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**The Impact of Partnership Announcements in
Shareholder Wealth**



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Veli-Matti Lahti

The Impact of Partnership Announcements in Shareholder Wealth

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Cuiusvis hominis est errare, nullius nisi insipientis in errore perseverare
Marcus Tullius Cicero (106 – 43 BCE)

ABSTRACT

The number of partnerships has been increasing quickly in the USA since the mid-1970s and also in Finland since the late 1990s. Partnering is one of competitive actions a firm can make in order to improve its position in the markets vis-à-vis its competitors and to increase its turnover. Increase in turnover should increase the firm's financial results as well as the share price in the markets. Increasing stock prices in turn has a positive effect on the share holders' wealth.

There are many types of partnering arrangements, ranging from loose voluntary cooperation to two or more firms establishing a separate new legal entity, a joint venture, with possibly very high equity stakes from each participant. Each partnering type has its own characteristics and different effects on the partnering firms' operations.

The research focuses on two types of partnerships, marketing and technology, which are divided into international and domestic. The reason for this narrow scope is to ensure that it is similar partnerships that are compared and also the market reactions between different types can be separated.

The research has objectives in two areas. First, it looks at the issue of whether the transaction level event study brings any additional value or more accurate results than the traditional day level event study method. The event studies on partnering have been made at the day level for decades, even though the method has shortcomings in respect of the accuracy of results and ability to observe short term stock market reactions related to partnerships announcements.

Second, the research considers whether the announcement of partnerships by firms listed on the Helsinki Stock Exchange causes a positive market reaction in terms of stock prices. Additionally, the research investigates any differences in market reactions dependent on whether the announcement is made by stock exchange release or by press release. Finally, possible differences in reactions depending on the types of partnerships are considered.

This study shows that there is clear and statistically significant abnormal return on share prices in the markets related to partnering announcements in the Helsinki Stock Exchange. Additionally, the research confirms that there is no statistically significant difference in cumulative abnormal return in the partnering firms' share prices depending on whether the partnership is related to marketing activities or to technology activities. The same holds for domestic and international partnerships. Further, the research also shows that the selection of announcement channel has a statistically significant effect on market reactions. In certain cases, a firm announcing partnerships through stock exchange release can gain as much as a six-percentage point higher increase in stock price over a three-day period than in the case where the firm announces the same partnership through press release.

The research presents confirmatory evidence to firms that on average the markets see all studied partnering types as a positive competitive action and react positively to such news. It also presents the new information that when firms do make a partnership, this should be announced to the markets through stock exchange release to gain the highest increase from the partnering action for the firm's share price.

TIIVISTELMÄ

Partnerointien määrä on noussut nopeasti USA:ssa 1970-luvun puolesta välistä alkaen ja Suomessakin 1990-luvun lopulta lähtien. Partnerointi on yksi kilpailutoimista, joita yritys voi tehdä parantaakseen asemaansa markkinoilla kilpailijoihinsa nähden sekä lisätäkseen liikevaihtoaan. Liikevaihdon lisäyksen pitäisi parantaa myös yrityksen taloudellista tulosta sekä osakkeiden markkinahintaa. Osakkeiden hinnannousulla on puolestaan positiivinen vaikutus osakkeenomistajien varallisuuteen.

On olemassa monen tyyppisiä partnerointijärjestelyitä aina löyhästä vapaaehtoisesta yhteistoiminnasta kahden tai useamman yrityksen muodostamaan erilliseen oikeussubjektiin, yhteisyritykseen, jossa on mahdollisesti suuriakin pääomainvestointeja jokaiselta osanottajalta. Jokaisella partnerointityypillä on omat erikoispiirteensä ja vaikutuksensa partneroituvien yritysten toimintaan.

Tutkimus keskittyy kahteen erilaiseen partnerointityyppiin, markkinointi- ja teknologia-partnerointiin, jotka ovat lisäksi jaettu sekä kotimaiseen että kansainväliseen. Syy tähän kapeaan laajuuteen on sen varmistaminen, että samantyyppisiä partnerointeja verrataan toisiinsa ja että eri tyyppisten partnerointien aiheuttamat reaktiot voidaan erottaa.

Tutkimuksella on tavoitteita kahdella alueella. Ensimmäinen on katsoa kysymystä tuottaako transaktiotason tapahtumatutkimus mitään ylimääräistä arvoa, tai tarkempia tuloksia, kuin perinteinen päivätason tapahtumatutkimusmenetelmä. Tapahtumatutkimukset partnerointiin liittyen on tehty päivätasolla vuosikymmeniä, vaikka menetelmässä on puutteita liittyen tulosten tarkkuuteen ja mahdollisuuteen havainnoida lyhytaikaisia pörssin markkinareaktioita liittyen partneroinnin ilmoittamiseen.

Toiseksi, tutkimus tarkastelee aiheuttaako Helsingin pörssissä listattujen yritysten partneroinnin ilmoittaminen positiivisen markkinareaktion pörssikursseissa. Lisäksi tutkimus ottaa selvää onko markkinareaktiossa eroa riippuen siitä tehdäänkö ilmoitus partneroinnista pörssi-ilmoituksella vai lehdistötiedotteella. Lopuksi katsotaan mahdollisia eroja eri tyyppisten partnerointien aiheuttamissa reaktioissa.

Tutkimus näyttää, että syntyy selvä ja tilastollisesti merkittävä epänormaali tuotto osakkeiden markkinahinnoissa kun partneroinnista ilmoitetaan Helsingin pörssissä. Lisäksi tutkimus varmistaa, että tilastollisesti merkittävää eroa ei synny kumulatiivisessa epänormaalissa tuotossa partneroituvien yritysten osakkeiden hinnoissa riippuen siitä liittyykö partnerointi markkinointiaktiiviteetteihin tai teknologia-aktiiviteetteihin. Sama pätee myös kotimaisen ja kansainvälisen partneroinnin välillä. Lisäksi tutkimus näyttää, että ilmoituskanavan valinnalla taas on tilastollisesti merkittävä vaikutus markkinareaktioihin. Joissain tapauksissa yritys, joka ilmoittaa partneroitumisesta pörssi-ilmoituksella, voi saavuttaa jopa kuusi prosenttiyksikköä korkeamman osakekurssin nousun kuin yritys, joka ilmoittaa samantyyppisen partneroinnin lehdistötiedotteella.

Tutkimus esittää vahvan todistusaineiston yrityksille, että markkinat näkevät kaikki tutkitut partnerointityypit positiivisena kilpailutoimena ja reagoivat positiivisesti niihin liittyviin uutisiin. Lisäksi tutkimus antaa uutta tietoa siitä, että yrityksen partneroituessa, se kannattaa ilmoittaa markkinoille pörssi-ilmoituksella. Tällöin saavutetaan suurin mahdollinen nousu yrityksen osakkeiden hintaan partneroitumisesta.

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This is finally ready! I have been planning and thinking of making dissertation since my M.Sc. graduation which was too long ago. It is funny how the life has a direction of its own and it takes people to places they never imagined to go. Despite my plans how to live my life I ended up going literally around the world finding wife on the way and finally coming back to Finland. Every once in a while along the years I had plans to start working on a dissertation and at one point I even studied international business as a substitute for dissertation. At work, I often saw interesting things and thought that this could be the focus of my dissertation.

None of those ideas realized and now, afterwards, I can see that most of them – despite being very interesting – would have been impractical to study in one dissertation, or study at all. Luckily, after some additional twists and turns in my life, I had a chance and possibility to do a dissertation and as a bonus, on a very interesting subject.

