disproportionate emotional responses to negative credit rating changes rather than positive ones (Kahneman & Tversky, 1979). The theory demonstrates how people feel losses intensely compared to equivalent pleasure, which disrupts stock prices. When ratings agencies downgrade companies, they create an immediate and prolonged market downturn, but rating upgrades produce smaller, slow-moving price growth. When major Philippine real estate companies received unfavorable credit ratings, their stock prices suffered significant negative effects, as indicated by cumulative abnormal returns (CAARs), which signified market uncertainty. The positive news from the upgrade announcement produced moderate stock price gains that investors delayed implementing because of their conservative approach. The research findings by Dichev and Piotroski (2001) and Goh and Ederington (1993) show that stock price sensitivity to negative credit events remains stronger than positive ones. The observed market reactions receive theoretical explanations from the Loss Aversion Theory alternative to the Efficient Market Hypothesis (EMH) and Signaling Theory. This study demonstrates that investors respond immediately to negative news instead of good news since market reactions are delayed and uneven. This pattern calls into question the assumption that decision-making should be completely rational. The effectiveness of the Signaling Theory (Spence, 1973) is limited because credit rating changes stem from outside agencies instead of originating within firms. The act of being downgraded in terms of credit rating functions powerfully as an external signal indicating financial strain, thus intensifying investor pessimism.

The research strengthens existing literature through its combination of the Efficient Market Hypothesis (EMH) (Fama, 1970), Signaling Theory (Spence, 1973), and Loss Aversion Theory (Kahneman & Tversky, 1979) to envision investor reactions toward real estate sector credit rating modifications. The study findings show delayed stock price adjustments, which confirm the semi-strong form of EMH over its strong form, according to Fama (1970). The Philippine Stock Exchange (PSE) stock market demonstrates an extended lag period because investor sentiment and information asymmetry create market inefficiencies in this emerging market context (Elotmani et al., 2024). This research investigates S&P credit rating changes on stock prices to evaluate efficiency levels within the semi-strong form of EMH. The research examines market reaction speed to new data to determine the inefficiencies within the Philippine stock market. Data from Signaling Theory and Loss Aversion Theory will help explain how changes to credit ratings affect market participants and investor behaviors. The theory of the Signaling Framework shows that business rating marks act as outside signals revealing corporate fiscal conditions through positive changes reflecting growth possibilities. The evaluation investigates how investors process signaling information while examining if their reactions correspond to the predictions of Loss Aversion Theory that downgrades generate stronger and more protracted market reactions than upgrades (Baker & Wurgler, 2007). The research results will illustrate both patterns of new information integration into Philippine stock market data and the investor processes behind credit rating agency signals triggering price changes (Beaver, 1968; Peterson, 1989). This research combines conflicting methodological approaches to build a total system explaining the impacts between rating agency changes and market sentiment on property sector stock price changes.

2.2 Impact of Sovereign Credit Ratings on Stock Markets

Finance research dedicated to sovereign credit ratings and stock markets constitutes an important area of study in financial economics. Three major entities, including Moody's S&P and Fitch, offer sovereign credit rating services that evaluate countries' creditworthiness. The ratings impact how

investors view businesses and affect financial capital distribution while shaping market conditions. Understanding how fluctuations in sovereign credit ratings affect stock markets is of greater importance to those who invest, make policies, and analyze finance. The information from prior works sheds light on the impacts of these ratings and their operation on stock markets in various regions and within various types of economics.

Sovereign credit ratings inform investors of the risk of investing in a particular country. In the context of signaling theory, it is important to note that the investors and the borrowers are information asymmetric; credit ratings aid in eliminating the information gap and provide the investors with intelligence on a particular country's economic stability and credit rating (Mora, 2006). The efficient market hypothesis (EMH) theory holds that all available information, including credit ratings, is shown in the stock prices. Thus, stock prices must promptly reflect rating shifts (Fama, 1970). However, the level of efficiency in the markets and how they respond to new information are issues of debate, and this informs the value, stability, and effectiveness of credit rating.

Many papers have looked at the immediate effects of the changes in credit rating, considering the stock market. In a study by Kaminsky and Schmukler (2002), they discovered that for sovereign ratings, there is a large negative effect of downgrades on stock markets but a small positive effect of upgrades. According to their studies, negative news affects the market more significantly because risk aversion is higher among investors. These findings signify that negative news is more influential than positive news as the market tends to overemphasize negative signals, which may hold significant implications for the nature of the market (Ismailescu & Kazemi, 2010; Reisen & von Maltzan, 1999). Emerging markets experience more profound negative returns following downgrades than upgrades, according to Ismailescu and Kazemi (2010), because risk perception and investor uncertainty increase during the period. The search for secure assets by investors through capital outflows deteriorates market stability in places with limited abilities to absorb financial disturbances.

Furthermore, Afonso et al. (2012) found that market responses are slightly delayed. Their research revealed that there is information leakage or market anticipation since stock prices begin to change days before the official move is announced. This may imply that market participants obtain information through other unofficial means or infer from other economic signals.

Sovereign credit ratings affect different regions and markets differently. For example, Ferreira and Gama (2007) established that markets in emergent economies are more responsive to shifts in credit ratings than their counterparts in the developed world, given the perception of higher risk in emerging markets and these markets' otherwise heavy reliance on outside investment. Similarly, Hu (2017) established that the relationship between sectors and changes in ratings revealed that banking and finance sectors are inherently more vulnerable to changes than other sectors due to Sovereign risk exposure. This variation raises the idea that general market structures should be considered when assessing credit ratings because the same general event can trigger different market reactions in distinct markets (Reinhart, 2002; Li et al., 2008).

Brooks et al. (2004) studied the extended effects that happen after sovereign rating adjustments. The analysis showed that responses from financial markets at the beginning frequently require extended periods to resolve, especially after downgrade events. Investors tend to reallocate their portfolios to safer assets after experiencing extended effects that lead to behavioral modifications. They become less willing to take financial risks following changes in their behavior patterns. For this reason, downgrades have lasting impacts and can result in continued lower stock prices and diminished market confidence (Afonso et al., 2014). Most studies in this field adopt the event study approach to assess the effects of rating changes on stock markets. This approach enables the researchers to control the effect of resulting rating changes using the stock price changes in a window around the announcement date (Brown & Warner,1985). Furthermore, cross-sectional regression analysis is also applied to the essential variables that explain variation in market reactions, including country-specific economic variables and global factors. Such methodologies give a conceptual foundation to capture the multifaceted outcomes involving the sovereign credit ratings and enable a comprehensive analysis (Cantor & Packer, 1996; Hill et al., 2010).

Cantor and Packer (1996) established that several factors influence sovereign credit ratings, including economic, financial, and political factors. Their study focused on these determinants and their impact on the market's reaction to the rating changes. Moreover, in their study, Hill et al. (2010) also investigate and observe that the level of difference between the sovereign credit ratings provided

by the multiple credit rating agencies can also impact the perceptions and reactions of the markets. These variations mean that there are many different angles to consider when attempting a study of rating change and its effects on the market, re-emphasizing the applicability of the multiple perspective approach, which has already been discussed in the literature (Ferreira & Gama, 2007; Kräussl, 2005).

The effect of sovereign credit ratings on stock markets is also noticeable in the case of financial crises. Kräussl (2005) investigated the impact of credit rating agencies during emerging market periods and concluded that changes in ratings positively influence fluctuations in market volatility and form part of the dynamics of financial crises. Reisen and von Maltzan (1999) argued that there are boom and bust episodes, and the aspect of sovereign ratings determines such episodes. These works highlight that sovereign credit ratings have other related consequences for economic actions and financial stability besides demonstrating influences in the instantaneous market responses (Martell, 2005; Safari & Ariff, 2015).

The research consistently shows that sovereign credit rating affects stock markets and that a downgrade is more influential than an upgrade. The extent of the effect depends on the location, type of market, and industry, but it is most sensitive in emerging markets and the financial industry. It is, therefore, important for policymakers and investors to understand these dynamics to minimize risks in their investment decisions. Future studies in this field will deepen the understanding of the relationship between credit ratings and market dynamics and can help make relevant adjustments to economic policies and investment plans (Hooper et al., 2008; Nawaz, 2018).

Specifically, Kliger and Sarig (2000) and Norden and Weber (2004) pointed out that negative stock returns occur after the downgrades as investors feel that the credit risk is higher and expect that the future cash flows will be lower. On the other hand, credit ratings significantly impact stock prices in emergent stock markets, including the Philippines. Zhuang et al. (2000) showed that changes in sovereign ratings have a considerable influence on the performance of stock markets in emerging economies. Specifically, downgrades in sovereign ratings result in considerable declines in stock prices due to shifts in perceived related risks. Kaminsky and Schmukler (2002) noted that emerging markets are highly sensitive to credit rating changes.

Credit ratings are especially important for the real estate sector since they heavily depend on debt funds. Philippine real estate firms typically display varying debt-to-assets ratios, and Philippine Realty and Holdings Corporation (PSE: RLT) maintains an average ratio of approximately 14.78%, as shown in Barron's (n.d.). Real estate companies with high leverage experience large movements in their stock prices in response to rating changes. Faff et al. (2016) pointed out that more extreme negative responses are observed in this sector than in other industries, given that higher borrowing costs negatively impact the overall profitability and future cash flows.

In the Philippines, Rustico (2019) observed that credit rating downgrades heavily impact the stock prices of PSE-listed firms. This is consistent with Avramov et al. (2009), who indicated that real estate securities are sensitive to rating changes. These studies imply that investors in the Philippine Stock Exchange pay attention to credit ratings as risk measures and rebalance their portfolios based on them.

According to Brooks et al. (2004), credit ratings are important as they help investors extract relevant information and control aspects within the global markets. They discovered that downgrades cause larger market responses than upgrades, indicating that the market is highly responsive to negative information. Likewise, Goh and Ederington (1993) also pointed out that downgrades exert a greater negative impact on stock prices than upgrades make a positive impact. On the other hand, Jorion and Zhang (2007) examined the timing of stock price micro reactions to credit rating changes. They concluded that the efficient market hypothesis of fast market reactions to credit rating downgrades holds. This immediate reaction shows that markets are efficient as they reflect new information in the stock prices. Ferri et al. (1999) highlighted credit ratings' role in stimulating stability in the financial markets, especially in emerging markets, since information is scarce. They pointed out that creditors' rating agencies are key in determining capital costs and investment in these markets.

Lund and Felberg (2013) studied the duration of the impact of credit rating changes and concluded that credit rating downgrades had long-run impacts on stock prices, but credit rating upgrades had short-run impacts. This imbalance shows that negative information is stronger and longer-lasting in affecting investors' decisions. Hand et al. (1992) also concluded that markets respond disproportionately to negative changes in credit rating.

More importantly, credit rating adjustments significantly impact the real estate companies' creditworthiness and risk profiles, especially those publicly traded in the Philippine Stock Exchange (PSE). According to Ammer and Packer (2000), changes in borrowing costs due to rating downgrades pose a risk to real estate companies. This again explains why firms must ensure they retain good credit standing with the financiers to access the best financing terms in the market.

Literature like that of Dichev and Piotroski (2001) pointed out that the incidences of downgrades of firms' credit ratings result in high costs of borrowing and low returns on equities, which are primary concerns for companies like those within the Philippine real estate business due to high costs of financing. Therefore, investors, regulators, and policymakers must comprehend the patterns of credit ratings and their effect on stock prices, especially in emerging markets such as the Philippines. Sovereign credit rating change literature covers markets such as bond market, equity market, foreign exchange, and spillovers across borders. Previous investigations have established various domestic response and cross-country response systems to these changes in rating, particularly during the 1990s and early 2000s. Similarly, Reisen and von Maltzan (1999) believe that ratings news fuels the emergence of boom-bust cycles in global markets because they offer new information to the markets.

Cantor and Packer (1996) and Kaminsky and Schmukler (2002) have testified that rating changes significantly impact equity markets. Cantor and Packer (1996) point to rating changes affecting government bond yields, while Kaminsky and Schmukler (2002) noted effects on debt and equity securities, particularly in financial crises. Some of the findings made by Reinhart (2002) included the significance of sovereign credit ratings in shaping the borrowing prospects of nations for international financial markets, with nations that have lower ratings being worse off. Kim and Wu (2008) examined the effects of sovereign credit rating adjustment for the domestic financial sector and international capital flows to knowledge, showing that long-term ratings facilitate economic intermediary development and domestic capital flows but discourage international capital flows.

Analyzing spillover effects of rating changes using the event study methodology, Bissoondoyal-Bheenick (2012) established that such spillovers always existed in financially connected markets. Gande and Parsley (2005) distinguished between common and differential information spillover effects of rating changes, suggesting these changes affect government bond spreads. Kim and Wu (2008) also proved that the change in sovereign credit ratings affects the development of the financial sector and capital flows while the long-term ratings enhance the development of the economic intermediary. Shahzad (2013) highlighted the roles of credit rating agencies in capital markets, pointing to the fact that credit rating is significantly related to publicly available information. This idea has also been explored in several prior papers concerning the effects of changes in stock ratings. Subaşı (2008) noted higher negative effects on the volatility of stocks of firms in Turkish markets after negative changes compared to positive changes. Minescu (2010), cited in Nawaz (2018), noted that sovereign credit ratings are important to investors because they determine borrowing costs, investment destinations, and overall economic conditions.

Moreover, Afonso et al. (2012) explored cross-border spillover effects and utilized the event study method to compute the impact of sovereign rating change events on bonds and CDS spread yields. In Alsakka and Ap Gwilym's (2013) study, the authors sought to determine the effect of rating events on the forex markets. They concluded that they had significant effects on exchange rates during crises.

The involvement of rating agencies in the financial markets has been analyzed through works such as Hill et al. (2010), which provide measures of market responses to various credit rating changes. These studies indicated that the adjustments made by S&P are more relevant and timelier than other agencies. In sum, prior literature in the field displays that changes in sovereign credit ratings ripple profound and multifaceted effects in and across numerous financial segments concerning bond yields, equity returns, and FX rates domestically and globally. The effects of such changes are realized particularly during financial crises and where there is a relatively low level of economic transparency.

The literature review on the effect of sovereign credit ratings on stock prices is quite vast. It has addressed different aspects of financial markets, such as equity markets, bond yields, foreign exchange, and the general effects of rating changes. The findings of prior studies indicate that negative changes have much more significant and long-lasting impacts than positive ones, and they are especially sensitive to emerging markets and industries such as real estate with high levels of leverage. Nevertheless, the literature review reveals a significant research gap concerning country-level analysis, especially in emerging nations like the Philippines. Although prior studies highlighted general

trends and responses to fluctuations in credit rating, there is no knowledge of how those changes affect the stock prices in the Philippine market, particularly those of the real estate investment and services companies under the PSE. This sector is sensitive because many of the companies operating in this sector have been relying on debt financing and have greatly contributed to developing the country's economy.

Many prior studies have encompassed wider emerging markets or more advanced countries and have not concentrated on the Philippines' economy and market characteristics. However, due to the Philippines' unique economic setting and investment environment, it is important to establish the impact of sovereign credit rating alterations on the Philippines' stock exchange. The level of gearing and susceptibility to borrowing costs in the real estate sector call for analysis of the direct and indirect consequences of rating adjustments on these companies. The event study approach employed in the prior literature must be implemented in the context of the Philippines to examine the short-run and long-run responses of stock prices to credit rating adjustments regarding the specific Philippine setting, conditions, regulations, and investors. This research seeks to fill these gaps by examining the effects of credit ratings on the stock prices of the Philippine listed companies, particularly those from the real estate investment and services industry, which benefit investors, policymakers, and financial analysts. Specifically, this study hypothesized the following:

H1: Credit rating upgrades positively influence the stock prices of PSE-listed real estate companies.

H2: Credit rating downgrades negatively influence the stock prices of PSE-listed real estate companies.

H3: Outlook downgrades exert a more significant negative impact on stock prices than credit rating downgrades.

H4: The market's response to credit rating changes intensifies over longer event windows.

H5: Credit rating downgrades result in greater absolute abnormal returns than upgrades.

This study also considers the fluctuations in stock prices that are consequent to the firms' credit rating. Fluctuations are significant for investors mainly due to their impact on risk and investment return. Real estate companies have inherent risks from their capital-intensive nature and sensitivity to business cycles (Ling & Naranjo, 2002).