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Veli-Matti Lahti

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LIST OF ABBREVIATIONS AND DEFINITIONS

P_0	is the stock price at $t=0$
b	is the fraction of income the company is expected to retain and invest
r	is the rate of profit it is expected to earn on investment
k	is the rate of profit at which the stock is selling
Y_0	is the expected income at year $t=0$
E_j	is the expected return of stock j
λ_0	is the riskless rate of return,
$\lambda_1, \dots, \lambda_k$	is systematic factors (loadings)
b_{j1}, \dots, b_{ji}	is correlation coefficients (betas) of stock j
E_i	is the expected return of a stock I
r_f	is the risk free rate of return
r_m	is the stock-specific risk premium
β_i	is coefficient
R_{it}	is the actual ex post return
$E(R_{it} X_t)$	is the expected normal return for the period τ
α_i	is the intercept estimated from the regression of the estimation period
β_i	is the market sensitivity level estimated from the regression of the estimation period
$R_{m\tau}$	is the market return for period τ
ε_{it}	is the zero mean disturbance term
$\hat{\Theta}_i$	is parameter estimates for event i
$X_i = [tR_m]$	is (L1x2) matrix
R_i	is returns for event i
$\hat{\sigma}_{\varepsilon_i}^2$	is estimates of variance for ε_i
L_1	is length of estimation-window
$\hat{\varepsilon}_i$	is estimates of ε_i
$Var[\hat{\Theta}_i]$	is variance of $\hat{\Theta}_i$
$\sigma_{\varepsilon_i}^2$	is variance of ε_i
R_i^*	is estimate of returns for event i
$\hat{\alpha}_i$	is estimate of α_i
ι	is vector of ones
$\hat{\beta}_i$	is estimate of β_i
R_m^*	is estimate of market returns
I	is (L2 x L2) Identity matrix
R_i^*	is estimate of returns for event i
AR_i	is abnormal returns for for event i
$\hat{\delta}_i^{AR^2}$	is estimate of variance of AR _i
γ'	is transposes of γ
$\hat{\varepsilon}_i^*$	is estimate of abnormal returns for event I
N	is number of events
CAR	is Cumulative Abnormal Return
SCAR	is Standardized Abnormal Return
AR	is Abnormal Return
SAR	is Standardized Abnormal Return
ISIN	is International Securities Identification Number
OLS	is Ordinary Least Squares Market Model

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PART I: INTRODUCTION

1 Introduction

1.1 Research Motivation

A Google search for the word “partnering” gives 28 million hits; a search for “alliance” gives 378 million hits; the word “global” gives 2 610 million hits. Hughes and Weiss write in their Harvard Business Review (2007) article that partnerships are increasing by 25% per year and their importance is still growing. There is clearly both discussion and action on partnering between firms, but what is not so clear is how much, if any, wealth is being produced by partnering for to the owners of the firms.

Reading business newspapers and magazines gives an understanding how important global markets are, even in our own country, and that a common way to compete in them seems to be partnering with other firm or firms. These partner firms are assumed to be able to help the partnering firm in its efforts to reach its targets, whatever they may be. The targets for partnering can be purely within sales activities, such as accessing new markets, but equally well they can be in technological cooperation where, for example, partnering firms use their joined resources to find new products or solutions to compete in ever tougher global markets (Kohtamaki et al. 2006). There are as many ways and reasons to partner as there are partnering firms, but ultimately all firms partner to improve their competitive position in order to increase profit in the future (Oxley, Sampson & Silverman 2009), which then creates wealth for the shareholders in the form of higher share prices or better dividends (Xia 2011).

Despite the continuous increase in the number of alliances, the failure rate is reported to be between 60% and 70% (Hughes, Weiss 2007). This raises the question whether the partnering is really a wealth creation action. That is, does the partnering action bring any benefit or value to the firm, and, more importantly, wealth to the owners of the firms? The present research was motivated by a desire to find out whether partnering does, in fact, bring measurable wealth to shareholders of the firms making partnerships, or destroy wealth, or just be neutral from the wealth creation point of view.

1.2 Research gap

The number of partnerships in the USA has been increasing since the mid-1970s (Harrigan 1988) and also in Finland since late 1990s (Palmberg, Pajarinen 2005a). There have been numerous studies on reasons for partnerships and for the increase in their number with almost as many classifications for the reasons as studies (Möller, Rajala 2007). Palmberg and Pajarinen (2005a) classified the underlying strategic motives as follows:

- Risk sharing
- Cost reduction
- Shortening of innovation / market-entry times
- Pooling of complementary assets
- Influence on market structure and competition.

In general, it can be said that partnering helps firms to adapt into new circumstances (Kalm 2012) and thus prosper in intensifying competition. Quick adaptation has become increasingly important in the globalizing world (Möller, Rajala & Svahn 2005); the networks created by partnering are helping firms to create value (Möller, Rajala 2007), and, as such, are now a normal part of business.

Partnering is one strategic action among many that can be used to create shareholder value (Neill, Pfeiffer & Young-Ybarra 2001). Several studies have been conducted on the wealth effects of

partnering in the USA (e.g. Gulati, Lavie & Singh 2009, Gao, Iyer 2009, Madhavan, Prescott 1995) and some in Central Europe (Häussler 2006, Sleuwaegen et al. 2003), and in general they show a moderate increase in share value.

A gap in the research is that of the channel effects on the abnormal return caused by partnership announcement. When firms want to announce something, they may have different options for the channels through which to make this announcement. In general, when firms want to make an official announcement to investors or the general public, the options are either stock exchange or press release. In some cases, announcements are expected to be made through stock exchange release (e.g. profit warnings) or through both channels (e.g. annual results), but in most cases (e.g. partnering) the firm announcing can choose which channel to use.

All partnership research previously conducted has used announcements obtained from one or two sources (e.g. Swaminathan, Moorman 2009), but none of the studies have made a distinction between the channels through which investors have received the announcements or given any consideration to how well the news has reached the markets. The current research fills this gap by collecting announcements made through stock exchange and press releases and then comparing the two to see if there are any noticeable effects related to abnormal returns obtained specific to the channel used.

Another gap in the research concerns the lack of event studies on different types of partnerships. For example, there are no event studies on whether there is a difference in market reactions to international marketing partnerships as compared to domestic marketing partnerships (e.g. Sleuwaegen et al. 2003, Häussler 2006). Therefore, this study investigates the following question

***RQ1:** Do different types of partnership announcements result in differing stock market reactions?*

This research is specifically looking into whether the *channel* used in announcing, *nationality* of the partner, and the *function* of department responsible for partnering activities, that is, technology or marketing, is affecting to the reactions of the market.

The number of event studies undertaken on partnering (see below) is one indicator of the importance of partnering and expected wealth effects related to it. The partnering event studies made over the past twenty years have all been with day level data (e.g. Gulati, Lavie & Singh 2009, Gao, Iyer 2009, Häussler 2006, Swaminathan, Moorman 2009, Robinson 2008, Das, Sen & Sengupta 1998). Day level analysis takes a share's last value of the day as the value used in the abnormal return calculations. This method has some benefits which might explain why it has been used extensively and continues to be so. The benefits include things like data availability, since the share prices are available for a long period of time making them easily accessible. Also, day level analysis enables the study of slow market reactions and longer term trends in share price reaction. In the past, also, an additional reason to use day level data may have been the limited computing power of the equipment available.

Compared to the past, there is now much more data available, with even individual transactions in the stock exchange available for research. Busse and Green (2002) have studied the reaction speed of stock markets and conclude that positive news has been absorbed by the share prices in one minute and negative news within 15 minutes of receipt of the news. This clearly shows that there is no need to wait a day or more for the market reaction in order to see what impact a signal has on share prices.

As mentioned, the traditional method of event impact on share prices is day level analysis, and researchers like to stay with the same method to afford comparability of their new results with those of previous studies. However, using the day level analysis also has various disadvantages for event impact research and in the interpretation of results. For example, if we take a closer look at the time the announcements are received by the markets, we find that the day level data event studies do not have accurate time stamps of the news announcements studied but only the date when they are published. This vagueness in the timing creates two types of difficulties. The first is that the market reaction to announcements made outside trading hours may be different to that for announcements made during trading hours. A second problem arises with trying to analyze what actually happens in the short term when the news has been received by the markets: when the data is only at day level, the immediate reaction caused by the event, or short term volatility in the share price, cannot be seen and thus studied. Transaction level examination of partnering action, however, can reveal previously unknown stock market response behaviors and thus increase the understanding of the markets.

Taking a closer look at the event timing issue, there are three possibilities here for when an event can occur; before, during, or after trading hours (see Figure 1.1). If the event occurs before or during trading hours, its impact should be seen in the value of the event day's last share price, and as already hinted above, there may even be a difference in market reaction to events occurring before and during trading hours. If the event occurs before trading time, investors may have more time with which to evaluate the event and perhaps gain access to additional information that may make the reaction different from that for an event that occurs during trading time when the reaction is immediate.

In the third case in the event timing, when the event occurs after trading hours, the impact can be seen only on the next day's share price. This is similar to the event occurring before trading time from the investors' point of view, as they have the additional time to evaluate the event.

The most difficult case from the event study point of view is when the time of event is not known, so the impact might come either during the event day or on the following day. This may have been the case in many of the event studies done earlier, as these do not mention anything about the event times within the day. Without having the exact time of the first publication of the news, the researcher cannot be absolutely sure that all investors have seen the news before the end of trading time, even if the event is published in the morning paper of that particular day.

Other difficulties with day level event studies involve the short-time impacts. There may be, for example, high volatility in the share prices in reaction to an event within the trading day that cannot be seen in the day level data. Additionally, on the day level studies the event window needs to be days, which is likely to cause a higher number of confounding events and thus smaller number of events that qualify for the research. Also, the estimation window needs to be long; in many cases, over six months has been required for relatively reliable estimations of the coefficients. This, in turn, may shorten the time period in which the events are available for research.

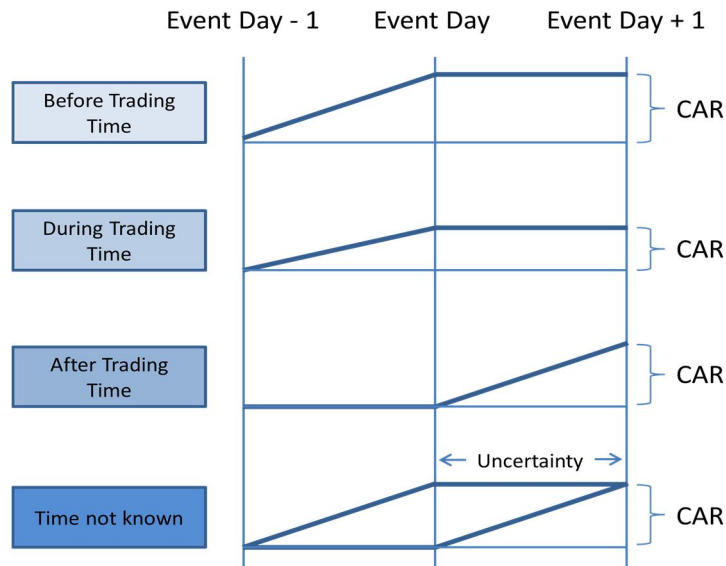


Figure 1.1 Cumulative abnormal return (CAR) of an event depending of its timing

This study uses data on a transaction level, giving a more accurate picture of the market reactions to partnering announcements, which also now have exact time stamps on a minute level. In addition to providing an individual transaction level analysis, this research also compares the transaction level results with day level results to see if there are differences arising from the information available at transaction level research. The second research question therefore can be formulated as

***RQ2:** Does the transaction level measurement of the stock market reaction differ from the day level measurement*

Also, the event studies made have mostly been based on US data; there is no literature on the issue of whether the empirical findings for the US can be extended to Finnish data. However, Finnish firms are increasingly active in partnering activities (Palmberg, Pajarinen 2005a), and the effects of partnering activities for these are thus of interest to both firms and investors following Finnish firms. Until now, there have been no empirical event studies on stock market reactions to different types of partnerships based on the transaction data of firms listed in the Helsinki Stock Exchange. Therefore, the present study extends the empirical domain of existing research to Finnish stock market data.

The question of whether investors value partnerships has more than just academic value. If partnering actions are valued by investors, they directly increase the wealth of shareholders by increasing the price of the partnering firm's shares, as well as raising dividends. The whole company becomes more valuable, making its shareholders wealthier. The results of this research are thus of potential interest both to academics in their efforts to understand markets and their behavior and to investors in their efforts to increase shareholder wealth.

1.3 Research Objectives and Scope

The objectives of this research are to investigate whether there is a stock market reaction to partnership announcements and if any such reaction differs when the announcement is made by stock exchange release as compared to when this is done by press release. Further, this research aims to consider whether different types of partnerships have different kinds of reactions.

The scope of this research is limited in several ways. The first limitation is that of the time span. Only partnerships announced between January 1st, 2006 and December 31st, 2010 are taken into account. The second limitation in the scope concerns the location of announcing firms. Only firms listed in the Helsinki Stock exchange are taken into account in this research. The third limitation is in the type of partnerships announced. Similar to several previous event studies (e.g. Neill, Pfeiffer & Young-Ybarra 2001, Merchant 2002), only certain types of partnerships are included. This research looks at marketing and technology partnerships including those with both domestic and international orientations. The four different types of partnerships are shown in Figure 1.2.

The third limitation of scope is the exclusion of certain types of actions that may be included in partnering. For example, one-off joint marketing campaigns and one-off license purchases are excluded from this research, together with partnerships that include state-supported research and development programs.

As indicated, this research also distinguishes between announcements made by stock exchange release from those made by press release, and aims to clarify whether the four types of partnerships involve different reactions according either to type or to announcement channel. The size of the reaction in the markets is measured by cumulative abnormal return. Abnormal return is the change in share price because something, an event, happened which would not have transpired in the case of the event not having occurred (MacKinlay 1997). A mathematical definition of abnormal return is given later (Subsection 6.5.2). The possible reactions in different cases are then interpreted in the context of earlier event studies and a subsequent theoretical discussion.

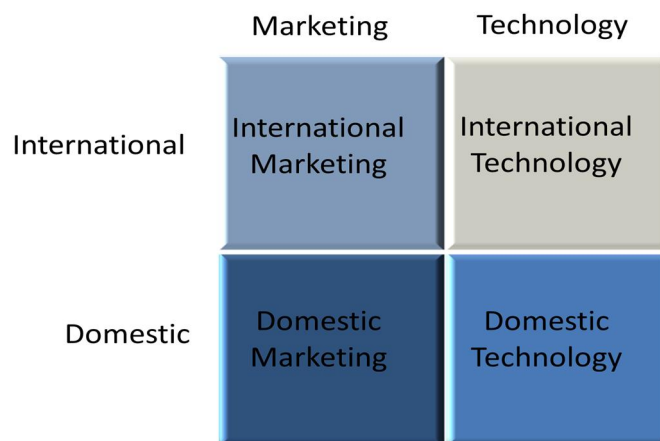


Figure 1.2 Areas of interest for this research

1.4 Structure of the Dissertation

This dissertation consists of five parts: Introduction, Theoretical Discussion, Methodological Discussion and Empirical Study, Results and Conclusion. Figure 1.3 presents the structure of the dissertation and how its parts fit together.

Part I, the Introduction, gives a short overview of the dissertation and motivations for the research as well as presenting the existing research gaps and also introducing the general area of research, its objectives and scope. At the end of Part I, the general structure of this dissertation is explained.

Consisting of three chapters, Part II contains the theoretical discussion behind the dissertation and presents the research questions. Chapter 2 presents some well-known theories of the firm that are relevant to this research and the attributes of those theories, and highlights the purpose of firms to maximize profits and, through that, to create wealth for shareholders. Additionally, this chapter

introduces those boundaries of the firm that separate the entity called “firm” from its environment and from other firms. Chapter 3 introduces competitive actions together with the competitive environment through the eyes of *competitive dynamics* and finally looks at dyadic competitive actions and reactions used in competitive rivalry between firms. Next, Chapter 4 introduces wealth creation and its dynamics as well as how signaling is related to wealth creation. Additionally, some factors affecting signaling effectiveness are briefly presented, followed by a discussion focusing on partnering. This discussion explains how partnering is one of competitive actions and creates wealth. The chapter ends with a consideration of the factors that affect wealth creation in partnering actions. Finally, Chapter 5 reviews the development of the research hypotheses.