3 Methodology

3.1 Research Design

The research method used mainly in the study is the event study method. This is prevalent in the financial field to evaluate how certain actual or proposed events, like credit rating adjustments, affect the stock prices of PSE-listed real estate companies (Campbell et al., 1998). It is a standard method to determine market financial responses toward new information, specifically regarding rating changes. According to Fama's (1970) efficient market hypothesis, the method works under the assumption that stock prices quickly absorb available public information. The event window analysis enables researchers to extract abnormal returns and identify credit effects using the proposed method outlined by MacKinlay (1997). The research design functions well to assess how S&P credit rating adjustments influence stock values in Philippine publicly traded real estate firms that depend on investor sentiment and financing costs for their market worth.

Various research studies demonstrate the appropriate application of event studies in examining credit rating changes. Brooks et al. (2004) provided evidence that sovereign rating adjustments trigger significant abnormal market responses in worldwide capital markets, showing that credit announcements influence market behaviors. Norden and Weber (2004) discovered that rating information causes both credit default swaps and stock prices to adapt due to market efficiency quickly. The research conducted by Timmermans (2012) demonstrates that downgrades in ratings produce price volatility increases while upgrade notifications lower market instability. This relationship holds significant value for the Philippine real estate industry since affordable funding remains vital for expansion and development.

The analysis becomes more significant due to real estate companies' high sensitivity towards credit conditions. According to Govender (2018), sovereign rating changes, mainly from the S&P, have strongly affected market volatility for both emerging and developed economies. Real estate firms

throughout the Philippines need external funding to execute their large development projects, making this essential. Real estate enterprises face increased borrowing expenses when their credit rating declines, but they benefit from lower financing costs when their credit rating improves. Analysis of this market relationship proves fundamental for judging the industry's exposure to credit rating alterations.

The cumulative average abnormal returns (CAAR) tool is a comprehensive measure used to evaluate market response during the event period, thus reducing the effects caused by unrelated market drivers (Afonso et al., 2011). This method focuses on the real estate sector's exclusive credit rating responses by eliminating other general economic factors that create interference. The research by Gropp and Richards (2001) demonstrated that rating agency actions strongly impact equity and debt pricing, so the method proves reliable when financing and investor sentiment matter. This method provides the study with a refined approach to evaluate how changes in credit rating affect Philippine real estate companies listed on public exchanges.

3.2 Data Collection

3.2.1 Sample Selection and Data Cleaning

This research primarily examines the PSE-listed firms only in the real estate sector, incorporating only those companies with stock prices data from 1997 to 2023. This period is especially important as it covers important economic phenomena such as the Asian Financial Crisis and the Global Financial Crisis, which had quite an influence on global and local economies. Such period selection enables a robust assessment of the effects of external economic shocks in interaction with credit rating changes on the behavior of investors and the fluctuation in stock prices.

From the real estate firms listed under the PSEI, 60 firms were initially identified for the study. However, nine were deleted during data collection as they were classified as "dead" since they are not actively traded in the exchange or have been delisted from there. Data cleaning is equally important because it involves identifying and handling the study's incomplete, outdated, or irrelevant data (Rahm & Do, 2000). From the above list, further screening was done depending on whether issuers had the stock price data available before the first event date, February 21, 1997. This criterion was important because historical stock price data are used in the event study methodology to compute expected returns and evaluate the accuracy of the computed abnormal returns, as pointed out by MacKinlay (1997). Therefore, only 34 firms were retained in the analysis, constituting a large and relevant sample for the event study.

Table 1 lists 34 PSE Property Sector firms. These companies were selected because they remain actively traded and have complete records of their historical stock prices, which are paramount in the event study analysis.

Table 1. PSE Property Sector

No	Company Name	Symbol	Listing Date
1	A Brown Company Inc.	BRN	February 8, 1994
2	Anglo Philippine Holdings	ANA	December 11, 1989
3	Araneta Properties Inc.	ARP	April 11, 1990
4	Arthaland Corporation	URD	March 19, 1996
5	ATN Holdings 'A' Inc.	JIA	January 28, 1993
6	Ayala Corporation	ACA	November 8, 1976
7	Ayala Land Inc.	ALI	July 18, 1991
8	AyalaLand Logistics Holdings Corporation	POP	April 10, 1990
9	Belle Corporation	BEA	November 8, 1990
10	Cebu Holdings Inc.	CBH	February 14, 1994
11	Century Properties Group Inc.	CPG	July 19, 1996
12	Cityland Development Corporation	CDA	December 11, 1989
13	Crown Equities Inc.	PPR	August 16, 1994
14	Cyber Bay Corporation	FLA	March 19, 1991
15	Empire East Land Holdings Inc.	EEH	June 28, 1996
16	Ever-Gotesco Resources and Holdings Inc.	EGR	September 16, 1996

No	Company Name	Symbol	Listing Date
17	F & J Prince Holdings Corporation	FJP	October 8, 1992
18	Filinvest Development Corporation	FDC	October 12, 1995
19	Filinvest Land Inc.	FLI	October 25, 1993
20	Global-Estate Resorts Inc.	FEL	November 23, 1995
21	Keppel Philippines Holdings Inc.	KPA	December 11, 1989
22	Keppel Philippines Properties Inc.	CEB	April 11, 1990
23	Megaworld Corporation	MEG	June 15, 1994
24	MJC Investments Corporation	EBE	August 22, 1995
25	MRC Allied Inc.	MRC	May 18, 1995
26	Philippine Estates Corporation	PES	June 28, 1996
27	Philippine Infradev Holdings Inc.	IRA	December 11, 1989
28	Philippine Realty and Holdings Corporation	RLA	December 11, 1989
29	Robinsons Land Corporation	RLC	December 11, 1989
30	Santa Lucia Land Inc.	STA	December 11, 1989
31	Shang Properties Inc.	SPR	August 22, 1995
32	SM Prime Holdings Inc.	SMP	July 5, 1994
33	Suntrust Resort Holdings Inc.	GAR	August 22, 1995
34	Vistamalls Inc.	STR	December 21, 1993

Source*:* Thomson Reuters/Refinitiv Eikon database (2023)

3.2.2 Event Data

This study focused on identifying events, such as certain credit rating upgrades, downgrades, and outlook changes made by major credit rating agencies such as Standard and Poor's (S&P) rating agency, which is important in analyzing market responses (MacKinlay, 1997). S&P credit ratings are used since it is a well-known, internationally acknowledged credit rating agency offering a sound creditworthiness estimation (Cantor & Packer, 1996). S&P's ratings are popular among investors and financial markets and are a determinant of investment and market activities (Elkhoury, 2009). Moreover, with a vast amount of knowledge and a thorough approach to analyzing financial data, S&P's ratings are as relevant and effective as possible in representing the current status of a company and its risk level (White, 2018).

These sources were vital since they provided the necessary and accurate dates to determine the study's event windows. It is important to obtain a high degree of accuracy in identifying these dates because the event study methodology focuses on analyzing the market response in specific time horizons after an event has been identified (Brown & Warner, 1985). Some important activities noted in detail include upgrading the aggregate BBB-credit rating to BB+ on February 21, 1997, and changing the positive outlook to negative on February 23, 1998. Changes in the bond rating also occurred, such as the downgrade from BB+ to BB on April 24, 2003, and the upgrade from BBB to BBB+ on April 30, 2019 (World Government Bonds, n.d.). More details are shown in Table 2.

Table 2. Philippines Historical Credit Ratings by Standard & Poor's Rating Agency

No	Date	Events	Rating		Outlook	
			From	To	From	To
Event 1	February 21, 1997	Rating Upgrade	BB	BB+	+	+
Event 2	February 23, 1998	Outlook Downgrade	BB+	BB+	+	-
Event 3	April 24, 2003	Rating Downgrade	BB+	BB	-	-
Event 4	January 17, 2005	Rating Downgrade	BB	BB-	-	-
Event 5	November 12, 2010	Rating Upgrade	BB-	BB	-	-
Event 6	December 16, 2011	Outlook Upgrade	BB	BB	-	+
Event 7	December 20, 2012	Rating Upgrade	BB	BB+	+	+
Event 8	May 8, 2014	Rating Upgrade	BBB-	BBB	+	+
Event 9	April 30, 2019	Rating Upgrade	BBB	BBB+	+	+

Source: World Government Bonds. (n.d.)

These identified events formed a chronological framework detailing the historical credit ratings for the Philippines provided by Standard & Poor's Rating Agency at the time of the study. It allowed the market's reaction to these events to be presented within the appropriate event windows for the study. This was to ensure that the analysis captured the immediate and subsequent market reactions when the credit rating of these companies was changed to understand the implications of the credit rating changes on the stock prices of the PSE-listed real estate companies (Campbell et al., 1998).

3.2.3 Stock Price Data

The historical daily stock prices were obtained from the PSE and Thomson Reuters/Refinitiv Eikon databases. These sources are considered credible and complete and contain financial information useful for sound event studies. The data collection included the days before and after each identified credit rating change event to enable the determination of daily returns. These daily returns are important as they act as the starting point for calculating the abnormal returns, which are used in analyzing how the market responded to the change in the credit rating during the event windows.

This research applied the simple return method to study stock price reactions toward Philippine real estate sector credit rating changes because of its straightforward nature, plain interpretation capabilities, and direct applicability in financial market study. The method used to determine simple returns calculates percentage changes between current and previous prices for widespread event study assessment of short-term market movements because it provides clear relative price metrics. This makes the method ideal for tracking market reaction and investor emotions after rating agencies issue announcements (Strong, 1992). The calculation of simple return depends on the following formula:

$$R_t = \frac{P_t - P_{t-1}}{P_{t-1}} \tag{1}$$

where R_t is the return on day *t,* P_t is the stock price on day *t*, and P_{t-1}, is the stock price on the previous day. Adopting simple returns as a metric brings advantages through their alignment with financial market percentage change reporting, allowing researchers to examine empirical studies and guide practical investment decisions (Fama, 1976). Logarithmic returns better evaluate long-term growth because of their continuously compounded assumption, yet simple returns make price changes more easily understandable for actual market participants (Campbell et al., 1998). Investor responses to credit rating changes become immediate in the real estate sector because the sector shows sensitivity to financing costs, capital flows, and macroeconomic conditions (Hiang Liow & Huang, 2006).

The simple return method benefits event studies since log transformations create potential distortions of price movements in the PSE market characterized by low trading volumes and volatile behavior (MacKinlay, 1997). Research-related analysis of event-driven market changes demonstrates a preference for using the simple return method because it corresponds to investor behavior alongside existing financial reporting systems (Brown & Warner, 1985). Stock market investors observe percentage changes in stock values to interpret performance, thus validating the method for assessing if credit rating events shift firm values. The study aims to assess stock price reactions to credit rating alterations through defined event periods. It thus uses simple return methods to depict abnormal return information that matches actual market behavior.

Subsequently, these returns are subtracted from expected returns, which involves historical data and the use of market models to arrive at the Abnormal Returns. This allows the examination of the impact of the credit rating changes net of the market effects (MacKinlay, 1997). Acquiring the actual stock prices and other financial data from reputable databases, such as Thomson Reuters/Refinitiv Eikon, guarantees the credibility of the analyzed data, which is pivotal to the study's overall findings.

3.3 Event Windows

Event window selection remains essential for a complete market analysis of credit rating changes because it allows researchers to study both prompt and enduring response patterns. The research design employs multiple time intervals to analyze short-run instabilities, medium-span adjustments,

and prolonged market adjustments. A three-day window spanning the [-1, +1] days period functions to detect how investors incorporate rating information for rapid stock price adjustments. The research methodology follows Campbell et al. (1998) and the semi-strong form of market efficiency by showing rapid price adjustments following public information releases. A study by Chau and Hien (2012) in emerging markets confirmed that brief time windows detected quick though moderate stock price shifts following local credit rating announcements.

The analysis of market adaptation utilizes an extended time frame from -10 to +10 days (21-day window). The extended observation window helps researchers detect how investor reactions evolve regarding local credit rating announcements during changing market circumstances. According to MacKinlay (1997), these time intervals serve as vital tools to study market processing of complex information as time unfolds. Reddy et al. (2019) demonstrate through their research that downgrades of the US credit rating cause significant price changes across intermediate time windows, whereas upgrades produce weaker sustained stock reaction effects. The asymmetric market reactions need further investigation in the Philippines, given the pivotal role of external funding and market confidence in the real estate sector.

The analysis includes extended periods of [-20, +20] days (41-day length) and [-30, +30] days (61-day duration) to detect late or indirect market price movements. An extended timeframe evaluation considers situations when market reactions are first subdued by concurrent events, which leads to complete price effects after investors reevaluate a firm's financial condition. These prolonged observation intervals allow for separating genuine continuous value changes from short-lived market fluctuations. Through meta-analysis, Hubler et al. (2019)'s research proves that negative credit ratings create lasting abnormal returns. These effects become visible across extensive timeframes, thus proving vital for emerging markets with delayed information transmission, such as the Philippines. Reddy et al. (2019) stated that extended observation periods are vital to confirming asymmetric market reactions since downgrades consistently drive stronger and more persistent stock price responses than upgrades.

The research design incorporates multiple time windows to thoroughly analyze the stock price reactions to S&P rating changes among Philippine real estate companies listed in the market. The multiple-window analysis concept adjusts to the complexities of developing nations due to asymmetry between company information and investor conduct and regulatory structures that impact market speed and intensity. The selected event windows help this study track immediate and ongoing market actions to deliver a detailed understanding of how rating changes affect stock prices in publicly listed Philippine real estate firms.

3.4 Calculation of Abnormal Returns

The calculation of abnormal returns (AR) is one of the most central and critical components of event studies as it determines the extent to which the actual observed returns during any given event window differ from what may be considered the norm. This concept explains how the market reacts to specific events, like changes in credit ratings. It begins by calculating expected returns, then moves on to calculating abnormal returns, and finally adds up the abnormal returns (MacKinlay, 1997).

3.4.1 Expected Returns Calculation

A market model was employed to estimate expected returns for each stock, and financial researchers widely accept the application of such a modeling approach. The market model entails conducting a regression analysis of the returns of the specific stock with the returns of an appropriate market index, for instance, the PSE Composite Index. For each of the 34 companies, the expected return $E(R_{it})$ for company i on day t is calculated using the market model:

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} \quad (2)$$

where R_{it} is the return of company i on the day t, R_{mt} is the return of the market index (e.g., PSE Composite Index) on the day t, α_i = is the intercept of the regression line for the company I, *and* β_i is the slope of the regression line, which indicates the sensitivity of the stock's return to market returns (MacKinlay, 1997). Appendix A shows the detailed summary of alphas and betas for each stock with

subcategories based on event and event windows. This appendix demonstrates extensive documentation that serves as evidence for analyzing abnormal returns and market reactions.

The analysis used a 100-day estimation period, which adhered to MacKinlay's (1997) recommendation for achieving stable expected return benchmarks before an event occurs. The estimated duration strikes an appropriate balance between adequate performance pattern detection and reduction of impacts on outdated information. According to Brown and Warner (1985), reliability in abnormal return calculation increases when longer windows are used because these periods minimize arbitrary price variations. Corrado (2011) added that extended periods protect against firm-specific factors that could distort benchmark return calculations. The 100-day estimation window reduces short-term market irregularities and transitory shocks, which ensures better-expected performance measures.

Different event studies establish various estimation periods depending on market characteristics and event categories. Afonso et al. (2011) utilized a 120-day window to follow sovereign credit rating changes. However, Dichev and Piotroski (2001) applied a 60-day window for U.S. credit downgrades because they preferred fresh market feedback despite temporary shocks. The 100-day measurement window matches the approach Afonso et al. (2014) used since this timeframe effectively controls market volatility around credit rating events while maintaining performance stability. According to Reisen and Von Maltzan (1999), the volatility found in emerging markets requires longer periods for researchers to observe the genuine effects of such events. By employing this window duration, abnormal returns maintain accuracy as they reveal the genuine effects of the event without being affected by unrelated market movements or performance patterns. It offers enough observations to calculate statistical confidence intervals for the alpha and beta parameters in the market model while preventing the window from going too far back in time, which might bring irrelevant market data into analysis (Campbell et al., 1998). The 100-day period is useful in empirical finance as it eliminates these issues while ensuring the results remain current (Strong, 1992).

3.4.2 Abnormal Return Calculations

The abnormal return (AR_{it}) for the company i on day t is calculated as the difference between the actual return R_{it} and the expected return $E(R_{it})$:

$$AR_{it} = R_{it} - E(R_{it}) \quad (3)$$

Analysis of 34 companies uses this formula during the event window to determine specific credit rating effects on stock performance. Comparing actual returns to predicted benchmark returns determines abnormal returns, which measure the return level outside market-based conditions unaffected by the event. Model-based estimates from the market and market-adjusted return models help derive the expected return by accounting for system-wide market movements and firm-specific factors that impact stock performance (Brown & Warner, 1985).

The research design eliminates external factors that impact stock prices through the systematic elimination of market-wide influences along with unassociated firm-specific events. Macroeconomic changes, industry-wide disturbances, and earnings announcements during the event window are factored into the expected return estimate, so abnormal returns highlight the direct effects of credit rating events (MacKinlay, 1997). Through this method, the analysis becomes stronger because the researchers focus on deviations from predicted returns, which enables them to accurately attribute statistically significant abnormal returns to credit rating changes instead of unrelated market factors.

3.4.3 Cumulative Average Abnormal Returns (CAAR)

Abnormal returns are added to evaluate the event's overall impact throughout the event window. First, the Cumulative Abnormal Return (CAR) for each company i over the event window $[t_1, t_2]$ is computed by adding together the abnormal returns during the event window, where t_1 and t_2 are the start and end of the event window.

$$CAR_i = \sum_{t=t1}^{t2} AR_{it} \quad (4)$$

Subsequently, cumulative average abnormal returns (CAAR) are calculated across all stocks in the sample, where *N* is the number of firms.

$$CAAR = \frac{1}{N} \sum_{i=1}^{N} CAR_i \quad (5)$$

CAAR uses a metric to sum abnormal returns in the event window to measure market-wide reactions to credit rating changes. CAAR establishes specific event-linked effects through market-based expected return calculations derived from the market model framework that considers market trends (MacKinlay, 1997). Research papers by Dichev and Piotroski (2001) and Norden and Weber (2004) verify alongside Reddy et al. (2019) that CAAR performs well in identifying event-driven returns separated from market noise, specifically in credit event scenarios. According to MacKinlay (1997) and Brown and Warner (1985), results become valid, and confounding effects diminish when an event study method uses proper estimation windows. A 100-day estimation window is the chosen timeframe for this research because it enables usable return data collection while maintaining stability in benchmark measurements. Past research by Afonso et al. (2014) and Reisen and Von Maltzan (1999) showed that information diffusion in emerging markets takes longer to assimilate, so researchers need to increase pre-event periods for accurate benchmarking.

Furthermore, the research uses a market-adjusted return model to establish isolated effects of credit events yet addresses concerns regarding an isolated view of impacts. Under this methodology, the researcher subtracts general market fluctuations to make sure that detected abnormal returns stem from credit rating activities. The cross-sectional approach to analyzing returns proves to be an effective validated metric to inspect both short-term and medium-term market pricing behavior, according to research published by Afonso et al. (2012). The effectiveness of CAAR in detecting abnormal returns emerges from its comparison between actual performance and benchmark standards using market indexes or firm-comparable portfolios, according to Jorion and Zhang (2007). The benchmarking approach in CAAR removes systematic patterns from its computational process so abnormal returns reflect pure performance changes stemming from credit events. Across multiple firms, the research incorporates averaging as a strategy to reduce firm-specific anomalies, which enables a better representation of market response toward the credit event.

3.5 Statistical Analysis

After evaluating the existence and importance of CAARs, t-tests were performed to check whether the difference was statistically significant. These tests aid in determining whether the detected abnormality is statistically different from zero, signifying a real market response (Brown & Warner, 1985).

$$t = \frac{CAAR}{\sigma_{CAAR}} \quad (6)$$

where σ_{CAAR} is the standard deviation of the cumulative abnormal returns across the sample. This test assists in establishing whether the CAAR is genuine or just the result of market noise. A large t-value means that it is unlikely that the observed CAAR is by chance, which in turn implies that the event (for instance, the credit rating change) influenced stock prices significantly (Brown & Warner, 1985).

Besides the t-tests, comparative analysis was also done to assess the differences in the CAARs and the corresponding t-statistic differences between various event windows, like the 3-day, 21-day, 41-day, and 61-day intervals. This analysis helped to understand how the market reaction changed over time and identified patterns of increase or reduction of the persistent abnormal returns. Furthermore, this comparative approach enabled us to compare market reactions to various credit rating events, including upgrades, downgrades, and outlook changes. Thus, comparisons of these distinctions can

reveal which events shaped the market to a greater extent or for a longer period and, therefore, can help identify the market's differential sensitivity to positive and negative credit opinions (MacKinlay, 1997).

In addition to the quantitative approach, the study involved a qualitative analysis of the events prevailing during credit rating changes at the global and local levels. This contextual analysis was important for trying to comprehend the conditions external to the market that might have impacted the market. For instance, global financial crises, political instability, or significant economic reforms can impact the investors' sentiment and exaggerate or reduce the market's reactions to credit rating changes. By incorporating this qualitative component, the study offers a richer analysis of what underpins market behavior, acknowledging that there is more at play than credit rating change underscores.

4 Results and Discussion

This paper examines the nature of market responses to credit rating and outlook adjustments. It highlights response changes based on the different event windows: 3-day, 21-day, 41-day, and 61-day intervals. Moreover, the research findings also give an overview of how specified event windows have helped analyze the market's response to credit rating changes among PSE-listed real estate firms. Furthermore, the analysis also shows that the markets are non-symmetrical and time-varying in their response to such changes. Hence, the results imply that the market reactions to change in the credit rating are not equal and center on the direction of the credit rating change, the length of the event period, and the general market environment. Table 3's findings indicate that the strength and persistence of market response to credit rating downgrades and outlook downgrades are considerably higher than those elicited by rating upgrades.

Table 3. Estimation Based on Different Event Windows

Events	Event Window Days							
	3 (-1 to +1)		21 (-10 to +10)		41 (-20 to +20)		61 (-30 to +30)	
	CAAR	*t*-Stat	CAAR	*t*-Stat	CAAR	*t*-Stat	CAAR	*t*-Stat
1. Rating Upgrade	-1.25	-0.724	15.07	3.847***	20.49	3.956***	19.49	3.197***
2. Outlook Downgrade	1.76	0.482	19.11	1.980**	51.46	4.722***	67.62	5.787***
3. Rating Downgrade	1.29	0.938	0.38	0.102	11.69	2.421**	28.08	5.325***
4. Rating Downgrade	0.53	0.346	11.65	2.842***	24.75	4.552***	33.99	4.617***
5. Rating Upgrade	-0.76	-0.607	0.99	0.291	-2.08	-0.441	2.17	0.374
6. Outlook Upgrade	-0.26	-0.145	-2.22	-0.423	-4.13	-0.562	6.98	0.795
7. Rating Upgrade	-0.16	-0.170	-0.87	-0.332	1.09	0.300	-1.48	-0.321
8. Rating Upgrade	0.52	0.501	-3.61	-1.268	1.39	0.369	3.58	0.815
9. Rating Upgrade	-0.69	-0.755	-2.65	-1.064	-4.34	-1.181	-1.72	-0.319

Notes: ***, ** and * denote two-tail significance at the 1%, 5% and 10% levels, respectively

The analysis found in Table 3 shows that events for credit rating and outlook changes produced various effects on stock market performance through different time frames. The market responses to rating downgrades (events 3 and 4) and outlook downgrades (event 2) become statistically significant within 21, 41, and 61 days, but recent rating upgrades fail to show meaningful effects during short windows. Investor reactions to negative credit signals continue to grow stronger over time. However, positive rating actions appear to have a minimal effect due to the market integration of positive information, according to Dichev and Piotroski (2001). The results support the Efficient Market Hypothesis (Fama, 1970) because public information about credit rating upgrades can lead to stock prices reflecting this information, resulting in diminished effect observation. Research by Goh & Ederington (1993) supports the findings that negative credit events generate more important information for investors, which explains the magnitude of their market responses. The research presents evidence about changing market efficiency dynamics and the ongoing transformations of credit ratings in investment choices.

3-Day Window. Table 3's (-1 to +1) three-day event period indicates investors do not swiftly respond to credit ratings and outlook updates as tested market reactions remain statistically insignificant. Market reactions to positive credit rating changes are minimal or negative according to CAAR values (-1.25 for event 1 and -0.76 for event 5). In contrast, t values (-0.724 for event 1 and -0.607 for event 5) indicate that investors do not immediately adjust stock prices. The market response to the credit rating and outlook downgrades reveals slight positive changes in average abnormal returns, but these results do not reach statistical significance. Event 2 shows a positive CAAR of 1.76 (t = 0.482), and event 3 shows a similar result with a 1.29 CAAR (t = 0.938). Research indicates credit rating upgrades commonly produce effects that financial market participants perceive in advance through stock price incorporation (Dichev & Piotroski, 2001; Goh & Ederington, 1993). This aligns with Brown and Warner's (1985) study, which noted that short-term market reactions tend to be dampened when the event is anticipated or otherwise considered insignificant. Publicly available information about credit does not seem to offer investors significant insights since the short-term response lacks statistical significance according to the Efficient Market Hypothesis (Fama, 1970). Investor reactions become stronger with longer observation periods because they require time to understand the full consequences of credit rating modifications, especially during downgrades.

21-Day Window. According to Table 3's results on the 21-day event period (-10 to +10), stock market prices respond to the credit rating, and outlook changes over an extended duration, thus aligning with the semi-strong form of the Efficient Market Hypothesis (EMH) (Fama, 1970). The positive yet minor cumulative abnormal returns from rating upgrades show less impact compared to rating downgrades, which create stronger reactions as observed in event 1 (15.07, t = 3.847***) and events 2 and 4 (19.11, t = 1.980** and 11.65, t = 2.842***). The market demonstrates an asymmetric reaction to negative credit news because investors tend to be more vulnerable to unpredictable events (Goh & Ederington, 1993; Kaminsky & Schmukler, 2002). Market participants need time to gradually reflect on the modifications of credit ratings that emerge during an intermediate period beyond the initial 3-day timeframe (MacKinlay, 1997). Ratings from credit agencies rather than direct firm participation serve as the agents who set off the reactions that match Signaling Theory fundamentals about investor perception changes after new credit details (Holthausen & Leftwich, 1986; Ross, 1977). Signaling Theory's main principle that investors change their firm assessment based on new credit information (Holthausen & Leftwich, 1986; Ross, 1977) agrees with the findings; however, credit rating agencies act as the initial source of signals instead of the firms themselves. Applying information asymmetry theory better explains this concept because external credit assessments function as a mechanism to reduce market uncertainty and direct investor expectations (Boot et al., 2006). Market analysts must track expanded event periods to realize complete financial market responses from credit rating modifications.

41-Day and 61-Day Windows. The impact of credit rating changes on stock prices becomes substantial during 41-day and 61-day event periods. A rating downgrade, for example, results in a CAAR of 24.75 (t-Stat = 4.552) over the 41-day window and 33.99 (t-Stat = 4.617) over the 61-day window. When reacting to rating changes, the market seems to deploy a delayed response but then aligns stock values with credit risk implications. According to findings established by Ball and Brown (1968), negative credit events create persistent price movements, which show that stock prices respond negatively to several months of negative financial news. The market displays moderate but statistically irrelevant CAARs following rating upgrades, which indicates a conservative attitude toward positive signals consistent with findings from Ismailescu and Kazemi (2010) and Afonso et al. (2012).

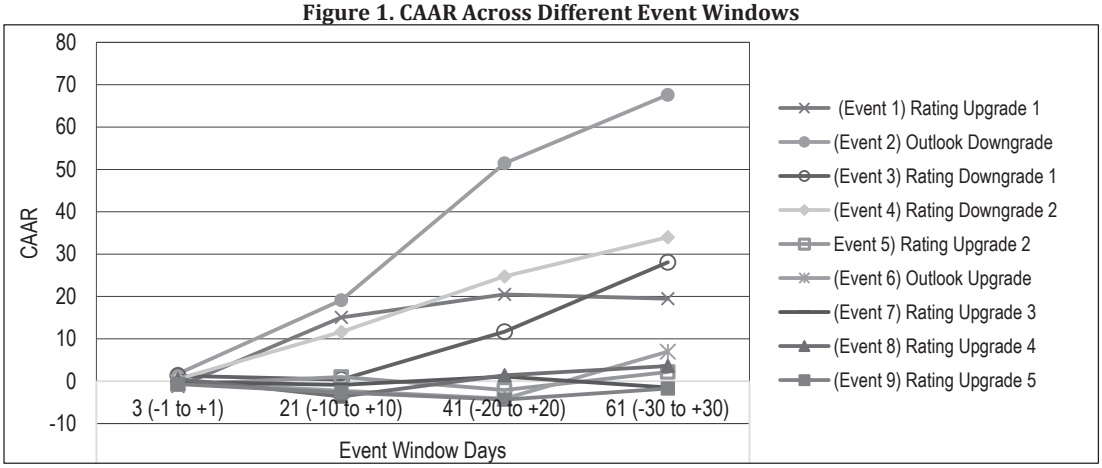
Results show that rating downgrades produce more negative price reactions than rating upgrades during market response analysis. Rating upgrades generate short-term minimal negative or statistically insignificant CAARs up to -0.76 (t-Stat = -0.607) or -0.16 (t-Stat = -0.170), although downgrades always lead to adverse market reactions. According to Kothari and Warner (2007) and De Bondt and Thaler (1985), the research indicates an investor asymmetry that supports risk-averse investor behavior. The research by Holthausen & Leftwich (1986) and Goh & Ederington (1993) confirms that downgrades cause investors to respond swiftly due to financial stability concerns.

The Efficient Market Hypothesis (Fama, 1970) receives support from time-based market responses, yet evidence shows that price adjustments occur across different periods. The research indicates that stock prices exhibit time-dependent responses to credit ratings by showing restricted

short-term adjustments followed by substantial price changes during the intermediate and extended periods. The analysis by Jegadeesh and Titman (1993) demonstrated that investors need time to process new information following their observations of gradual stock price correction patterns. The study establishes the significance of CAARs and t-statistics during longer event periods, thus demonstrating the slow integration of rating changes into stock prices (Malkiel, 2003). The study shows how information assimilation operates in detailed ways, including factors such as investor conduct and imbalanced information, while including market barriers to influence how quickly stock price adjustments occur. This evidence does not refute EMH but explains its complex information-processing mechanisms.

The graphical depiction in Figure 1 demonstrates the market reaction to credit rating updates among PSE-listed real estate firms through various event periods. Credit rating upgrades show an inconsistent response pattern throughout time. The February 1997 event (Event 1) displayed initial negative short-term CAAR figures, which eventually improved to show market adjustments according to the Asian Development Bank (1999). The April 2019 Event 9 produced sustained negative CAARs among PSE-listed real estate firms. The method clearly shows the impact of rating changes, but the mixed responses to upgrades indicate investor attitudes and that the overall economic environment might impact market reactions (Dichev & Piotroski, 2001; Holthausen & Leftwich, 1986). The inconsistent market patterns demonstrate the complicated nature of credit rating upgrade reactions, showing that beneficial credit developments do not necessarily produce enduring market profits (Ismailescu & Kazemi, 2010; Afonso et al., 2012).

Figure 1. CAAR Across Different Event Windows



On the other hand, the same graph depicts that downgrade, especially the outlook downgrades, have a nearer and more profound effect on stock prices. For instance, when comparing the CAAR for the outlook downgrade in Event 2 (February 1998) with the 61-day window, the fact that the market reacted severely indicates that information from downgrades is particularly taken seriously during volatile periods, such as the Asian Financial Crisis (Asian Development Bank, 1999). Other downgrades in Event 3 (April 2003) and Event 4 (January 2005) also show similar results; CAAR continues to be negative over time, which means that the market will react or adjust to the change of perceived risk associated with these downgrades as soon as possible. This supports our early hypothesis that downgrades cause larger absolute abnormal returns than upgrades, a trend observed in world markets (Shiller, 2005).