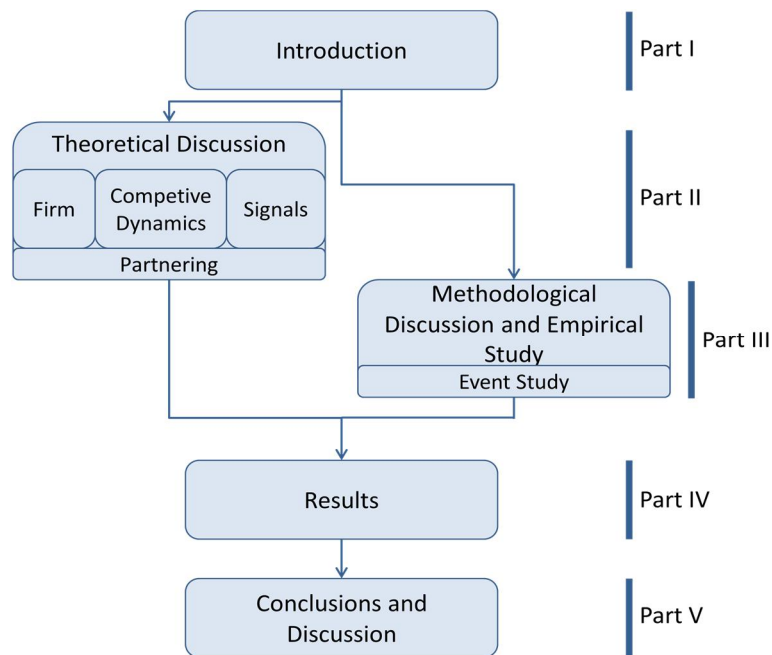


Figure 1.3 Structure of the dissertation

Divided between two chapters, Part III discusses the theory of the event study methodology and explains why the market reacts to new information, or to an “action,” and why it may create an abnormal return. Chapter 6 also looks into the theoretical factors affecting the measurement of abnormal returns, and how to conduct an event study and confirm the significance of an abnormal return. Chapter 7 discusses the empirical study made in this research; it starts by explaining the data collection process, continues with an introduction to the software programs used here, and ends by presenting and explaining the values used.

Part IV contains the results of the empirical study performed. Chapter 8 presents the results of the event study and makes a comparison between the different analyses made in the research. The comparison is made between two different day level analyses, and between these and the transaction level analysis, which is the main method of this research. The differences in results found thus are presented, and a summary of the results and comparisons is made.

In the first half of Part V, Chapter 9, the conclusions are presented and the research questions answered. Also the contributions of this research are discussed, together with a consideration of reliability and validity issues. At the end of the chapter, the limitations of this research are presented. Finally, Chapter 10 contains a discussion, ending with a recommendation for further research.

PART II: THEORETICAL DISCUSSION

2 The Firm and its Boundaries

2.1 Theories of the Firm

The economic activities generated by firms represent the major part of GDP. For example, in 2010 there were 318,951 enterprises in Finland (Tilastokeskus 2011), which created 301,949 billion Euros in output, or 86% of the total national GDP for that year (Tilastokeskus (SVT) 2012). Perhaps due to the size and complexity of the firms where decisions are affected both by economical and political issues (March 1962), there is no all-inclusive theory of the firm.

March (1962) continues in his article that a firm is a political system, a coalition, where different participants (e.g. managers, workers, stockholders, etc.) bargain for the goals that are together with commitments slowly shifting together with the power in the coalition. This article is further refined in a book together with Cyert (Cyert, March 1963) where the firm is described as a socio-political conflict system with economic constraints. Cyert and March attempt to describe and predict firm decisions on output, resource allocation and the like while also bringing up the controversial issues relating to the (neoclassical) theory of the firm. One of the controversial issues rightly highlighted is the profit maximization assumption. Several alternatives for motives, such as “sex, food, and saving souls” are presented. In the implications section the authors suggest that one theory cannot explain all aspects of the firm and its actions.

An overview sufficient for present purposes of some theories of the firm, along with some of its attributes, is presented below. The interactions and relations of the different theories are shown in Figure 2.2.

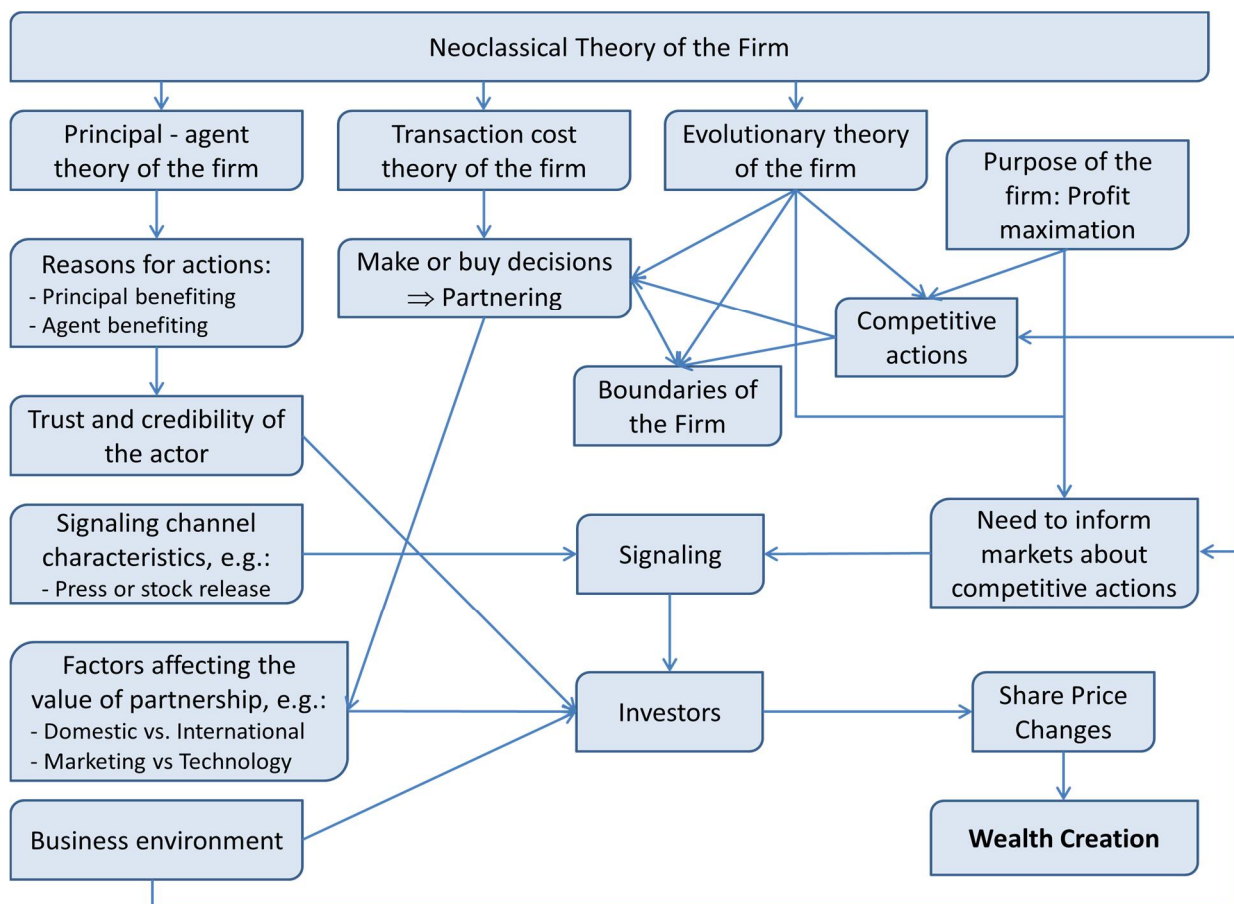


Figure 2.1 The connections between different theories and research objectives

The first theory to be presented is the *neoclassical theory*. This describes the firm as a static black box and is more of a mathematical function than a theory. Many of the subsequent theories of the firm are based on the weaknesses of the neoclassical theory and hence is used here as the starting point for building the theory.

Next, the *transaction cost theory* of the firm was developed to better answer some of the weaknesses of the neoclassical theory, such as why a firm is of a certain size. The theory states that a firm is a Make-or-Buy decision maker. When certain conditions are met, a firm should start purchasing from the markets. It can also interpret that a firm is partnering with another firm which is then making the products the firm is purchasing. When two firms are working in close co-operation, it can be argued that the boundary of the firm has changed and the actual position of the boundary depends on the viewpoint from which the co-operation is looked at.

As the theory poses that the reason for the buy -decision is an economic one, a firm should look at its different operations and decide which it could buy more economically compared to making them internally leading to a decision that it should acquire, for example, sales related, or technology development related inputs outside the firm. Further, when a firm is looking the best source economically for those inputs, it should explore both domestic and international options.

The third approach that of the *principal-agent theory* looks at the friction between agent, or manager and principal, or owner of the firm. The theory argues that an agent can act on self-interest benefiting the actor at the expense of the principal. It may be that some of the acts an agent does are not benefiting the firm as a whole, but only the agent. This could be, for example, a case where the firm is partnering only because it is in the incentives of the agent, but this partnering would not bring any economical benefit to the firm and thus to the principal.

If the firm has consistently made principal benefiting action in the past, the firm is likely to have gained a reputation of trustworthy firm. When a firm with good reputation informs, or signals, about an action, it is taken more seriously than a firm which is known to signal erroneous information.

Finally, the *evolutionary theory* of the firm describes the firm as an entity with different resources and allows it to evolve and change, where partnering is one of the ways to evolve and adapt to the competitive environment in the firm's quest for higher profits. One of these competitive actions a firm can do is boundary spanning, which includes different types of partnerships. In order to maximize the expected benefits from the competitive action, partnering, the firm needs to inform, that is, signal the investors about the action.

There are different characteristics which are affecting the signal. One is the aggressiveness of the firm signaling and how committed it seems to be to the action signaled, but also characteristics like clarity of the signal or channel used for the signaling, which could be e.g. press release, or stock exchange release.

When investors are interpreting the signals, on top of the personal characteristics, they also take into account the credibility of the signaling firm, different factors affecting to the value of the partnership. Those could be among others, the nationality of the partner, the firm's function partnering and so on. Also the general business and competitive environment is taken into account. Amongst others, these things evaluated by the investors which then decide what would be the new value for the firm's shares. The new value can be the same as before the signaling about the partnership, it can be lower or it can be higher. The joint reaction of all investors is either creating or destroying value of the firm.

This simplified, but still complicated web of interconnections and theories show how and why partnership announcements may impact in shareholder wealth. It also highlights some of the factors which may have affect to the extent of the reaction.

There are other theories of the firm, but these four are sufficient for the purposes of this research and the necessary theoretical background. Despite the number of different theories of the firm, and some controversy on the subject, there seems to be quite wide acceptance that the main task of the firm is profit maximization and through that, wealth creation for its shareholders (Scapens 1978, Hart 1989), through either increased share prices or dividends distributed. Also this research has accepted this as a premise.

2.1.1 The Neoclassical Theory of the Firm

British economist Alfred Marshall (1842–1924) is generally regarded as the father of neoclassical economics (Nelson, Winter 1982 p. 44). The theory has been since further developed by numerous economists. The neoclassical theory assumes that firms are operating in an environment of perfect competition, which means that the following assumptions are at the basis of the theory (Cohen, Cyert 1965):

1. All firms in same industry produce exactly same kind of product. Thus, from the customer's point of view the products are all equal in preference.
2. All firms and customers possess perfect knowledge of available alternatives. This means that all firms have the same, best production technology available, and all customers know which products are available and at which prices.
3. The firms try to maximize their profits and customers try to maximize their utilities. This means firms produce in the way that provides the highest profits and customers buy products that produce the highest satisfaction.
4. The competition is atomistic. This implies that no individual firm or customer has any impact on market prices, meaning that the prices are "given." This assumption also includes the assumption that no collusive action is undertaken.
5. There is free entry to and exit from every market for all firms. This means that anyone can enter or exit markets at will, and no barriers or costs are incurred.

The assumption that the prices are "taken," together with perfect competition, means that *marginal cost* is equal to *marginal revenue*, and that no firm is making any profit. Additionally, the theory assumes that all market participants make rational decisions using all the market information, and that all changes are immediate and lead to a new equilibrium (Nelson, Winter 1982 p. 24) without any period of transition.

According to the neoclassical theory, the firm is a "black box" which takes inputs and produces outputs: the theory does not take any stance on what happens inside the firm (Kantarelis 2010). The objective of the firm is profit maximization (Hart 1989), which is its only determinant of behavior (Cyert, Hedrick 1972).

Despite the obvious shortcomings, this theory has survived for a long time. There are three reasons that may explain the survival: 1) the theory can be represented in elegant mathematical form; 2) it is easy to use in analyzing how firms' production choices respond to external changes in the environment; and 3) the theory is practical in analyzing firm interaction under imperfect competition (Hart 1989). The neoclassical theory can, for example, be used to explain different market structures, regulatory issues, strategic pricing, entry barriers, economies of scale and scope.

This theory has been criticized in that it does not allow for firm evolution or take into account agency problems or transaction costs, as well as for its assumption of perfect information (Kantarelis 2010). Also, issues like how the assumed profit maximization is achieved and what determines the boundaries of the firm are not explained by the theory (Hart 1989). Further criticism has come from the fact that the theory does not explain anything in terms of the inner workings of the firm, and that its behavior can be deduced from the environment in which it is operating (Cyert, Hedrick 1972).

The neoclassical theory has clear shortcomings starting from the unrealistic assumptions and treatment of the firm as a black box and not explaining organizational problems, decision making processes, or incentives. These and other shortcomings have led to other theories, in which some of the issues criticized have been addressed. One of these, the boundaries of the firm, or, in other words, why a firm is the size it is, has been addressed in the transaction cost approach.

2.1.2 *The Transaction Cost Theory of the Firm*

In his seminal article, Coase (1937) wondered why some economic activities are performed inside a firm and others outside. The transaction cost theory that emerged from this article thus concerns the boundaries of the firm. Coase held that the boundaries are a variable depending on economic decisions (Williamson 1981). He thus asserted that making something inside a firm or else acquiring it through the market were alternative ways to organize the same transactions. The selection of transaction is based on transaction costs.

Coase (1937) posed two questions that are at the basis of the transaction cost theory of the firm:

1. Why are there firms in the economic system?
2. Why is all production not done in one big firm?

According to Coase, the firm emerges in the attempt to minimize total transaction costs and is thus a “Make-or-Buy” decision maker. When the firm buys something from the market, it creates costs in searching and bargaining the transaction as well as enforcing agreed terms. Similarly, when the firm makes something internally, this creates costs in administering the organization and in human capital (e.g. union negotiations).

The firm will make non-human inputs in-house as long as the internal transaction costs are lower than the external transaction costs related to buying the inputs from the market. In this process, the firm will expand as long as the internal transaction costs are equal to the external transaction costs.

In Figure 2.2, the vertical axis represents cost of transaction (\$) and horizontal axis represents number of transactions within the firm (NTF). When the number of transactions made internally increases, the related marginal internal transaction (administrative) costs (IC) increase as well, while the marginal external transaction costs (EC) decrease as less inputs are purchased outside the firm. Coase (1937) stated that the firm would expand until the total transaction costs are at minimum, represented by m , and the firm size is NTF^* .

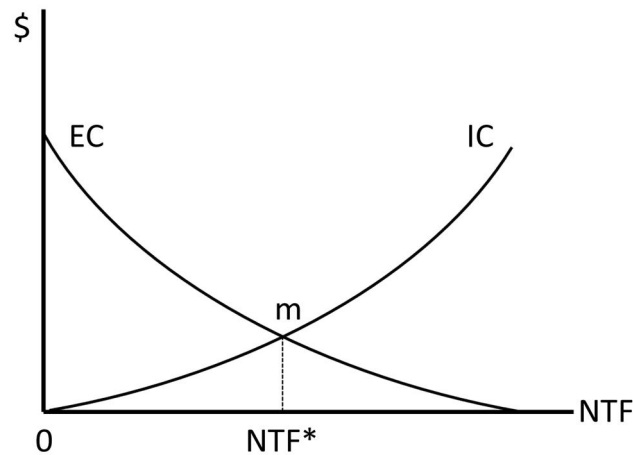


Figure 2.2 Firm size according to Coase

The dimensions affecting the transaction costs and thus describing the transactions are (Williamson 1989):

1. The frequency of recurrent transactions;
2. The degree and type of uncertainty to which they are subject;
3. The conditions of asset specificity.

These dimensions affect the value of resources over time affecting the make-or-buy decision.

The present day transaction cost theory is actually a collection of different models (Kantarelis 2010) that have an impact on the usability of the theory. Some of the theory's attributes are presented here to help to understand the subject of this research. One of these attributes is bounded rationality. Transaction cost theory "pairs the assumption of bounded rationality with a self-interest-seeking assumption that makes allowance for guile" (Williamson 1989). In effect, this means that economic agents may act in the best interest of an actor, which may lead to moral hazard, and, which is more interesting to the subject of this research, to that actor's potential to disclose information to the environment ("signal"), in a selective and even distorted manner in order to promote the actor's interests.

In its original form, transaction cost theory only dealt with the polar forms of firms, as either buying or making. The theory was criticized for not taking into account intermediate forms of hierarchies (Ring, Van de Ven, Andrew H 1992), such as partnerships or research consortia. This has led researchers to address more intermediate forms of the organization, or hybrids (Williamson 1991).