The market shows an unequal response to credit rating changes because downgrades result in rapid and persistent drops compared to rating upgrades. Given the established idea of loss aversion, behavioral finance principles support this pattern, where investors exhibit stronger negative reactions than positive reactions to relatively similar gains and losses (Kahneman & Tversky, 1979). Investors view credit rating downgrades as having higher credibility in predicting future financial hardships because they produce quick and strong price declines (International Monetary Fund, 2010). Upgrades

fail to create equal market positivity, possibly because investors doubt long-term benefits or other macroeconomic factors limit positive sentiments (Altman & Rijken, 2004).

The research backing for analyzing external economic influences on the Philippine real estate market emerges from these investigated results. The market shows its financial sensitivity by responding directly to downgraded credit ratings, yet investors integrate multiple economic uncertainties into their decisions. The Efficient Market Hypothesis (EMH) validates this result because markets accept new information. However, the absorption process extends because investors use biases and face liquidity constraints and asymmetric information (Fama, 1970; Malkiel, 2003). The study results support Brooks et al. (2004), who demonstrated that emerging markets react more strongly to negative credit rating alterations than developed markets. This research finds evidence that credit rating shifts affect investor sentiment, thus strengthening the core relationship between Philippine real estate and world capital movement.

Hypothesis 1 (H1). The analysis supports a partial confirmation of Hypothesis 1, showing that credit rating upgrades tend to cause positive stock price movements. However, the effects show differences based on the periods studied. According to Jorion and Zhang (2007), long-term CAARs demonstrate favorable market sentiment, but short-term reactions show weak or negative trends. The weak market reaction to the February 21, 1997 update occurred because market expectations were already high, and the upgrade appeared predictable before the Asian Financial Crisis started (Radelet & Sachs, 1998). Valuation responses following the 2010 and 2012 rating increases became more evident over time, yet the initial reactions remained limited (Claessens et al., 2010). On May 8, 2014, the system upgrade occurred when CAARs were increasing due to strong domestic demand and high remittance inflows (Asian Development Bank, 1999). Public information gradually spreads into stock prices according to the Efficient Market Hypothesis's semi-strong form assumptions (Fama, 1970). The slow reaction to the rating upgrade shows that analysts do not immediately recognize these increases as meaningful indicators favoring stock value because of probable market limitations or doubt (Dichev & Piotroski, 2001). The evaluation by credit rating agencies leads to improved stock market performance during the long term, yet these effects tend to be subtle right after the upgrade event (Jorion & Zhang, 2007).

Hypothesis 2 (H2). The results demonstrate Hypothesis 2 accurately because credit rating downgrades trigger substantial long-term decreases in stock market prices. The Philippines faced political and economic instability as two rating downgrades occurred on April 24, 2003, and January 17, 2005, according to McGeown (2011) and Muego (2005). The S&P credit rating downgrades in April 2003 and January 2005 occurred during times of political turbulence as well as the historical civil unrest in EDSA, the Iraq War break-out, and the presidential electoral fraud accusations facing Gloria Macapagal-Arroyo (Cibulka, 2007). The downgrades generated substantial prolonged negative CAARs, revealing to investors and stakeholders that credit rating downgrades act as powerful signals to warn about financial instability and market volatility (Holthausen & Leftwich, 1986; Goh & Ederington, 1993). Due to increasing global interest rates, the real estate market suffered additional damage that reduced investor confidence (Bernanke, 2005; Reinhart & Rogoff, 2009). Results support the Signaling Theory since negative signals demonstrate stronger credibility than positive signals (Spence, 1973), and the Loss Aversion Theory explains that investor reactions are stronger to losses than gains (Kahneman & Tversky, 1979). Lengthy persistent negative CAARs demonstrated how lowering credit rating assessments produces long-lasting detrimental effects on investor stock market reactions. These research results confirm that credit rating downgrades trigger major market changes by increasing investor safety concerns regarding financial stability and future cash flow predictions (Tversky & Kahneman, 1991).

Hypothesis 3 (H3). The study demonstrates partial support for Hypothesis 3, which shows that investors react more positively to negative credit outlooks than actual credit downgrades. The stock prices experienced a severe drop following the outlook downgrade on February 23, 1998 (Event 2), which resembled the rating downgrade on January 17, 2005 (Event 4). The warning signs provided by outlook downgrades alert investors about forthcoming financial distress, producing heightened market response and increased investor concern (Hand et al., 1992). The major effects of Event 2 validate worldwide evidence indicating that credit outlook downgrades create investor distrust (Goh & Ederington, 1993). The outlook downgrade took place during the Asian Financial Crisis, which caused increased financial volatility throughout Southeast Asia and intensified investor responses,

according to Radelet and Sachs (1998). When investors detect outlook downgrades, they typically view these actions as indicators of future rating decreases, thus leading them to act quickly out of risk avoidance (Kaminsky & Schmukler, 2002).

Past research confirms credit outlooks as crucial indicators that predict subsequent rating changes and financial troubles (Holthausen & Leftwich, 1986). According to Reisen and Von Maltzan (1998), emerging markets demonstrate high sensitivity to fluctuations in risk perceptions and uncertainty levels because investors anticipate upcoming credit rating downgrades, thus causing increased market volatility. Kaminsky and Schmukler's (2002) research demonstrates that outlook alterations among rating agencies cause stock markets to experience greater volatility through unstable performance in economically uncertain environments. Real-life scenarios show this behavior pattern in evidence. Market values deteriorated throughout China when Morgan Stanley and Goldman Sachs issued 2024 outlook downgrades due to economic challenges and business revenue threats (Reuters, 2024). Outlook downgrades trigger extended marketplace instability because investors increase their assessment of future danger. This agrees with Hypothesis 3, which states that outlook downgrades lead to stronger adverse impacts on stock prices.

The major negative market reaction after the February 23, 1998 outlook downgrade stands as initial evidence supporting the proposed hypothesis. The small study sample hampers the researcher's ability to generalize this specific observation. Additional research, including several outlook downgrades across different market settings, will confirm whether these events have a stronger negative impact than standard rating downgrades.

Hypothesis 4 (H4). The research data confirms Hypothesis 4 by demonstrating that credit rating modifications produce escalating market return effects during longer event observation periods. The April 24, 2003 downgrades (Event 3) produced only minimal market consequences at first. However, investors later recognized its full impact against a backdrop of escalating domestic and international uncertainties, according to Campbell et al. (1998) and MacKinlay (1997). The December 20, 2012 upgrades (Event 7) caused a delayed positive market response because the global markets were slowly healing from the eurozone debt crisis (European Commission, 2013; Hodson, 2012). The findings support semi-strong form EMH because they demonstrate how markets adapt to new information progressively rather than immediately (Fama, 1970; Malkiel, 2003). According to Chan (2003), investor activities within Philippine emerging markets might trigger this slow market adjustment because information transmission occurs at diverse speeds. Stock price adjustments due to credit rating variations show up as substantial delayed cumulative abnormal returns in extended event periods, matching findings from research on emerging markets (Brooks et al., 2004).

Hypothesis 5 (H5). The study evidence shows that stock prices experience greater volatility after credit rating downgrades than movement upgrades. Stock prices experience much larger absolute abnormal returns when credit rating agencies make downgrades despite upgrades eliciting milder reactions from investors. The stock prices experienced widespread negative cumulative abnormal returns (CAARs) when the company received its April 24, 2003 downgrade (Event 3) during the Iraq War and ongoing global economic instabilities. A major stock price decline occurred after the January 17, 2005 rating downgrade (Event 4) because of rising political risks in the Philippines (Cibulka, 2007; Muego, 2005). The stock market data adheres to Loss Aversion Theory (Kahneman & Tversky, 1979), demonstrating that investors respond more to prospective losses than equivalent gains.

The data demonstrates how investors correctly view credit rating downgrades as trustworthy indicators of increased business risk, which could lead to default (Dichev & Piotroski, 2001). Income volatility and economic uncertainties significantly increase reaction levels in the Philippine market. When credit ratings decrease, investors react strongly toward financial instability risks but respond gradually to positive rating changes. Research evidence demonstrates stock market responses where bad news induces faster and stronger reactions than positive information (Kothari & Warner, 2007; De Bondt & Thaler, 1985). Credit rating changes generate asymmetric responses from the market because investors display greater risk aversion toward potential losses, especially during economic and political instability (Fama, 1998; Shiller, 2005).

These findings, while compared with particular global and local events, support the proposed hypotheses reasonably. The market responses to credit ratings, therefore, differ significantly, and this is because the context plays an important role in the decision-making process of investors. Upgrades are viewed more favorably in stable periods than in unstable periods. Downgrades are viewed more

unfavorably in unstable periods than in stable periods because the market is more sensitive to risk during such periods. This contextual analysis underscores the subtle interconnection between credit ratings and market forces within the context of the Philippines and the broader world.

Table 4 provides an overview of the effects of credit rating changes on the PSE-listed real estate companies over the significant event. It gives a synopsis of the hypothesis analyzed, whereby the event date has been used in conjunction with the credit rating changes to determine the market reactions and justify the amount of support given to each hypothesis.

Table 4. Summary of Hypotheses on Credit Rating Changes and PSE Real Estate Stock Prices

Hypothesis	Event Date(s)	Credit Rating Change	Specific Event(s)	Market Reaction	Conclusion	Support for Hypothesis
H1: Credit rating upgrades positively influence stock prices of PSE-listed real estate companies.	Feb 21, 1997; Nov 12, 2010; Dec 20, 2012; May 8, 2014	Rating Upgrades	Asian Financial Crisis; Post-Global Financial Crisis recovery; post-Eurozone debt crisis; Period of sustained economic growth in the Philippines	Mixed reactions; generally positive CAARs in the longer term.	Positive market reactions support the Efficient Market Hypothesis (EMH), which predicts long-term price adjustments even though volatility exists in short-term periods. A delayed market response signals semi-strong market efficiency rather than strong market efficiency.	Partially Supported
H2: Credit rating downgrades negatively influence stock prices of PSE-listed real estate companies.	Apr 24, 2003; Jan 17, 2005	Rating Downgrades	Aftermath of Second EDSA Revolution, Iraq War; Political turmoil in the Philippines	Strong CAARs over a longer term.	Investors respond significantly to negative price signals by implementing the Loss Aversion Theory. Downgrades function as valid negative information that meets the conditions of Signaling Theory. Delayed responses indicate semi-strong EMH.	Strongly Supported
H3: Outlook downgrades exert a more significant negative impact on stock prices than credit rating downgrades.	February 23, 1998	Outlook Downgrade	Asian Financial Crisis	Significant long-term negative impact.	The strong price movement supports the hypothesis, yet using one isolated event reduces research generality. The evidence suggests that investors would demonstrate stronger negative reactions toward outlook downgrades due to Loss Aversion, but more research is required to confirm this.	Partially Supported – Limited by sample size
H4: Market's response to credit rating changes intensifies over longer event windows.	Apr 24, 2003; Dec 20, 2012	Rating Downgrade; Rating Upgrade	Ongoing global conflicts and domestic instability; Global recovery from Eurozone debt crisis	Reactions intensified over longer event windows.	The time it takes for markets to react to changes supports the concept of semi-strong EMH because information gets integrated bit by bit, especially as economies become unstable.	Strongly Supported
H5: Credit rating downgrades result in greater absolute abnormal returns than upgrades.	Apr 24, 2003; Jan 17, 2005	Rating Downgrades	Iraq War, global uncertainty, Political instability in the Philippines	Larger CAARs compared to upgrades.	A more intense reaction to negative indications matches the Loss Aversion Theory because investors react more intensely to losses than gains. Downgrades function as significant negative signs that support Signaling Theory. This prolonged impact supports semi-strong EMH.	Strongly Supported

5 Summary and Conclusion

The research depicts market sensitivity while displaying diverse time-based and firm-based reactions to modifications in PSE-listed real estate firm credit ratings and outlooks. Analyzing different abnormal return windows through cumulative average abnormal return calculations shows that downgrades generate persistent negative market reactions surpassing limited or indistinct responses to upgrades. Investors' reaction to negative news matches the theoretical concepts of loss aversion described by Kahneman and Tversky in 1979. The findings from this study show that rating changes cause market reactions to occur later due to market structure weaknesses and investor reaction inefficiencies.

These findings confirm parts of the Efficient Market Hypothesis proposed by Fama (1970). According to the Efficient Market Hypothesis, stock prices should match new information immediately, but longer event windows expose considerable CAARs that develop over time. The market needs time to adjust to new information because of market frictions, investor sentiment, and information asymmetry (Jegadeesh & Titman, 1993; Malkiel, 2003). Market responses within the Philippine real estate sector depend on financial and macroeconomic variables operating at national and global levels.

During a three-day event window, investors demonstrate weak or statistically nonsignificant market reactions, specifically towards rating upgrade announcements, because they fail to process new information promptly. The market demonstrates stronger reactions during the 21-day intermediate-term period, especially for downgraded ratings in line with the signaling theory. Based on market responses, the stock price integration of negative information occurs progressively over 41 to 61 days after downgrades. This research demonstrates that downgrades lead to greater impacts that last longer than upgrades, so it validates loss aversion theory. The market responds more strongly to downgrades by selling off stocks, and this stock selling persists because investors view downgrades as potent indicators of risk ahead. On the other hand, investments in upgraded stocks do not produce similar positive effects.

Therefore, the paper also highlights that when assessing the market reactions to credit rating changes, one must consider the time horizon, the event window, and the market conditions. It also increases the contributions of these responses to stock performance where time varies and is non-symmetrical, meaning that downgrades share larger negative responses than upgrades. Therefore, this research helps explain the effects of credit rating changes on the market, especially in an emerging market such as the Philippine market, given that risk and economic conditions significantly affect investor decisions.

6 Implication, Limitations and Future Research

These research findings create essential implications that impact the decision-making processes of investors, financial analysts, policymakers, and academicians. Knowledge about market asymmetry regarding credit rating changes matters to investors because negative changes result in larger and more sustained market reactions than positive ones. This knowledge means that investors should be most careful in economic or political turmoil because sharp movements often follow such changes in the stock. From the point of view of financial analysts, the study notes that credit rating shifts should not only be assessed repeatedly over short intervals but also traced in long intervals because stock price changes occur gradually.

These findings can be useful for policymakers, especially those from new emerging economies such as the Philippines when formulating policies regarding credit rating and disclosure to ensure that markets remain efficient and investors receive timely information. The policy-making sector can leverage research results to create market transparency protocols that minimize information acquisition barriers and achieve better price fluctuations. Moreover, publicly listed real estate companies and their corporate managers should understand from these findings that maintaining a high credit rating requires proactive financial management. Companies should make preventive disclosures that may offset possible downgrades since negative communication has greater significance.

The study is also significant for academicians, specifically those who analyze financial markets and investors' behavior. The study provides new insights into the literature on market efficiency and behavioral finance based on the evidence that market reactions to credit rating changes are non-symmetrical and time-varying. These results can be helpful to academicians in conducting a deeper investigation into investor behavior, especially because the reaction to a downgrade is stronger than the reaction to an upgrade. Furthermore, it notes the areas of future research to bring together information from economics, psychology, and finance to develop better and broader identification of how information is processed and used in financial markets.

Therefore, while this study has outlined several important findings, it is crucial to note the following limitations. The main weakness of this research arises from its exclusive reliance on S&P Global Ratings assessments. The present analysis required limiting it to S&P Global Ratings due to data and time constraints, which prevented the addition of Moody's or Fitch Ratings. The study also prescribes exclusively to the sample of Philippines' PSE-listed Real Estate firms. Hence, the results obtained from this study may not significantly impact other sectors, markets, or the PSE-listed firms of different industries. The nature of the real estate market and its peculiarities, for instance, its cyclicality or the dependency on interest rates, might explain the market reactions differently than in other industries. Second, the research scope is restricted to the Philippine market environment. Being an emerging economy places the Philippines' market structure apart from that of more developed nations. The study results might vary if researchers recreate this investigation with multiple countries with distinctive economic structures and market atmospheres.

Furthermore, the analysis includes limited credit rating events, especially outlook downgrades. The small dataset affects the reliability of conclusions derived from H3 (Outlook downgrades deliver larger adverse stock price effects than downgrades in credit ratings). Researchers should exercise caution when interpreting the findings because the results only suggest but do not prove the strength or duration of these effects.