The hybrids are firms lying somewhere between those relying totally on markets and those making everything internally; they are the end result of different actions of the firms, including mergers, strategic partnerships and joint ventures. Borys and Jemison (1989) define hybrids as "organizational arrangements that use resources and/or governance structures from more than one existing organization." These cooperative forms are created by combining resources to pursue a set of business objectives so as to gain mutual benefits (Powell 1987). The business objectives include

...gaining access to new technologies, or markets, benefiting from economies of scale in joint research, production, and/or marketing, gaining complementary skills by tapping into sources of know-how located outside the boundaries of the firm, sharing the risks for activities that are beyond the scope or capability of a single organization, and gaining synergy by combining the strengths and overcoming the weaknesses of firms in undertaking a venture that is much

broader and deeper than a simple supplier relationship, marketing joint venture, or technology licensing arrangement (Ring, Van de Ven, Andrew H 1992).

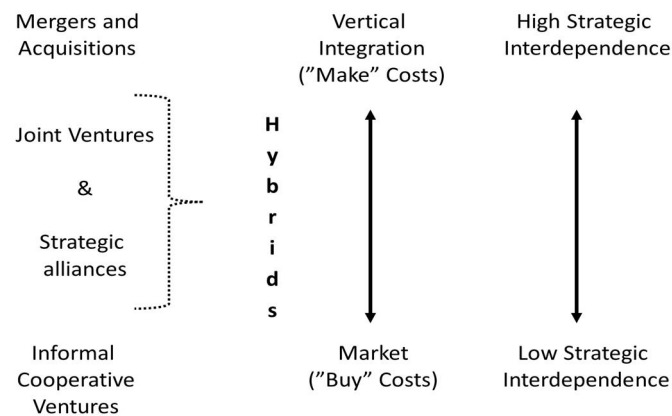


Figure 2.3 Continuum of cooperative agreements
Source: (Kantarelis 2010)

There are numerous types of hybrids but Borys and Jemison (1989) look at five major ones. These main hybrids are:

1. Mergers (the unification of two or more organizations);
2. Acquisitions (the purchase of other organizations);
3. Joint ventures (the creation of new, formally independent organizations);
4. License agreements (the purchase of rights to use assets);
5. Supplier arrangements (contracts for the sale of one firm's output to another).

Borys and Jemison continue by stating that different types of hybrids form a continuum, as presented in Figure 2.3, starting from mergers and acquisitions and going through joint ventures and strategic partnerships to informal cooperative ventures. This continuum is actually formed of different types of organizational structures made to gain the business objectives. The organizational structure is one of the strategy decisions a firm needs to make when considering its intentions. One example of the strategic decisions in the case of a firm expanding to foreign markets is to decide whether it will establish its own office there or else use one of the cooperative agreements or hybrid forms for the market entry.

The organizational form of the firm and other strategic decisions are intertwined and need to be executed together. Strategic actions generally and specifically partnering in the context of organizational form are presented and discussed below.

Transaction cost theory has attributes which are closer to real life than those of neoclassical theory. Transaction cost theory, for example, allows for actors with self-interest that seek with guile thus allowing moral hazard and conflict of interest between different stakeholders. The principal-agent theory focuses more on the problematic of different actors and their conflicting interests.

2.1.3 *The Principal-Agent Theory of the Firm*

The transaction cost approach allowed an economic actor to behave in a way producing benefits to the actor at the expense of others. The principal-agent theory scrutinizes this. The classical case explaining the problem (Grossman, Hart 1983) is that two individuals in which one, the agent, takes

an action that the other individual, the principal, cannot observe. In this case, the agent might be, for example, the manager of a firm and the principal the owner of the firm.

The theory allows the manager to make decisions generating benefits to himself to the detriment of the owner of the firm. An example in the area of interest to this research, a manager can decide to make a large scale partnership with a foreign firm even though there are high risks involved to the firm in case there is personal gain for the manager. The personal gain can be, for instance, incentive based bonuses or in order to advance their career (March, Shapira 1987). This becomes more complicated when the possibility of all actors in all layers of the organization are allowed to act to their own benefit within the firm (March 1962).

When the two actors defined above have different objectives, the delegation will have problems (Marschak 1955). As the agent has been hired for the knowledge he has, the principal cannot know everything the agent knows. In this kind of situation, where the agent knows more than the principal and both of them want to maximize their own reward—their objectives conflict, that is—the principal needs to form a contract that offers incentives to the agent to align his objectives with those of the principal (Laffont, Martimort 2001). These contracts made between the actors are, in practice, unenforceable and cause the need for another, better contract to incentivize the agent.

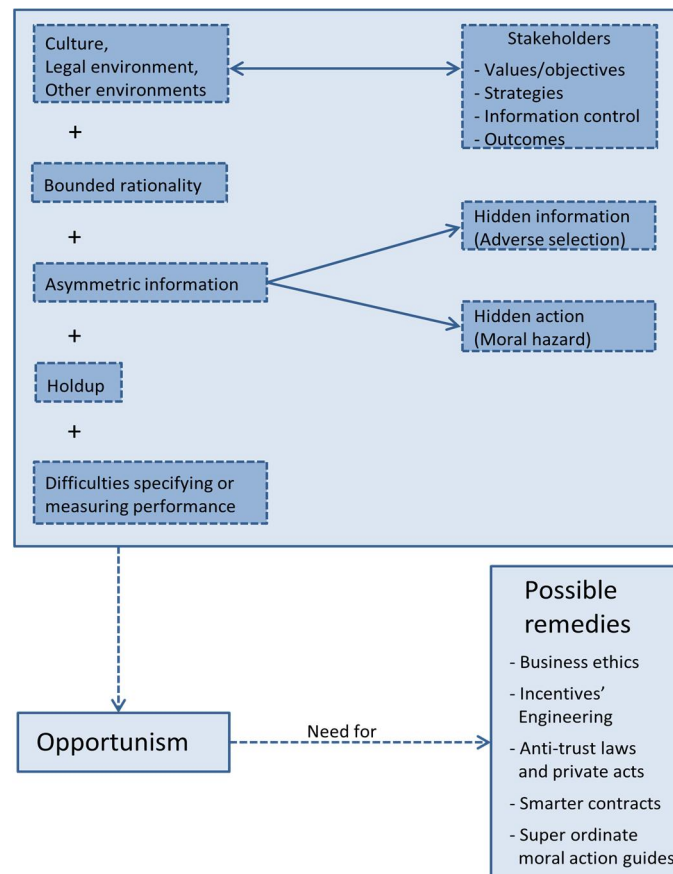


Figure 2.4 Factors contributing to opportunism and some possible remedies
Source: (Kantarelis 2010)

Smarter contracts are needed to minimize problems connected with opportunisms arising from imperfect contracts caused by bounded rationality, holdups, adverse selection, moral hazard, or difficulties monitoring performance and accountability (Laffont, Martimort 2001), as presented in Figure 2.4. The problem is how to incentivize the agent to act in the best interests of the principal

even though the agent has different interests to and also an informational advantage over the principal (Haubrich 1994).

Several models have been constructed to solve principal-agent problem in different situations or using different assumptions (e.g. Grossman, Hart 1983, Haubrich 1994, Holmstrom, Milgrom 1991, Garen 1994), with a focus on how firms can minimize the costs associated with agents' opportunistic behavior by using contractual incentives.

Both transaction cost and neoclassical theory implicitly allow for a firm to change over time, but neither of them focuses on this. The next and the last of the firm theories presented here, that of evolutionary theory does just that, focusing on the continuous change experienced by firms.

2.1.4 The Evolutionary Theory of the Firm

The evolutionary or entrepreneurial theory of the firm attempts to recognize the key factors that may be used to describe a continuously evolving and changing firm. A firm operating in a competitive environment is both reacting to change and at the same time also creating change in the competitive environment when executing its mission to acquire new competitive advantage.

Evolutionary theory began with Joseph Schumpeter (1883-1950), an Austria-Hungarian American economist who saw the capitalist economic system as in a constant evolutionary state. According to Schumpeter, the capitalist economic system is driven by firms that are in a constant state of evolution in their search to find a new competitive advantage causing change in the market by taking advantage of any random events caused by other firms or the environment in which they operate. This continuous change creates shocks and destroys old sources of competitive advantages and creates new ones. Schumpeter called this "creative destruction" (Schumpeter 2010, first published 1943).