Another drawback to the study is that it relies on the event study approach, which, as helpful as it is in establishing event effects on a market, is rather limited in evaluating investor response and market fluctuations. The event windows selected (3-day, 21-day, 41-day, and 61-day) capture only market reactions during the respective periods. However, they could otherwise miss the more gradual changes or delayed market reactions that may occur beyond these windows. Event study analysis depends on the even distribution of extraneous factors, firm-specific events, and global economic influences, which affect the research outcome. The stock market in the Philippines connects closely with international trading mechanisms, so other market forces might have contributed to the effects of stock prices that exceeded credit rating modifications. All these could complicate the outcomes and make it difficult to discern the effects of credit rating shifts.

In light of these limitations, Future studies should investigate credit rating modifications measured by Moody's and Fitch Ratings, as this expansion will deepen the analysis of market impact variations per rating agency. A study expansion into sectors beyond real estate would provide additional knowledge about how Philippine stock markets respond to credit rating announcements. In addition, future related research may generalize this study by analyzing this change in various sectors and markets, including emerging and developed ones. Comparisons could be made between different industries, for example, manufacturing or technology sectors, and between countries with different market development levels and market reactions to credit rating change. Other segments in Southeast Asian markets and regions should be added to the study's sample to achieve better external validity and develop comparative insights. The investigation of multiple industries across the Philippines will show if Philippine real estate behaves differently than other Asian companies or shows typical market response patterns in general.

A study of the trading patterns within a single trading day would reveal greater details about how Philippine markets rapidly process updates to credit ratings. Extended studies regarding the semi-strong form of the Efficient Market Hypothesis would reveal more comprehensive information about local market reaction dynamics. Researchers should test various durations of event periods together with longer post-event durations to study market reaction sustainability extending past sixty days.

Future investigations should research how media coverage and investor sentiment either strengthen or reduce the impact of credit rating changes on Philippine market reactions. Sentiment analysis and big data techniques allow scholars to assess if investors respond more to actual credit

events or how they interpret and receive the information released by investors. Future work can investigate additional cognitive biases and feelings that investors consider. The idea of behavioral finance or experimental studies could be used to explain why investors behave in a certain manner regarding upgrades and downgrades and how this behavior could be controlled through change for awareness or policies. Increased awareness of the psychological factors driving such market reactions could contribute to developing better ways to respond to market fluctuations in the interests of investors. A study examining firm recovery patterns following downgrades alongside corporate strategic responses against market reaction strength would deliver applicable knowledge for investors and directors regarding downgrade consequences.

Lastly, subsequent studies could investigate the latter's trend after different credit rating changes. Specifically, longitudinal studies that monitor the performance of the firms for several years after the change in the rating could provide evidence of whether or not the initial market response is long-lived, declining, or even becoming inverted. They could also focus on aspects like how firms manage rating changes – whether in the form of strategic moves, financial changes, or corporate governance structure and how these impact the future market or performance. Thus, the analysis could be further prolonged to address the factors regarding the change in credit rating and its effects on the firm value, investors, and the overall market.

References

Abueg, L., Zamora, C. M., & Correa, L. N. (2021). COVID-19 pandemic and the Philippine real estate property cycle: indications of bubble burst in the "new normal"? *Philippine Review of Economics*, *58*(1&2), 264-292. https://pre.econ.upd.edu.ph/index.php/pre/article/view/1017/928

Afonso, A., Furceri, D., & Gomes, P. (2012). Sovereign credit ratings and financial markets linkages: Application to European data. *Journal of International Money and Finance*, *31*(3), 606-638. https://doi.org/10.1016/ j.jimonfin.2012.01.016

Afonso, A., Gomes, P., & Rother, P. (2011). Short-and long-run determinants of sovereign debt credit ratings. *International Journal of Finance & Economics*, *16*(1), 1-15. https://doi.org/10.1002/ ijfe.416

Afonso, A., Gomes, P., & Taamouti, A. (2014). Sovereign credit ratings, market volatility, and financial gains. *Computational Statistics & Data Analysis*, *76*, 20-33. https://doi.org/10.1016/j.csda.2013.09.028

Akerlof, G. A. (1970). The market for "lemons": Quality uncertainty and the market mechanism. *The Quarterly Journal of Economics*, *84*(3), 488-500.

Alsakka, R., & Ap Gwilym, O. (2013). Rating agencies' signals during the European sovereign debt crisis: Market impact and spillovers. *Journal of Economic Behavior & Organization*, *85*, 144-162. https://doi.org/10.1016/j.jebo.2011.12.007

Altman, E. I., & Rijken, H. A. (2004). How rating agencies achieve rating stability. *Journal of Banking & Finance, 28*(11), 2679-2714. https://doi.org/10.1016/j.jbankfin.2004.06.006

Altunbas, Y., Gambacorta, L., & Marques-Ibanez, D. (2010). *Does monetary policy affect bank risk-taking?* (No. 1166). ECB working paper.

Ammer, J., & Packer, F. (2000). How consistent are credit ratings? A geographic and sectoral analysis of default risk. *International Finance Discussion Papers.* Board of Governors of the Federal Reserve System. https://dx.doi.org/10.2139/ssrn.232909

Aquino, R. Q. (2006). Efficiency of the Philippine stock market. *Applied Economics Letters*, *13*(7), 463–470. https://doi.org/10.1080/13504850500397437

Aratea, J. L., & Sayson, G. M. (2024). Determinants of Profitability of Listed Real Estate Companies in the Philippines. *Philippine Management Review*, *31*, 35-48. https://pmr.upd.edu.ph/index.php/pmr/article/view/373/374

Asian Development Bank. (1999). *Interpreting the Asian financial crisis*. ADB. https://www.adb.org/sites/default/files/publication/28049/bn010.pdf

Avramov, D., Chordia, T., Jostova, G., & Philipov, A. (2009). Credit ratings and the cross-section of stock returns. *Journal of Financial Markets*, *12*(3), 469-499. https://doi.org/10.1016/j.finmar. 2009.01.005

Baker, M., & Wurgler, J. (2007). Investor sentiment in the stock market. *Journal of Economic Perspectives*, *21*(2), 129-151. https://www.aeaweb.org/articles/pdf/doi/10.1257/jep.21.2.129

Ball, R., & Brown, P. (1968). An empirical evaluation of accounting income numbers. *Journal of Accounting Research, 6*(2), 159–178. https://doi.org/10.2307/2490232

Bangko Sentral ng Pilipinas (BSP) (n.d.). *Philippine stock market capitalization*. https://www.bsp.gov.ph/statistics/OtherRealSectorAccounts/Table%2043.pdf

Barron's. (n.d.). *Philippine Realty and Holdings Corporation financial data*. Retrieved March 28, 2025, from https://www.barrons.com/market-data/stocks/rlt/company-people

Bautista, C. C. (2003). Stock market volatility in the Philippines. *Applied Economics Letters*, *10*(5), 315-318. https://doi.org/10.1080/13504850210148107

Beaver, W. H. (1968). The information content of annual earnings announcements. *Journal of Accounting Research*, pp. 67–92. https://doi.org/10.2307/2490070

Bernanke, B. S. (2005). The global saving glut and the US current account deficit. *Board of Governors of the Federal Reserve System (US)*. https://www.federalreserve.gov/boarddocs/speeches/2005/200503102/default.htm

Bissoondoyal-Bheenick, E. (2012). Do sovereign rating changes trigger spillover effects? *Research in International Business and Finance*, *26*(1), 79-96. https://doi.org/10.1016/j.ribaf.2011.07.001

Boot, A. W., Milbourn, T. T., & Schmeits, A. (2006). Credit ratings as coordination mechanisms. *The Review of Financial Studies*, *19*(1), 81-118. https://doi.org/10.1093/rfs/hhj009

Brooks, R., Faff, R. W., Hillier, D., & Hillier, J. (2004). The national market impact of sovereign rating changes. *Journal of Banking & Finance*, *28*(1), 233-250. https://doi.org/10.1016/S0378-4266(02)00406-5

Brown, S. J., & Warner, J. B. (1985). Using daily stock returns: The case of event studies. *Journal of Financial Economics*, *14*(1), 3–31. https://doi.org/10.1016/0304-405X(85)90042-X

Calomiris, C. W., & Mason, J. R. (2003). Fundamentals, panics, and bank distress during the depression. *American Economic Review*, *93*(5), 1615-1647. https://www.aeaweb.org/articles?id=10.1257/000282803322655473

Campbell, J. Y., Lo, A. W., & MacKinlay, A. C. (1998). The econometrics of financial markets*. Macroeconomic Dynamics, 2*(4), 559-562. https://doi.org/10.1017/S1365100598009092

Cantor, R., & Packer, F. (1996). Determinants and impact of sovereign credit ratings. *Economic Policy Review*, *2*(2), 37-53. https://dx.doi.org/10.2139/ssrn.1028774

Case, K. E., Quigley, J. M., & Shiller, R. J. (2005). Comparing wealth effects: the stock market versus the housing market. *Topics in Macroeconomics*, *5*(1), 20121001. https://doi.org/10.2202/1534-6013.1235

Chan, W. S. (2003). Stock price reaction to news and no-news: Drift and reversal after headlines. *Journal of Financial Economics, 70*(2), 223–260. https://doi.org/10.1016/S0304-405X(03)00146-6

Chau, P. Q., & Hien, N. T. (2012). Impacts of credit rating changes on stock returns. *Ho Chi Minh City Open University Journal of Science-Economics and Business Administration*, *2*(1), 40-51. https://doi.org/10.46223/HCMCOUJS.econ.en.2.1.67.2012

Cibulka, F. (2007). The Philippines: In the eye of the political storm. *Southeast Asian Affairs*, pp. 257–276. http://www.jstor.org/stable/27913336

Claessens, S., Kose, M. A., & Terrones, M. E. (2010). The global financial crisis: How similar? How different? How costly? *Journal of Asian Economics*, *21*(3), 247-264. https://doi.org/10.1016/j.asieco. 2010.02.002

Corrado, C. J. (2011). Event studies: A methodology review. *Accounting & Finance*, 51(1), 207-234. https://doi.org/10.1111/j.1467-629X.2010.00375.x

De Bondt, W. F., & Thaler, R. (1985). Does the stock market overreact? *The Journal of Finance*, 40(3), 793-805. https://doi.org/10.1111/j.1540-6261.1985.tb05004.x

Department of Agrarian *Reform (DAR) (1988). Comprehensive Agrarian Reform Law of 1988 (Republic Act No. 6657).* http://www.lis.dar.gov.ph/documents/9293

Dichev, I. D., & Piotroski, J. D. (2001). The long-run stock returns following bond ratings changes. *The Journal of Finance*, *56*(1), 173-203. https://doi.org/10.1111/0022-1082.00322

Eckhold, M. K., Faltermeier, J., King, M. D., Mak, I., & Petrov, D. (2024). EMDE Central Bank Interventions during COVID-19 to Support Market Functioning. *IMF Working Papers.* International Monetary Fund.

Elkhoury, M. (2009). Credit rating agencies and their potential impact on developing countries. *UNCTD Compendium on Debt Sustainability*, pp. 165–180.

Elotmani, Y., Hniche, O., Sifouh, N., Oubal, K., Benslimane, I., & Benjelloun, S. (2024). Financial markets anomalies: a research review from the perspective of rational and irrational arguments. *International Journal of Strategic Management and Economic Studies (IJSMES)*, *3*(1), 173-190. https://doi.org/10.5281/zenodo. 10625677

European Commission. (2013). *A comprehensive EU response to the financial crisis: substantial progress towards a strong financial framework for Europe and a banking union for the Eurozone*. Retrieved from: https://ec.europa.eu/commission/presscorner/detail/fi/MEMO_14_244

Faff, R. W., Gray, S., & Tan, K. J. K. (2016). A contemporary view of corporate finance theory, empirical evidence, and practice. *Australian Journal of Management*, *41*(4), 662-686. https://doi.org/10.1177/0312896216 632032

Fama, E. F. (1970). Efficient capital markets. *Journal of Finance*, *25*(2), 383-417. https://doi.org/10.7208/9780226426983-007

Fama, E. F. (1976). *Foundations of finance: Portfolio decisions and securities prices.* New York, NY: Basic Books.

Fama, E. F. (1998). Market efficiency, long-term returns, and behavioral finance. *Journal of Financial Economics, 49*(3), 283–306. https://doi.org/10.1016/S0304-405X(98)00026-9

Ferreira, M. A., & Gama, P. M. (2007). Does sovereign debt ratings news spill over to international stock markets? *Journal of Banking & Finance*, *31*(10), 3162-3182. https://doi.org/10.1016/j.jbankfin.2006.12.006

Ferri, G., Liu, L. G., & Stiglitz, J. E. (1999). The procyclical role of rating agencies: Evidence from the East Asian crisis. *Economic Notes*, *28*(3), 335-355. https://doi.org/10.1111/1468-0300.00016

Gande, A., & Parsley, D. C. (2005). News spillovers in the sovereign debt market. *Journal of Financial Economics*, *75*(3), 691–734. https://doi.org/10.1016/j.jfineco.2003.11.003

Geyikci, U. B. (2023). Effects of credit rating announcements on risk perception of financial markets in emerging countries. *International Journal of Business and Emerging Markets*, *15*(1), 53-79. https://dx.doi.org/ 10.1504/IJBEM.2023.10050907

Goh, J. C., & Ederington, L. H. (1993). Is a bond rating downgrade bad news, good news, or no news for stockholders? *The Journal of Finance*, *48*(5), 2001-2008. https://doi.org/10.1111/j.1540-6261.1993.tb05139.x

Govender, S. (2018). The impact of a change in sovereign credit ratings on stock market volatility: A comparison of emerging and developed countries. University of Cape Town. Retrieved from: http://hdl.handle.net/11427/28384

Gropp, R., & Richards, A. J. (2001). Rating agency actions and the pricing of debt and equity of European banks: what can we infer about private sector monitoring of bank soundness? *Economic Notes*, *30*(3), 373-398. https://doi.org/10.1111/1468-0300.00064

Gyourko, J. (2009). Understanding commercial real estate: Just how different from housing is it? National Bureau of Economic Research. https://www.nber.org/papers/w14708

Hand, J. R., Holthausen, R. W., & Leftwich, R. W. (1992). The effect of bond rating agency announcements on bond and stock prices. *The Journal of Finance*, *47*(2), 733-752. https://doi.org/10.1111/j.1540-6261.1992. tb04407.x

Hiang Liow, K., & Huang, Q. (2006). Interest rate risk and time-varying excess returns for Asian property stocks. *Journal of Property Investment & Finance*, *24*(3), 188-210. https://doi.org/10.1108/14635780610659919

Hill, P., Brooks, R., & Faff, R. (2010). Variations in sovereign credit quality assessments across rating agencies. *Journal of Banking & Finance*, *34*(6), 1327–1343. https://doi.org/10.1016/j.jbankfin.2009.11.028

Hodson, D. (2012). The Eurozone in 2011. *Journal of Common Market Studies.*, *50*, 178–194. https://doi.org/10.1111/j.1468-5965.2012.02270.x

Holthausen, R. W., & Leftwich, R. W. (1986). The effect of bond rating changes on common stock prices. *Journal of Financial Economics, 17*(1), 57-89. https://doi.org/10.1016/0304-405X(86)90006-1

Hooper, V., Hume, T., & Kim, S. J. (2008). Sovereign rating changes—Do they provide new information for stock markets? *Economic Systems*, *32*(2), 142–166. https://doi.org/10.1016/j.ecosys.2007.05.002

Hubler, J., Louargant, C., Laroche, P., & Ory, J. N. (2019). How do rating agencies decisions impact stock markets? A meta-analysis. *Journal of Economic Surveys*, *33*(4), 1173-1198. https://doi.org/10.1111/joes.12317

Hu, H. (2017). The impact of sovereign rating events on bank stock returns: An empirical analysis for the Eurozone. *The Journal of Risk Finance*, *18*(4), 338–367. https://doi.org/10.1108/JRF-12-2016-0156

International Monetary Fund. (2010). *Global financial stability report*. IMF. https://www.imf.org/-/media/Websites/IMF/imported-full-text-pdf/external/pubs/ft/gfsr/2010/02/pdf/_text.ashx

Ismailescu, I., & Kazemi, H. (2010). The reaction of emerging market credit default swap spreads to sovereign credit rating changes. *Journal of Banking & Finance*, *34*(12), 2861–2873. https://doi.org/10.1016/j.jbankfin.2010.05.014

Jegadeesh, N., & Titman, S. (1993). Returns to buying winners and selling losers: Implications for stock market efficiency. *The Journal of Finance*, 48(1), 65–91. https://doi.org/10.1111/j.1540-6261.1993.tb04702.x