The static system described in neoclassical theory was not representative of the real economic system (Iwai 1984). Schumpeter argued that dynamic efficiency, such as new technologies or organization forms, is more valuable than static efficiency, such as price competition at any given time. Dynamic efficiency gives a firm superior strategic or competitive advantage. This means that Schumpeter regarded the optimum allocation of resources at any given point of time as of less importance than the achievement of growth and technological advancement over time.

In this process of creative destruction, or in a dynamic stochastic system (Nelson 1995), a firm generates new knowledge by using both existing internal information and information diffusing from the external environment. Thereby, the firm pursues better technologies or routines to gain "cost" and/or "differentiation" advantage, which in turn leads to a higher consumer and producer surplus than its competitors. This surplus allows the firm to make higher profits or expand in size. The knowledge that allowed one firm to gain higher profitability diffuses to other competing firms which start using the knowledge, or imitating the first firm, in their own routines, which in turn will decrease the profits of the first firm. Then, the next new innovation will again affect the dynamic stochastic system, giving another company a temporary competitive advantage (Brennan 2006). This system is shown in Figure 2.5.

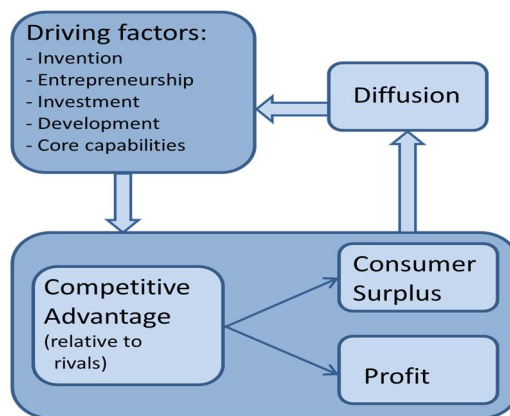


Figure 2.5 Schumpeter's creative destruction cycle
Source: (Kantarelis 2010)

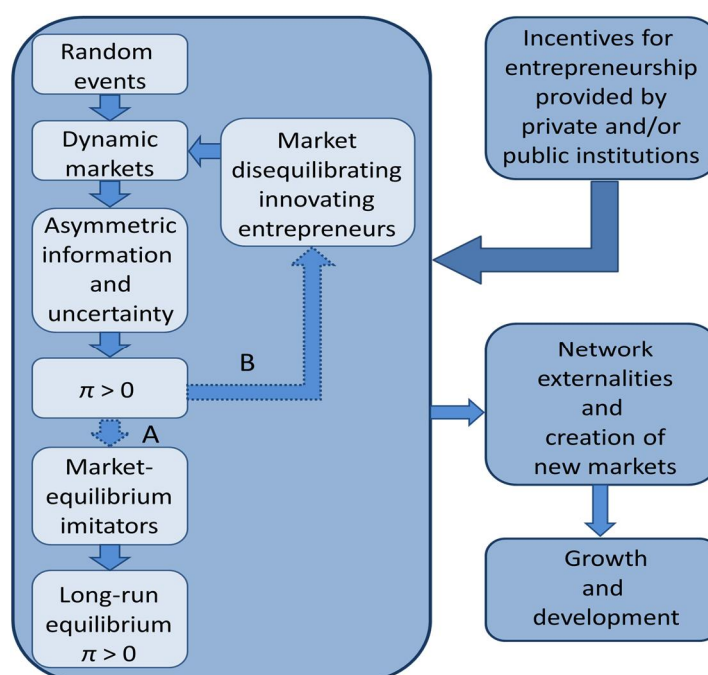


Figure 2.6 Entrepreneurial capitalism
Source: (Kantarelis 2010)

Richard Nelson (1995) compares the economic system to biological evolution where the firms are evolving in their environments. In their strife for profits (Brennan 2006), firms generate new routines and technologies. What they actually choose to do depends on the random events in the environment and the decisions made by boundedly rational, individual human beings. As in biological evolution, in the economic evolution also there is no predetermined direction but rather arbitrary advances, regulatory changes, developments in popular culture consumer tastes, and so on, creating an environment in which firms try to optimize their performance. The resulting technologies and “fittest” organizations are path dependent, winnowed by the markets and cannot be known in advance. The resulting aggregate economic growth performance is “strongly related to the prevailing variation beneath the aggregate” (Nelson 1995). This process is clearly shown in Figure 2.6.

Describing the growth a little differently, Lee et al. (2000a) see that there are essentially three ways to attain economic growth:

- “1. By improving and increasing factors of production
2. By taking advantage of comparative advantage through specialization and trade
3. Through entrepreneurship.”

These three ways are interlinked and may reinforce and affect each other in ways that can be interpreted to describe the same type of economic evolution as that which Nelson portrayed.

Firms succeed in the dynamic markets when they understand their operational environment sufficiently well and use that knowledge as a foundation for their decisions to improve their operational efficiency and thus profits. Nelson (1995) regards an organizational evolution as one way for firms to improve their operational efficiency. Organizational changes may include changes in the firm’s boundaries, including partnerships (Hynes, Wilson 2012) and other ways to cooperate with other firms. Transaction cost theory has implicitly assumed the existence of the boundaries between the firm and its environment and also between two cooperating firms. These boundaries are discussed next.

2.2 Boundaries of the Firm

Transaction cost theory, which has emerged as the predominant approach in explaining a firm’s boundary choices (Poppo, Zenger 1998), posits that the costs associated with different transactions define the boundaries of the firm (Coase 1937, Williamson 1975, 1985). Firms need to decide, as Afuah (2003) puts it, “which inputs to produce internally and which ones to buy from an external supplier and which outputs to dispose of itself and which ones to have someone else dispose of,” and thereby determining the vertical boundaries of the firm. The vertical integration can be used as protection from transaction hazards related to the market (Parmigiani, Mitchell 2009).

Transaction hazards arise from uncertainties related to contingencies, like hold-up problems, in executing the contracts between firms (Holmström, Roberts 1998). Human beings are boundedly rational, which makes the contracts designed by people necessarily imperfect and unable to cover all possible situations. This raises the possibility of opportunistic behavior, which increases the risks related to buying from external sources (Pisano 1990). Increasing the costs related to buying from markets, these uncertainties include things like costs related to finding suppliers, negotiation of contracts, monitoring and enforcement of the contracts, and also asset specificity (Afuah 2003). According to the theory, firms should continue buying non-human assets externally until the costs related to buying are equal to those related to making the products internally. The internal costs come from, for example, additional administrative costs, incentive distortions, and inefficient internal production (Williamson Oliver 1985, Grossman, Hart 1986). These decisions then define the horizontal boundaries of the firm.

Holmström and Roberts (1998) theorize that the hold-up problems generally seem to be relatively small so there must be other reasons for boundary choices, such as asset ownership. Common asset ownership defines a firm’s boundaries precisely and is important in unforeseen situations where control over assets gives additional bargaining power. Parmigiani and Mitchell (2009) emphasize that firms do not make individual boundary decisions but rather joint decisions stemming from multiple, interrelated business activities. These interdependent boundary decisions involve business strategies that include the sources of a firm’s competitive advantages.

Madhok (2002) also emphasizes the importance of a firm’s identity, resources, and strategy in boundary decisions. Most theories explain the boundaries between a firm and its environment (MacMillan, Farmer 1979, Leiblein, Miller 2003) but Borys and Jemison (1989) go further by

stating that it is not only the boundary question between the firm and its environment that is relevant here, but also that between a hybrid and its partners and between different partners.

When the competitive environment is getting increasingly dynamic and complex, firms are attempting to “gain the advantages of bigness while keeping the flexibility of smallness (Sydow, Windeler 1998). One common way to do this is boundary spanning which includes enormous variety of cooperative arrangements (Powell 1987). These arrangements form a continuum of relationships individually tailored to the needs of the partnering firms. These partnerships, or firms with modified boundaries, may change the way firms compete (Hynes, Wilson 2012) as the partners are still separate entities with separate purposes (Borys, Jemison 1989) still having the possibility to shift the competition from firm versus firm level to rival transnational collaborator rivalry (Powell 1987). Despite the different goals, the partnerships need to be formulated so that both, or all, partners benefit from the cooperation in a way that the participating firms alone could not accomplish as the firms realize that the sources of innovation do not reside inside their own firm but instead, are commonly found in collaboration with other organizations (Powell, Koput & Smith-Doerr 1996) providing access to knowledge producing competitive advantage.