Jorion, P., & Zhang, G. (2007). Good and bad credit contagion: Evidence from credit default swaps. *Journal of Financial Economics*, *84*(3), 860–883. https://doi.org/10.1016/j.jfineco.2006.06.001

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*(2), 263-291. https://doi.org/10.2307/1914185

Kaminsky, G., & Schmukler, S. L. (2002). Emerging market instability: Do sovereign ratings affect country risk and stock returns? *The World Bank Economic Review*, *16*(2), 171-195. https://doi.org/10.1093/wber/16.2.171

Kim, S. J., & Wu, E. (2008). Sovereign credit ratings, capital flows, and financial sector development in emerging markets. *Emerging Markets Review*, *9*(1), 17-39. https://doi.org/10.1016/j.ememar.2007.06.001

Kliger, D., & Sarig, O. (2000). The information value of bond ratings. *The journal of finance*, *55*(6), 2879–2902. https://doi.org/10.1111/0022-1082.00311

Kothari, S. P., & Warner, J. B. (2007). Econometrics of event studies. *Handbook of Empirical Corporate Finance* (pp. 3-36). Elsevier. https://doi.org/10.1016/B978-0-444-53265-7.50015-9

Kräussl, R. (2005). Do credit rating agencies add to the dynamics of emerging market crises? *Journal of Financial Stability*, *1*(3), 355–385. https://doi.org/10.1016/j.jfs.2005.02.005

Lamudi. (2023). Leading real estate developers in the Philippines in 2022, by net income (in billion Philippine pesos) [Graph]. *Statista*. Retrieved from: https://www.statista.com/statistics/1249845/philippines-real-estate-developers-by-net-income/

Li, H., Jeon, B. N., Cho, S. Y., & Chiang, T. C. (2008). The impact of sovereign rating changes and financial contagion on stock market returns: Evidence from five Asian countries. *Global Finance Journal*, *19*(1), 46-55. https://doi.org/10.1016/j.gfj.2007.12.001

Li, C., Pervaiz, K., Khan, M. A., Khan, M. A., & Oláh, J. (2022). Impact of sovereign credit rating disclosure on Chinese financial market. *SAGE Open, 12*(1). https://doi.org/10.1177/21582440221079906

Ling, D. C., & Naranjo, A. (2002). Commercial real estate return performance: A cross-country analysis. *The Journal of Real Estate Finance and Economics*, *24*, 119-142. https://doi.org/10.1023/A:1013938506550

Liu, L. G., & Ferri, G. (2001). How do global credit rating agencies rate firms from developing countries? *ADBI Research Paper Series.* Retrieved from: http://hdl.handle.net/10419/111118

Lund, K. B., & Felberg, O. J. (2013). *Credit rating updates as a source of new information in the Scandinavian stock market* (Master's thesis). http://hdl.handle.net/11250/94996

Malkiel, B. G. (2003). The efficient market hypothesis and its critics. *Journal of Economic Perspectives*, *17*(1), 59-82. https://www.aeaweb.org/articles/pdf/doi/10.1257/089533003321164958

MacKinlay, A. C. (1997). Event studies in economics and finance. *Journal of Economic Literature, 35*(1), 13–39. http://www.jstor.org/stable/2729691

Martell, R. (2005). The effect of sovereign credit rating changes on emerging stock markets. *SSRN*. https://dx.doi.org/10.2139/ssrn.686375

McGeown, K. (2011). People power at 25: Long Road to Philippine democracy. *BBC News*. Retrieved from: https://www.bbc.com/news/world-asia-pacific-12567320

Mora, N. (2006). Sovereign credit ratings: Guilty beyond reasonable doubt? *Journal of Banking & Finance*, *30*(7), 2041-2062. https://doi.org/10.1016/j.jbankfin.2005.05.023

Muego, B. (2005). The Philippines in 2004. A gathering storm. In D. Singh & K. Chin (Ed.), *Southeast Asian Affairs 2005* (pp. 293–312). Singapore: ISEAS Publishing. https://doi.org/10.1355/9789812306951-017

NEDA (2020). *Report on National Income Accounts (Q1-Q3 2020)*. National Economic and Development Authority. Retrieved from: https://neda.gov.ph/wp-content/uploads/2020/11/Report-on-NIA-Q1-Q3-2020.pdf

Nawaz, R. (2018). *Impact of sovereign credit rating changes on stock market co-movements, in case of ASEAN and southern Asia's markets* (Doctoral dissertation, CAPITAL UNIVERSITY). https://thesis.cust.edu.pk/UploadedFiles/Rabia%20Nawaz-MMS143050.pdf

Norden, L., & Weber, M. (2004). Informational efficiency of credit default swap and stock markets: The impact of credit rating announcements. *Journal of Banking & Finance*, *28*(11), 2813-2843. https://doi.org/10.1016/ j.jbankfin.2004.06.011

Patinio, F. (2022). "Build, Build, Build" continues: Building more for better lives. *Philippine News Agency*. Retrieved from: https://www.pna.gov.ph/articles/1179572

Peterson, P. P. (1989). Event studies: A review of issues and methodology. *Quarterly Journal of Business and Economics*, *28*(3), 36–66. http://www.jstor.org/stable/40472954

PSA (2023). *Annual national accounts linked series (2000-2022)* Philippine Statistics Authority. Retrieved from: https://psa.gov.ph/statistics/national-accounts/data-series

Piccolo, A., & Shapiro, J. (2022). Credit ratings and market information. *The Review of Financial Studies*, *35*(10), 4425-4473. https://doi.org/10.1093/rfs/hhac005

PPPC (2023). *Newly enacted PPP Code optimizes public-private collaborations*. Public-Private Partnership Center. Retrieved from: https://ppp.gov.ph/in_the_news/newly-enacted-ppp-code-optimizes-public-private-collaborations/

Radelet, S., & Sachs, J. (1998). The onset of the East Asian financial crisis. *NBER Working Papers* https://www.nber.org/papers/w6680

Rahm, E., & Do, H. H. (2000). Data cleaning: Problems and current approaches. *IEEE Data Engineering Bulletin*, *23*(4), 3-13.

Reddy, K., Bosman, R., & Mirza, N. (2019). Impact of credit ratings on stock returns. *Bulletin of Monetary Economics and Banking*, *21*(3), 343-366. https://doi.org/10.21098/bemp.v21i3.986

Reinhart, C. M. (2002). Default, currency crises, and sovereign credit ratings. *The World Bank Economic Review*, *16*(2), 151-170. https://doi.org/10.1093/wber/16.2.151

Reinhart, C. M., & Rogoff, K. S. (2009). *This time is different: Eight centuries of financial folly.* Princeton University Press. https://doi.org/10.1515/9781400831722

Reisen, H., & Von Maltzan, J. (1999). Boom and bust and sovereign ratings. *International Finance*, *2*(2), 273-293. https://doi.org/10.1111/1468-2362.00028

Reuters. (2024). Goldman Sachs and Morgan Stanley downgrade China's outlook. *Reuters*. Retrieved from: https://www.reuters.com/markets/asia/goldman-sachs-downgrades-hong-kong-stocks-underweight-2024-11-18/

Ross, S. A. (1977). The determination of financial structure: The incentive-signaling approach. *The Bell Journal of Economics*, *8*(1), 23–40. https://doi.org/10.2307/3003485

Rustico, E. M. P. (2019). *Stock price determinants: Evidence from Philippine stock exchange index firms*. Retrieved from: https://www.researchgate.net/publication/344447940_STOCK_PRICE_DETERMINANTS_EVIDENCE_ FROM_PHILIPPINE_STOCK_EXCHANGE_INDEX_FIRMS

Safari, M., & Ariff, M. (2015). Sovereign credit rating change in emerging markets and its impact on financial markets. *International Journal of Bonds and Derivatives*, *1*(3), 203-216. https://doi.org/10.1504/IJBD.2015.071400

Shahzad, K. (2013). Credit rating agencies, financial regulations, and the capital markets. *ERIM Ph.D. Series in Management*. http://hdl.handle.net/1765/39655

Shiller, R. J. (2005). *Irrational Exuberance: (Second Edition)*. Princeton University Press. http://www.jstor.org/stable/j.ctt7st4s

Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics*, *87*(3), 355–374. https://doi.org/10.2307/1882010

Statista. (2023). *Real estate industry in the Philippines - statistics & facts*. Retrieved from: https://www-statista-com.eu1.proxy.openathens.net/topics/8509/real-estate-industry-in-the-philippines/#editorsPicks

Strong, N. (1992). Modelling abnormal returns: A review article. *Journal of Business Finance & Accounting*, *19*(4), 533-553. https://doi.org/10.1111/j.1468-5957.1992.tb00643.x

Subaşı, F. Ö. (2008). The effect of sovereign rating changes on stock returns and exchange rates. *International Research Journal of Finance and Economics*, *20*, 46–54.

Suarez, A. (2022). Highs and lows of PH real estate. *Inquirer*. Retrieved from: https://business.inquirer.net/354002/highs-and-lows-of-ph-real-estate-2

Timmermans, M. A. (2012). *Credit rating changes and the effect on stock prices*. Tilburg University. http://arno.uvt.nl/show.cgi?fid=128279

Tversky, A., & Kahneman, D. (1991). Loss aversion in riskless choice: A reference-dependent model. *The Quarterly Journal of Economics*, *106*(4), 1039-1061. https://doi.org/10.2307/2937956

White, L. J. (2018). The credit rating agencies and their role in the financial system. *IDEAS.* Retrieved from: https://ideas.repec.org/p/ste/nystbu/18-12.html#download

World Government Bonds. (n.d.). *Philippines credit ratings*. https://www.worldgovernmentbonds.com/credit-rating/philippines/?fbclid=IwAR0F9uSvRapbFMfaZPE4BN1Z_LirlFQz62VsqeAm-UCCX34XSZAJvP6jDE8

Zhuang, J., Edwards, D., Webb, D. C., & Capulong, M. V. (2000). *Corporate governance and finance in East Asia: A study of Indonesia, Republic of Korea, Malaysia, Philippines, and Thailand* (Vol. 1). Asian Development Bank.

Appendix
Summary of Alphas and Betas Used

EVENT 1 - Rating Upgrade

	Company Symbol	Event Window Days							
		3 (-1 to +1)		21 (-10 to +10)		41 (-20 to +20)		61 (-30 to +30)	
		α	*β*	*α*	*β*	*α*	*β*	*α*	*β*
1.	BRN	0.2864	0.3087	0.3230	0.2306	0.3251	0.1560	0.3724	0.0943
2.	ANA	0.3904	0.1520	0.3078	0.1725	0.3342	0.2143	0.3061	0.3256
3.	ARP	0.2397	1.2345	0.2730	1.2556	0.3200	1.4649	0.4732	1.4983
4.	URD	-0.1473	0.1186	-0.1471	0.0831	-0.1670	0.0189	-0.2154	-0.0019
5.	JIA	0.0210	0.2721	0.0420	0.2092	0.0176	0.1128	-0.0030	0.2917
6.	ACA	0.1693	0.6978	0.1759	0.6726	0.1629	0.6188	0.1693	0.6018
7.	ALI	-0.0650	1.4641	-0.0530	1.4686	-0.1080	1.4639	-0.1160	1.4030
8.	POP	-0.1191	1.1238	-0.2125	1.1630	-0.3609	0.9691	-0.2068	1.0024
9.	BEA	0.0623	1.1404	0.0782	1.2252	0.1178	1.2008	0.1758	1.2101
10.	CBH	0.1640	0.3882	0.1942	0.2780	-0.0496	0.1112	0.0957	0.2523
11.	CPG	-0.2412	0.1645	-0.1729	0.1809	-0.033	0.2191	-0.1281	0.1928
12.	CDA	-0.1477	0.3109	-0.1487	0.3324	-0.1013	0.3701	-0.1775	0.3061
13.	PPR	0.2767	0.2279	0.3555	0.2079	0.1228	0.2523	0.1417	0.3609
14.	FLA	-0.1453	1.0806	-0.2818	1.1064	-0.7916	0.8749	-0.4848	0.7474
15.	EEH	-0.0554	0.4748	-0.1118	0.5185	-0.2303	0.5521	-0.3242	0.5854
16.	EGR	0.1032	0.4126	0.1232	0.3831	0.1548	0.4414	0.1213	0.4059
17.	FJP	1.9970	-1.6205	1.4012	-1.5135	1.1942	-1.402	0.8987	-0.9903
18.	FDC	-0.2951	1.1815	-0.2782	1.2567	-0.3579	1.1507	-0.4564	1.1645
19.	FLI	-0.1046	1.3692	-0.0548	1.3646	-0.0681	1.4764	-0.1015	1.5553
20.	FEL	-0.0965	0.6291	-0.0500	0.5950	-0.1069	0.4584	-0.1771	0.4317
21.	KPA	-0.0938	0.0409	-0.2131	0.0401	-0.2700	0.3377	-0.1595	0.3236
22.	CEB	-0.3282	0.0524	-0.2333	0.0313	-0.0156	0.1015	-0.4635	0.0928
23.	MEG	-0.0594	1.0239	-0.1022	0.9789	-0.1716	1.0208	-0.1513	1.0897
24.	EBE	1.4953	-0.1705	1.0147	-0.1690	0.7216	0.1520	0.4570	0.4965
25.	MRC	-0.0136	0.9408	-0.0041	0.9550	0.0656	0.8085	0.1539	0.8239
26.	PES	0.2363	0.1035	0.2365	0.0469	0.1232	-0.0244	0.0392	0.0189
27.	IRA	0.6997	0.5465	0.6884	0.5607	0.8435	0.4358	0.8188	0.6254
28.	RLA	0.1682	0.0027	0.3521	-0.0400	0.3320	0.0349	0.2544	0.0537
29.	RLC	-0.0661	0.2366	-0.0532	0.4136	-0.0691	0.4934	-0.1437	0.5061
30.	STA	0.1726	-0.1106	0.127	-0.2591	0.3802	0.1693	0.3117	0.4113
31.	SPR	0.3655	-0.0356	0.3332	-0.0142	0.3061	0.0215	0.2764	0.0315
32.	SMP	0.1551	1.7540	0.1449	1.6934	0.1734	1.7619	0.0798	1.7117
33.	GAR	0.9168	0.6899	0.9332	0.3170	0.7781	0.1712	0.6432	0.2583
34.	STR	1.6891	0.2067	0.6538	0.6505	0.3314	0.3777	-0.0343	0.3934

Source: Author's Calculation

EVENT 2 – Outlook Downgrade

Company Symbol		Event Window Days							
		3 (-1 to +1)		21 (-10 to +10)		41 (-20 to +20)		61 (-30 to +30)	
		α	*β*	*α*	*β*	*α*	*β*	*α*	*β*
1.	BRN	-0.2894	-0.0674	-0.3849	-0.0832	-0.3117	0.4497	-0.2079	0.5074
2.	ANA	0.2643	1.1464	0.1928	1.1743	-0.0811	1.1940	-0.0804	1.3410
3.	ARP	-0.5649	1.2152	-0.6929	1.1596	-0.9961	1.3010	-1.1498	1.4332
4.	URD	-0.4853	0.7174	-0.4446	0.7964	-0.5188	0.6110	-0.7611	0.3257
5.	JIA	-0.5378	0.7295	-0.3872	0.6362	-0.6248	0.3635	-0.6300	0.3779
6.	ACA	0.2922	1.1289	0.3449	1.1847	0.3137	1.1374	0.3350	1.1717
7.	ALI	0.0869	1.2269	0.1566	1.1577	-0.0146	1.1428	0.2514	1.2389
8.	POP	-0.1319	1.2288	-0.3646	1.2329	-0.8418	1.1836	-0.9641	1.0846
9.	BEA	-0.8471	1.8392	-0.6352	1.8392	-0.3117	0.4497	-0.9181	1.5874
10.	CBH	-0.2796	0.6698	-0.5247	0.5642	-0.3117	0.4497	-0.5878	0.6218
11.	CPG	-0.4853	0.4540	-0.8861	0.4228	-0.7071	0.3660	-0.6419	0.3050
12.	CDA	-0.1210	0.2124	-0.2518	0.2778	-0.2214	0.2997	-0.3384	0.3596
13.	PPR	-0.2254	1.1622	-0.4149	1.0490	-0.4378	1.0164	-0.1739	0.9402
14.	FLA	-0.1638	1.1947	-0.2022	1.1966	-0.8754	1.3214	-1.2491	1.0653
15.	EEH	-0.1888	1.0282	-0.2234	1.0544	-0.8828	1.0539	-0.8117	1.1210
16.	EGR	-1.0137	1.4156	-1.0657	0.8877	-0.3117	0.4497	-0.6767	1.0355
17.	FJP	-0.4071	-0.2272	-0.2536	-0.3226	-0.4696	-0.4226	-0.8102	-0.2070
18.	FDC	-0.5669	1.2986	-0.5702	1.1972	-0.4380	1.1809	-0.8573	0.7804
19.	FLI	-0.1248	2.1135	-0.2186	2.0455	-0.4108	1.8087	-0.6416	1.5690
20.	FEL	-0.1506	1.2256	-0.0437	1.2367	-0.5970	1.390	-0.7779	1.4798
21.	KPA	0.6606	0.3661	0.6137	0.4586	0.8672	0.5882	0.1439	0.6078
22.	CEB	0.2871	0.0306	0.0959	0.0166	-0.0989	-0.0854	-0.0832	0.1747
23.	MEG	-0.6778	1.1405	-0.5153	1.2107	-1.2417	1.1580	-1.2614	1.0807
24.	EBE	0.1853	0.7686	0.2752	0.6117	-0.1434	0.7603	-0.0353	0.9396
25.	MRC	-1.0175	0.6675	-0.9028	0.4878	-0.9615	0.6370	-0.9975	0.5164
26.	PES	-0.3490	0.0193	-0.2622	0.0078	-0.3304	0.0166	-0.4079	0.1037
27.	IRA	-0.1242	0.9267	0.0579	0.8837	-0.3397	0.8343	-0.5897	0.7841
28.	RLA	0.0157	1.0041	-0.0242	0.9654	-0.3319	1.1346	-0.6854	1.0830
29.	RLC	-0.0303	0.7011	-0.3574	0.6241	-0.8152	0.3123	-0.7214	0.4800
30.	STA	-0.6452	1.0044	-0.5592	1.0896	-0.9569	0.5816	-0.9125	0.5359
31.	SPR	-0.0067	0.2927	-0.0115	0.3246	0.1270	0.4032	0.1851	0.4166
32.	SMP	0.1211	1.0895	0.2282	1.0925	0.1627	1.1575	0.1895	1.1549
33.	GAR	-0.5787	1.1373	-0.5748	1.2891	-0.1008	1.5825	-0.9286	0.9682
34.	STR	0.1531	0.9628	-0.0258	0.8751	-0.7004	1.0302	-0.8989	1.1584

Source: Author's Calculation

EVENT 3 - Rating Downgrade

Company Symbol	Event Window Days							
	3 (-1 to +1)		21 (-10 to +10)		41 (-20 to +20)		61 (-30 to +30)	
	α	*β*	*α*	*β*	*α*	*β*	*α*	*β*
1. BRN	0.6045	0.0405	0.7800	-0.1253	0.4077	-0.1556	0.4106	-0.1653
2. ANA	-0.3355	0.8792	-0.3240	0.8532	-0.5693	-0.2321	-0.6372	-0.4552
3. ARP	0.0511	-0.3651	0.0122	-0.4021	-0.0235	-0.4009	-0.0159	-0.3987
4. URD	0.7327	0.6195	0.6425	0.3938	0.1303	-1.3265	0.1553	-1.3247
5. JIA	0.0084	-0.0425	-0.0132	0.1667	-0.0296	0.5589	-0.1202	0.3147
6. ACA	-0.1542	1.3992	-0.1331	1.5233	-0.1020	1.4356	-0.1068	1.4326
7. ALI	-0.0192	1.7854	-0.0191	1.7728	-0.0121	1.5560	-0.0766	1.4643
8. POP	0.6617	0.1224	0.6627	0.1296	0.8303	0.3530	0.5829	-0.1932
9. BEA	0.2402	2.2958	-0.1564	2.3409	-0.0152	2.1954	-0.0844	1.7278
10. CBH	0.1064	0.2873	0.0110	0.3950	0.1123	0.3788	0.000009	0.3340
11. CPG	-1.4638	1.9644	-2.0063	2.7668	-2.3346	2.1783	-2.3752	2.2285
12. CDA	0	0	0	0	0	0	0	0
13. PPR	0.3591	-0.5680	-0.0245	-0.9235	-0.0126	-1.2310	-0.3543	-0.8769
14. FLA	0.6253	2.3074	0.5850	2.2444	0.7150	1.8996	0.1949	0.8645
15. EEH	0.3385	1.9691	0.1332	2.0993	0.1492	2.0734	-0.0453	1.7611
16. EGR	-0.0221	-0.2000	0.0369	-0.1120	-0.0348	-0.0851	0.2997	-0.1374
17. FJP	0	0	0	0	0	0	0	0
18. FDC	-0.0225	1.0436	-0.0103	1.0459	0.0176	1.2487	-0.0075	1.1397
19. FLI	-0.0108	1.9457	-0.0060	1.9553	0.0657	2.1631	-0.1157	1.9091
20. FEL	0.2271	1.2808	-0.0198	0.9183	0.1630	0.4565	-0.1852	-0.3067
21. KPA	0.4063	-0.5874	0.3985	-0.5672	-0.3261	-0.8948	-0.3092	-0.8832
22. CEB	0	0	0	0	0	0	0	0
23. MEG	0.0011	0.7815	-0.0309	0.9303	-0.0085	1.0376	0.0420	1.1029
24. EBE	0.8715	1.1340	0.8851	1.1204	0.9876	1.2264	0.0156	-0.1211
25. MRC	0.3457	1.4342	0.2326	0.8293	-0.5625	-0.4590	-0.6737	-0.6737
26. PES	-0.3087	-0.3383	-0.3128	-0.3350	-0.3436	-0.3725	-0.3365	-0.3624
27. IRA	1.1283	0.0940	1.0114	-0.1576	1.0873	-0.3524	1.0167	-0.3886
28. RLA	0	0	-0.1774	0.1747	-0.2057	0.0349	-0.6519	0.2080
29. RLC	0.0695	-0.1830	-0.0795	-0.0323	-0.2126	0.2459	-0.3481	0.2681
30. STA	0	0	0	0	0	0	0	0
31. SPR	0.1997	0.2194	-0.1085	-0.1493	0	0	0	0
32. SMP	-0.0695	1.5165	-0.0778	1.6232	-0.0656	1.5584	-0.0339	1.5702
33. GAR	-0.1312	0.0748	-0.1138	0.3024	-0.2091	0.2660	-0.2445	0.1914
34. STR	0.2012	-0.1778	0.0645	-0.2345	-0.2092	-0.3408	-0.2027	-0.3342

Source: Author's Calculation

EVENT 4 - Rating Downgrade

Company Symbol		Event Window Days							
		3 (-1 to +1)		21 (-10 to +10)		41 (-20 to +20)		61 (-30 to +30)	
		α	*β*	*α*	*β*	*α*	*β*	*α*	*β*
1.	BRN	0.3494	-0.7216	0.3189	-0.7181	0.2138	-0.7236	0.2777	-0.7285
2.	ANA	0.6759	1.2866	0.7594	1.3002	0.7641	1.3174	0.7225	1.3541
3.	ARP	-0.2773	0.8141	-0.1955	0.8114	-0.3342	0.8826	0.0523	0.9603
4.	URD	0.3494	-0.7215	0.3189	-0.7181	0.2138	-0.7236	0.2777	-0.7285
5.	JIA	-0.0913	0.0016	0.1183	0.0416	0.1387	-0.0014	0.1472	0.0020
6.	ACA	0.0545	1.4257	0.0111	1.3710	0.0175	1.3553	-0.0059	1.3029
7.	ALI	0.1375	1.2863	0.1521	1.1782	0.0765	1.2111	0.1195	1.1669
8.	POP	0.0902	0.8450	-0.0850	1.0859	-0.0400	1.0438	-0.0708	1.0725
9.	BEA	-0.3158	1.2136	-0.3489	1.1382	-0.0409	1.3260	0.1220	1.2762
10.	CBH	-0.0642	0.4466	0.0272	0.4353	0.2193	0.4516	0.3565	0.2121
11.	CPG	0.0750	0.1274	-0.1120	0.2751	0.1392	0.2409	-0.1080	0.5209
12.	CDA	0.1561	-0.0733	0.0764	0.0490	-0.1329	0.1041	-0.1370	0.1117
13.	PPR	-0.1365	1.2185	-0.2096	1.3320	0.1569	1.2830	0.5064	1.2943
14.	FLA	0.3096	0.5491	0.2176	0.4963	0.3342	0.3944	0.2083	0.5217
15.	EEH	0.1892	1.5540	0.1483	1.6762	0.1337	1.7507	0.0582	1.7708
16.	EGR	-0.0925	0.6687	-0.1367	0.7393	-0.2697	0.7137	0.0140	0.7852
17.	FJP	0.6024	-0.5757	0.7900	-0.4708	-0.3767	0.1216	-0.4970	0.1269
18.	FDC	0.1104	0.2379	0.0508	0.2256	0.0207	0.1701	0.0399	0.2016
19.	FLI	0.0280	1.2136	-0.0131	1.1968	-0.0293	1.2112	-0.0894	1.2047
20.	FEL	0.4833	0.7644	0.3278	0.8214	0.2873	0.8328	0.2767	0.7621
21.	KPA	-0.3404	0.3968	0.1405	-0.1177	-0.3783	0.0157	-0.3804	0.0256
22.	CEB	0.0966	-0.0564	0.1203	-0.1538	0.1197	-0.1548	0.1254	-0.1643
23.	MEG	-0.0949	1.5809	-0.1045	1.6065	-0.0387	1.5537	-0.0991	1.5976
24.	EBE	0	0	0	0	0.3397	0.2499	0.3326	0.2520
25.	MRC	0.5636	0.2194	0.3792	0.1147	0.3795	0.1176	0.6270	-0.3677
26.	PES	0.0701	-0.3104	0.1602	-0.0158	0.0360	0.0187	0.0992	0.1209
27.	IRA	0.1927	0.4127	-0.0086	0.7282	0.04221	0.7679	0.0163	0.7992
28.	RLA	2.9047	0.5894	2.8941	0.6282	2.9223	0.6008	3.1195	0.3685
29.	RLC	0.2114	0.1776	0.2166	0.1870	0.2282	0.2540	0.2520	0.2016
30.	STA	0	0	0	0	0	0	0	0
31.	SPR	0.1783	0.5114	0.1978	0.5241	0.3506	0.4936	0.3845	0.4706
32.	SMP	0.1824	0.9713	0.1546	0.9432	0.1625	0.9962	0.0816	1.1134
33.	GAR	1.1954	1.8289	1.3117	1.6645	1.4317	1.6814	1.3980	1.7860
34.	STR	-0.4207	0.9092	-0.0315	1.796	-0.0593	1.8235	0.2288	1.5886

Source: Author's Calculation

EVENT 5 - Rating Upgrade

Company Symbol		Event Window Days							
		3 (-1 to +1)		21 (-10 to +10)		41 (-20 to +20)		61 (-30 to +30)	
		α	*β*	*α*	*β*	*α*	*β*	*α*	*β*
1.	BRN	-0.1008	-0.0192	0.0323	-0.1299	0.0715	0.1471	-0.1019	0.2468
2.	ANA	0.5021	0.2141	0.5881	0.1613	0.5483	-0.1295	0.3539	-0.1318
3.	ARP	-0.0727	0.7506	0.0120	0.8292	-0.0506	0.6655	0.0249	0.5656
4.	URD	0.0570	-0.1319	-0.0982	0.1776	-0.0643	0.2182	0.0353	0.4019
5.	JIA	-0.3919	0.2606	-0.4499	0.2959	-0.4712	0.3875	-0.2401	0.1353
6.	ACA	-0.0571	1.0521	-0.0201	1.0774	-0.0776	1.0973	0.0008	1.0947
7.	ALI	-0.2125	2.0493	-0.3622	2.2816	-0.2584	2.1162	-0.2049	2.0326
8.	POP	-0.2278	0.8225	0.0398	0.5776	-0.0147	0.5060	0.0674	0.4349
9.	BEA	0.4719	0.0574	0.1886	0.3345	0.1920	0.3926	0.0551	0.6157
10.	CBH	0.1788	-0.2481	0.2382	-0.2428	0.2348	-0.1150	0.1621	0.0405
11.	CPG	-0.1275	0.4567	-0.1147	0.3922	-0.1308	0.7863	-0.0575	0.5568
12.	CDA	-0.0923	0.0447	-0.0989	0.1145	0.1180	0.1040	0.1174	0.0094
13.	PPR	-0.0814	0.5748	-0.0940	0.6294	-0.0884	0.7681	0.0507	0.6476
14.	FLA	-0.2403	0.5506	-0.1665	0.5587	-0.1511	0.5213	-0.1918	0.5388
15.	EEH	0.0111	1.2739	-0.0192	1.5274	0.0914	1.1390	0.1501	0.8580
16.	EGR	-0.1682	0.3438	-0.2124	0.4491	-0.1175	0.3130	-0.0594	0.2745
17.	FJP	0.0732	0.5626	0.0264	0.6275	0.0612	0.4774	0.1984	0.4494
18.	FDC	0.1664	1.1614	0.3628	1.8205	0.5556	1.4645	0.6648	1.4230
19.	FLI	-0.0803	1.9834	-0.1541	2.0633	-0.0532	1.7623	0.0032	1.5588
20.	FEL	0.2044	1.3211	0.1320	1.4126	0.2544	0.9983	0.3615	0.9300
21.	KPA	0.0601	0.3173	0.5986	0.7426	0.3848	0.5994	0.4939	0.6377
22.	CEB	0.1863	0.1356	0	0	0.1365	0.0187	-0.0730	0.2312
23.	MEG	0.1736	2.1380	-0.0309	0.9303	0.1588	1.9549	0.1698	1.8349
24.	EBE	-0.0116	0.0292	0.8851	1.1204	-0.1033	-0.0965	-0.1994	-0.0158
25.	MRC	-0.0947	0.4801	0.2326	0.8293	-0.3894	0.5581	-0.3419	0.5587
26.	PES	-0.0208	0.2543	-0.3128	-0.3350	-0.2437	0.8034	-0.0256	0.4550
27.	IRA	0.0198	0.3471	1.0114	-0.1576	0.0403	0.6735	0.0961	0.3260
28.	RLA	0.1764	0.0140	-0.1774	0.1747	0.2241	0.0408	0.1790	-0.0557
29.	RLC	-0.1091	1.3428	-0.0795	-0.0323	-0.2119	1.6453	-0.2906	1.6710
30.	STA	0.8573	1.0340	0	0	0.9763	0.6789	0.9596	0.5795
31.	SPR	-0.0340	0.1183	-0.1085	-0.1493	-0.0472	0.1729	-0.0294	0.1321
32.	SMP	-0.1408	1.0714	-0.0778	1.6232	-0.2217	1.2553	-0.0823	1.1478
33.	GAR	-0.1358	0.7410	-0.1138	0.3024	0.0538	0.5022	0.0032	0.5561
34.	STR	1.2693	-0.6406	0.0645	-0.2345	1.4319	-0.8691	0.4190	-0.9129

Source: Author's Calculation

EVENT 6 - Outlook Upgrade

Company Symbol		Event Window Days							
		3 (-1 to +1)		21 (-10 to +10)		41 (-20 to +20)		61 (-30 to +30)	
		α	*β*	*α*	*β*	*α*	*β*	*α*	*β*
1.	BRN	0.0290	0.7531	-0.0730	0.7871	-0.1432	0.7914	-0.0890	0.7794
2.	ANA	-0.2407	1.0119	-0.2001	1.0207	-0.1875	0.9890	0.3302	1.2533
3.	ARP	0.4511	0.9328	0.4295	0.9214	0.6841	0.8308	0.6803	0.8431
4.	URD	-0.1882	0.4836	-0.0229	0.5411	-0.0625	0.5781	-0.0693	0.5469
5.	JIA	0.1817	0.4216	0.1883	0.4155	0.0833	0.3920	-0.3270	0.3607
6.	ACA	-0.0614	0.9226	-0.0608	0.9228	-0.0761	0.9288	-0.1092	0.9164
7.	ALI	-0.0062	1.2259	0.0387	1.2238	0.0759	1.2266	0.0140	1.2123
8.	POP	0.1151	1.0860	0.2845	1.1588	0.2169	1.1834	0.1774	1.1279
9.	BEA	0.1714	1.2798	-0.0149	1.2461	-0.0144	1.1956	-0.2444	1.1567
10.	CBH	0.0894	-0.0839	0.0564	-0.0250	0.1658	0.0439	0.1087	0.0560
11.	CPG	0.0757	1.3039	0.5433	1.4867	1.5949	1.5665	1.4244	1.5339
12.	CDA	-0.0949	0.1486	-0.00004	0.1293	0.0504	0.1461	-0.0650	0.1210
13.	PPR	-0.0187	1.1222	-0.0788	1.1804	-0.0090	1.1877	-0.0667	1.1973
14.	FLA	-0.1335	1.2137	-0.1123	1.2380	-0.1325	1.2535	-0.1350	1.2174
15.	EEH	-0.2610	1.1761	-0.1673	1.1943	-0.1621	1.2249	-0.1907	1.1885
16.	EGR	0.2637	0.8287	0.1739	0.8475	0.4164	0.9670	0.4267	1.0047
17.	FJP	0.3550	0.2638	0.3464	0.2538	0.2211	0.2290	0.1005	0.2801
18.	FDC	-0.0942	0.7500	-0.1065	0.7409	-0.0596	0.7006	-0.0300	0.6960
19.	FLI	-0.1404	1.0482	-0.0783	1.0571	-0.0444	1.1017	-0.0518	1.1269
20.	FEL	-0.2616	1.3371	-0.0622	1.3305	0.1865	1.3789	0.1536	1.3740
21.	KPA	0.4041	0.1676	0.2895	0.1732	0.3687	0.1408	0.2777	0.1653
22.	CEB	-0.0885	0.0635	-0.0268	0.0692	0.0869	0.0394	-0.1826	0.1097
23.	MEG	-0.1778	1.4284	-0.0210	1.4240	0.0181	1.4015	-0.0514	1.4120
24.	EBE	0.3258	-0.6747	0.5043	-0.6594	0.7352	-0.6744	0.1589	-0.9138
25.	MRC	-0.0412	1.5224	-0.0369	1.5693	-0.1036	1.5327	-0.4409	1.4930
26.	PES	0.6955	1.5768	0.9345	1.5731	0.4329	1.7187	0.4267	1.7077
27.	IRA	0.1422	0.0355	0.2655	0.0690	0.3396	-0.1419	0.1079	-0.1754
28.	RLA	-0.1353	0.5289	-0.1024	0.5058	-0.1506	0.4842	-0.1592	0.4471
29.	RLC	-0.0658	1.1940	-0.0280	1.2016	0.0205	1.2545	0.0035	1.3212
30.	STA	-0.2092	1.2816	-0.0857	1.3149	-0.1318	1.3326	-0.0946	1.2809
31.	SPR	0.0753	0.2377	0.0923	0.2364	0.0067	0.1361	0.0386	0.1671
32.	SMP	0.1462	0.8391	0.1311	0.8328	0.0769	0.8315	0.0786	0.7942
33.	GAR	-0.1296	0.7533	0.1253	0.7618	0.0195	0.7806	0.0581	0.7566
34.	STR	-0.1972	0.5110	-0.2286	0.5109	-0.1863	0.5230	-0.3695	0.5081

Source: Author's Calculation

EVENT 7 - Rating Upgrade

Company Symbol		Event Window Days							
		3 (-1 to +1)		21 (-10 to +10)		41 (-20 to +20)		61 (-30 to +30)	
		α	*β*	*α*	*β*	*α*	*β*	*α*	*β*
1.	BRN	0.2020	0.0383	0.1847	0.0521	0.1549	-0.0112	0.1747	0.3708
2.	ANA	0.0760	0.2250	-0.0026	0.4098	0.0067	0.4520	0.0261	0.3871
3.	ARP	0.2371	0.6466	0.2487	0.3177	-0.0930	0.8408	-0.1184	1.5176
4.	URD	-0.0356	0.1193	-0.0192	0.2022	-0.0041	0.4015	0.0763	0.5558
5.	JIA	-0.9878	0.8023	-0.7581	0.8892	-0.6139	0.0715	-0.2442	0.5124
6.	ACA	0.0729	1.2037	0.0227	1.4227	-0.0222	1.5163	-0.1192	1.3572
7.	ALI	0.0375	1.8567	0.0112	1.9591	-0.0189	1.9397	-0.0969	1.8159
8.	POP	0.1773	0.7137	0.1050	1.0340	0.2216	0.5031	0.2593	0.5418
9.	BEA	-0.0679	0.2157	-0.0215	0.4119	-0.0139	0.5480	0.0494	0.7597
10.	CBH	-0.3030	-0.3175	-0.2653	-0.5291	-0.2126	-0.2433	-0.1819	0.1713
11.	CPG	-0.0430	0.2693	-0.0245	0.3912	0.0030	0.2244	-0.0126	0.2772
12.	CDA	0.0786	-0.1650	0.0384	-0.4178	0.0626	-0.4616	0.0720	-0.4121
13.	PPR	0.0007	-0.9572	0.0133	-0.7427	0.0320	-0.5252	0.0895	-0.5615
14.	FLA	-0.0119	0.15850	-0.0586	0.3779	-0.0053	0.5840	0.0637	0.4890
15.	EEH	0.0975	0.9671	0.1895	0.6775	0.1300	1.1917	0.1601	1.3437
16.	EGR	0.9239	-1.6183	1.0233	-1.4474	0.8876	-0.9539	0.7693	-0.7646
17.	FJP	0.1186	-0.0454	-0.0019	-0.0955	0.1573	0.1793	0.1199	0.3265
18.	FDC	0.0616	0.5517	0.1259	0.3450	0.1305	0.1402	0.1257	0.0741
19.	FLI	0.0460	0.9424	0.1397	0.7846	0.1927	0.7637	0.2092	0.6345
20.	FEL	-0.1259	1.1721	-0.0874	1.1952	-0.1140	1.1778	0.0153	1.2885
21.	KPA	0.3672	-0.6184	0.1781	-0.5245	0.0203	-0.3733	0.2259	0.3985
22.	CEB	0.0428	0.4790	0.3140	0.5924	0.1435	0.4109	0.1784	0.5835
23.	MEG	0.1170	1.2932	0.1219	1.2561	0.0441	1.3646	0.1161	1.3510
24.	EBE	0.2802	0.5782	0.1508	0.2212	0.2737	0.2691	0.6480	0.5501
25.	MRC	-0.0680	1.3084	-0.0700	0.9940	-0.0873	0.9450	-0.0519	0.7719
26.	PES	0.1408	-0.6518	0.2205	-0.2257	0.1962	0.0036	-0.0281	0.1425
27.	IRA	-0.0665	0.5850	-0.1131	0.3794	0.1197	-0.1201	0.1516	0.0058
28.	RLA	0.0059	0.1367	-0.0085	0.5891	0.0601	0.8004	-0.0175	0.4825
29.	RLC	-0.0026	1.0253	0.0346	0.7472	0.0359	0.6564	0.0517	0.7390
30.	STA	-0.0242	0.2273	-0.0408	0.3319	-0.0181	0.2268	0.0104	0.2311
31.	SPR	0.1511	0.5018	0.1305	0.5996	0.1025	0.3895	0.1282	0.4643
32.	SMP	0.0331	0.8929	0.0795	1.2252	0.0703	1.1190	0.0516	1.0420
33.	GAR	0.1108	-0.2707	0.1596	0.0411	0.0346	0.5396	0.0340	0.5361
34.	STR	-0.0305	0.0095	-0.0168	0.1549	-0.1833	0.0545	-0.0979	0.1668

Source: Author's Calculation

EVENT 8 - Rating Upgrade

Company Symbol	Event Window Days							
	3 (-1 to +1)		21 (-10 to +10)		41 (-20 to +20)		61 (-30 to +30)	
	α	*β*	*α*	*β*	*α*	*β*	*α*	*β*
1. BRN	0.3300	0.0547	0.3304	0.0778	0.3040	-0.1441	0.1767	-0.0016
2. ANA	-0.0497	0.2877	0.0723	0.3134	0.0585	0.4072	0.0628	0.4117
3. ARP	0.2489	0.1986	0.3004	0.4120	0.4053	0.2818	0.1792	0.3673
4. URD	0.0372	0.5407	0.0364	0.2089	0.0102	0.1968	0.0471	0.2320
5. JIA	0.5243	-0.1999	0.4893	-0.2757	0.4166	-0.3549	0.5474	0.0052
6. ACA	0.0073	1.1616	-0.0470	1.1821	-0.0314	1.2037	-0.0108	1.0786
7. ALI	0.0405	1.3642	-0.0020	1.3909	0.0134	1.4675	0.0279	1.4030
8. POP	0.1867	0.2644	0.2671	0.2991	0.0455	0.2050	0.0769	0.4700
9. BEA	0.0985	0.8597	0.0626	0.8206	0.0446	0.8993	0.0205	0.9376
10. CBH	-0.1396	0.0660	-0.1337	0.0021	-0.1325	0.0118	-0.1425	-0.0616
11. CPG	-0.1270	1.1062	-0.1704	1.1645	-0.2023	1.1571	-0.2502	1.3589
12. CDA	0.0440	0.0539	0.0528	0.0665	0.0744	0.0972	-0.1005	0.2530
13. PPR	0.3540	0.0635	0.3546	0.0593	0.2572	0.0838	0.2342	0.0167
14. FLA	0.1609	0.9253	0.0867	0.6168	0.0757	0.6413	0.2448	0.4191
15. EEH	0.1010	-0.0523	0.1061	-0.0393	-0.0100	0.0348	-0.0284	0.0327
16. EGR	0.5624	0.2997	0.3492	0.5125	0.4022	0.6296	0.2878	0.6296
17. FJP	0.1061	-0.4053	0.0678	-0.1862	0.0353	-0.2652	-0.0178	-0.2023
18. FDC	0.1296	0.3510	0.1964	0.0136	0.1450	0.0608	0.1403	0.2108
19. FLI	0.1797	0.6381	0.1842	0.5792	0.0594	0.4367	-0.0505	0.4707
20. FEL	0.2996	0.6330	0.2336	0.6309	0.2398	0.5115	0.2600	0.6320
21. KPA	0.0958	-0.0257	0.0904	0.0235	-0.0362	0.2327	-0.0657	0.3077
22. CEB	0.0752	-0.4487	-0.0074	-0.3871	-0.0535	-0.3854	-0.0438	-0.3823
23. MEG	0.2358	1.0953	0.2088	1.0595	0.1848	1.1306	0.1605	1.2464
24. EBE	-0.0432	-0.1366	-0.0736	-0.0923	-0.0856	-0.0335	-0.1046	-0.0164
25. MRC	0.4243	-0.5940	0.2867	-0.3450	0.1404	-0.2895	0.0495	-0.2674
26. PES	-0.1628	0.2852	-0.0806	0.3723	-0.0163	0.6497	-0.0579	0.5233
27. IRA	-0.2165	0.4668	-0.1558	0.7446	-0.1492	0.7396	-0.1034	0.8008
28. RLA	0.5038	-0.0969	0.5575	-0.1123	0.4955	0.0990	0.2614	0.4787
29. RLC	0.0310	0.7779	0.0139	0.8666	-0.0626	0.9884	-0.0876	0.8654
30. STA	0.1954	0.7004	0.2388	0.7317	0.1826	0.5377	-0.0861	0.6629
31. SPR	0.0249	0.1635	-0.0217	0.1736	0.0412	0.0775	0.0127	0.1174
32. SMP	-0.0525	1.2145	-0.0678	1.0342	-0.1197	0.9690	-0.2281	1.0370
33. GAR	0.5301	0.0542	0.5465	-0.0332	0.0841	0.2291	0.0205	0.4642
34. STR	-0.0289	1.0151	0.0331	0.6876	0.0209	0.7968	0.0847	0.5938

Source: Author's Calculation

EVENT 9 - Rating Upgrade

Company Symbol		Event Window Days							
		3 (-1 to +1)		21 (-10 to +10)		41 (-20 to +20)		61 (-30 to +30)	
		α	*β*	*α*	*β*	*α*	*β*	*α*	*β*
1.	BRN	-0.0067	0.4639	-0.0327	0.5333	0.0370	0.6573	-0.0601	0.8289
2.	ANA	0.0485	0.2052	0.0825	0.1705	0.1068	0.3007	-0.1091	0.3049
3.	ARP	0.1506	0.1165	0.0541	0.1442	0.0447	0.1446	0.0307	0.1974
4.	URD	0.4110	0.6414	0.3975	0.7536	0.3538	0.8414	0.3341	0.9153
5.	JIA	0.0050	0.3277	-0.0020	0.2565	-0.0448	0.3492	0.1339	0.2829
6.	ACA	-0.0537	0.8118	-0.0761	0.8171	-0.0669	0.8515	-0.0659	0.8515
7.	ALI	0.1276	1.0134	0.0793	0.9431	0.0393	0.9804	0.0278	0.9440
8.	POP	0.1785	0.2093	0.2494	0.3158	0.1662	0.2506	0.3001	0.2329
9.	BEA	0.0115	0.3498	0.1276	0.2848	0.00003	0.3528	-0.0403	0.4037
10.	CBH	0.0891	-0.2606	0.1191	-0.2427	0.1194	-0.1456	0.2445	0.0748
11.	CPG	0.2193	0.6499	0.1827	0.5335	0.2884	0.4288	0.1594	0.3417
12.	CDA	0.0833	0.2990	0.0993	0.2204	0.0551	0.2076	0.0214	0.1413
13.	PPR	0.0332	0.0709	0.1311	0.1241	0.1267	0.2222	0.1006	0.1838
14.	FLA	0.1582	0.4285	0.1329	0.4646	0.0733	0.1704	0.1132	0.1482
15.	EEH	0.0314	0.1824	-0.0101	0.2303	-0.0193	0.3507	-0.0447	0.3140
16.	EGR	0.0778	-0.0995	0.0632	-0.2445	0.2606	-0.1054	0.2721	-0.1687
17.	FJP	-0.0180	0.5356	0.0126	0.1122	-0.0914	0.2177	-0.0251	-0.0892
18.	FDC	0.4270	0.4796	0.5326	0.5578	0.7185	0.5221	0.7184	0.5389
19.	FLI	-0.0256	0.7838	0.0227	0.6709	-0.0098	0.6600	0.0114	0.5886
20.	FEL	0.1784	0.4808	0.2635	0.6393	0.2058	0.4991	0.1157	0.4746
21.	KPA	0.3205	0.4578	0.3419	0.3877	0.3462	0.3130	-0.1251	1.0843
22.	CEB	0.3591	-0.8541	0.3516	-0.7379	0.3904	-0.6848	0.0297	-0.4498
23.	MEG	0.1234	0.5540	0.1731	0.6453	0.1835	0.6514	0.1914	0.5948
24.	EBE	0.3151	0.1140	0.0909	-0.0345	0.0505	-0.2868	0.0473	-0.2818
25.	MRC	-0.2108	0.6245	-0.1338	0.6385	0.0594	0.6219	-0.3819	0.8132
26.	PES	0.0655	0.2654	0.1251	0.3097	0.1387	0.2392	0.0866	0.3214
27.	IRA	-0.3083	0.5918	-0.4406	0.5659	-0.3922	0.4775	-0.3813	0.5168
28.	RLA	0.1685	-0.1246	0.1051	-0.0620	0.1984	-0.0471	0.1085	0.2091
29.	RLC	0.1287	0.7741	0.0481	0.8388	0.1028	0.8617	0.0964	0.9698
30.	STA	0.3980	0.2252	0.3504	0.2003	0.2984	0.1548	0.3573	0.1281
31.	SPR	-0.0034	-0.1418	-0.0286	-0.1160	0.0011	-0.0808	-0.0175	0.0334
32.	SMP	0.0755	1.1667	0.0741	1.2160	0.0475	1.1757	0.0222	1.1587
33.	GAR	0.0798	-0.1449	0.1497	-0.1798	0.1220	0.0072	0.1398	-0.0102
34.	STR	0.2900	0.0791	0.5001	0.5054	0.5131	0.5609	0.1535	0.6134

Source: Author's Calculation