These “opportunity structures” (Sydow, Windeler 1998) are producing distinct structures with ill-defined boundaries (Powell 1987) or with eventually dissipating boundaries (Schreyögg, Sydow 2010).

The choices a firm makes about its boundaries have primary strategic importance (Poppo, Zenger 1998), and the boundary decisions affect, for example, the innovation capability (Jacobides, Billinger 2006) and information dissemination (Macher 2006) as well as the firm’s capability to solve different types of problems (Leiblein, Miller 2003), which all have an impact on the firm’s capability to compete (Poppo, Zenger 1998). Research also shows (Leiblein, Miller 2003, Afuah 2001), that a firm’s boundaries are flexible and change according to its strategic needs over time.

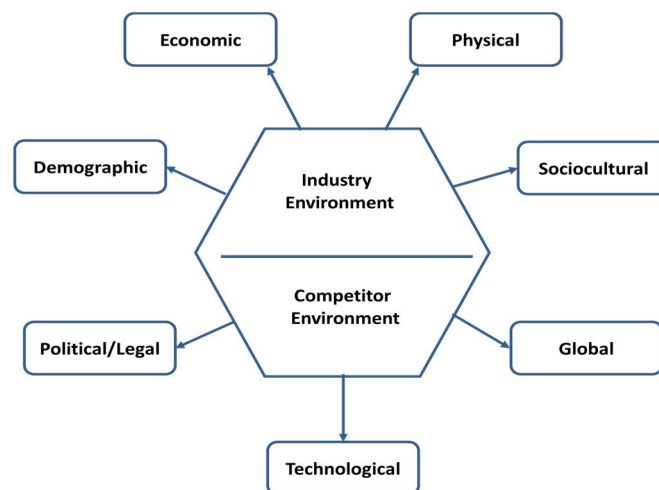


Figure 2.7 The External Environment
Source: (Hitt, Ireland & Hoskisson 2008)

Whereas the boundaries between partnering firms are blurring or insignificant (Sydow, Windeler 1998), boundary spanning organization formed by partnering must be conceived as “boundary-maintaining systems” as organizations cannot exist without boundaries between themselves and an environment (Schreyögg, Sydow 2010). Outside the boundaries, firms and hybrids have an external environment in which they exist and operate. Hitt et al. (2008) have divided the complex environment into nine areas (see Figure 2.7):

- Industry environment
- Competitor environment
- Physical environment
- Socio-cultural environment
- Global environment
- Technological environment
- Political/Legal environment
- Demographic environment
- Economic environment.

The present research is not interested in fuzzy boundaries between the partnering firms which is irrelevant for the subject. What is interesting, however, is the act of boundary spanning itself, which is done to enhance the organizational capabilities (Schreyögg, Sydow 2010) in order to quickly and reliably gain access to competitive advantage (Powell, Koput & Smith-Doerr 1996). Keeping in mind that the profit maximization is the main task of a firm and, as will be discussed later in this research, the investors do not know what is happening inside the firm nor can they value the actions firms do. For this purposes, the firms have to inform investors about their competitive actions through signaling (Herbig 1996).

Although all of the environmental areas mentioned above affect a firms' operations, the present research is only interested in the industry/competitor environment and how this and changes occurring in it influence the strategic decisions and competitive actions of firms. The next chapter takes a closer look at inter-firm rivalry and related actions.

3 Competition and Strategic Actions

All firms operating within competitor and industry environments make actions in order to succeed. These actions are called competitive actions and the firms operating in the same industry are engaged in competitive rivalry. This chapter looks at competitive rivalry through the eyes of the theory of *competitive dynamics*, explaining what the theory is about and how the rivalry is seen to affect the competition among firms.

Schumpeter wrote the following:

[The] process of industrial mutation that incessantly revolutionizes the economic structure *from within*, incessantly destroying the old one, incessantly creating new ones. This process of creative destruction is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in" (Schumpeter 1947) (*italics original*).

This idea of firms acting and reacting in a dynamic market process was also the underlying premise in the Austrian school of thought (e.g. Jacobson 1992, Young, Smith & Grimm 1996). They considered that market equilibrium occurs only when there is no competition in the market, that is, when there is a monopoly. During other times the markets vacillate toward and away from equilibrium, when different companies have, within a temporal window, a competitive advantage for exploitation (Smith, Ferrier & Ndofofor 2001, Chen, Miller 2012).

The consideration of competitive dynamics research in strategic management began with articles by MacMillan et al. (1985) and Bettis and Weeks (1987). Since then, there has been an increasing number of studies in the competitive dynamics area as researchers have taken an interest in firms' actions and reactions in a dynamic marketplace where each individual action by a firm should be evaluated in relation to its impact on the firm's competitive advantage and reactions it may elicit from competitors (Smith, Ferrier & Ndofofor 2001, Ketchen, Snow & Hoover 2004).

In a competitive strategy domain, the competitive dynamics are regarded as the study of the rivalry between different firms that is based on specific competitive actions and counter-actions, their strategic and organizational contexts, and their drivers and consequences (Baum, Korn 1996).

In their recent competitive dynamic research review, Chen and Miller (2012) described three indispensable features that characterize the competitive dynamics research area. First, competition is seen as interactive—or "dynamic"—where action-reaction pairs and streams comprise the basic building block of competition. Second, the focus is placed on real actions exchanged by firms. This interaction between firms is at the very heart of strategy, and the action and reaction streams made by managers are available for precise and concrete analysis. Third, the pair-wise comparison of firms or rivals—their positions, intentions, perceptions, and resources—is central to competitor analysis, which is an integral part of competitive dynamics. This relativity—that a firm's strategy and market position is examined within the context of and vis-à-vis those of its competitor—is a necessary premise. Further, it is taken that strategy is regarded as a pattern—or thematically consistent—in the stream of competitive behavior actions (Mintzberg 1978).

Three distinctive purposes of competitive dynamics may be identified (Chen, Miller 2012), the first being the prediction of competitive behavior. In the pair-wise examination of competitive behavior, it is necessary to understand the internal behavior of the reacting firm to a specific competitive action when predicting its competitive response. The AMC framework is used to analyze the respondent's behavior (Smith, Ferrier & Ndofofor 2001). According to the framework, a competitor

cannot respond to an action unless it is *Aware* of the action, *Motivated* to react, and also *Capable* of responding. The firm considering an initial competitive action, can at first estimate and predict the potential reaction according to these three elements.

The second purpose of competitive dynamics is to capture asymmetrical competitive relationships between the competing firms. Each company is unique (Baum, Korn 1996) and individuals in each company view their competitive environments differently as well as have different assumptions about the industry and organizational preferences. This leads to the notion that firms may differ in their views of their competitive relationships and thus to different types of (re)actions in the marketplace (Chen, Miller 2012).

The third and final purpose of competitive dynamics is to link strategy formulation to implementation. When a firm is developing a strategy, it must take into account possible retaliations from competitors. How this is taken into account is affected by how well the firm knows itself and its competitors, and the extent of this knowledge plays a vital role in competitive dynamics (Barnett 1997). Competitive dynamics serves as an integrative framework for strategic management by linking strategy formulation and implementation, and macro-competitive and micro-actor viewpoints (Chen, Miller 2012).

3.1 Competitive Dynamics Research Streams

Chen and Millers (2012) have outlined research streams in the *competitive dynamics environment*, and this framework is used here to explain the overall theory and how it is divided between different research streams. The interconnections of research streams both within competitive dynamics literature and interconnecting the micro-behavioral and macro-strategical views within the domain are also described.

Five distinct but still tightly interconnecting research streams have emerged within competitive dynamics, all of which have contributed to the understanding of firm strategy and the behavioral dynamics of competition. These streams are:

1. Competitive interaction: Action-level studies
2. Strategic competitive behavior and repertoire: Business-level studies
3. Multimarket and multi-business competition: Corporate-level studies
4. Integrative competitor analysis
5. Competitive perception.

Each of these streams is briefly introduced, below. The competitive dynamics research domain is schematically outlined in Figure 3.1, which also shows how these streams are linked to each other. In addition to showing how the environment created by competitive actions is studied, the research streams also describe how the environment is seen in competitive dynamics. More discussion on the competitive environment is provided in the next section, where the environment and the competitive interaction are described in more detail.

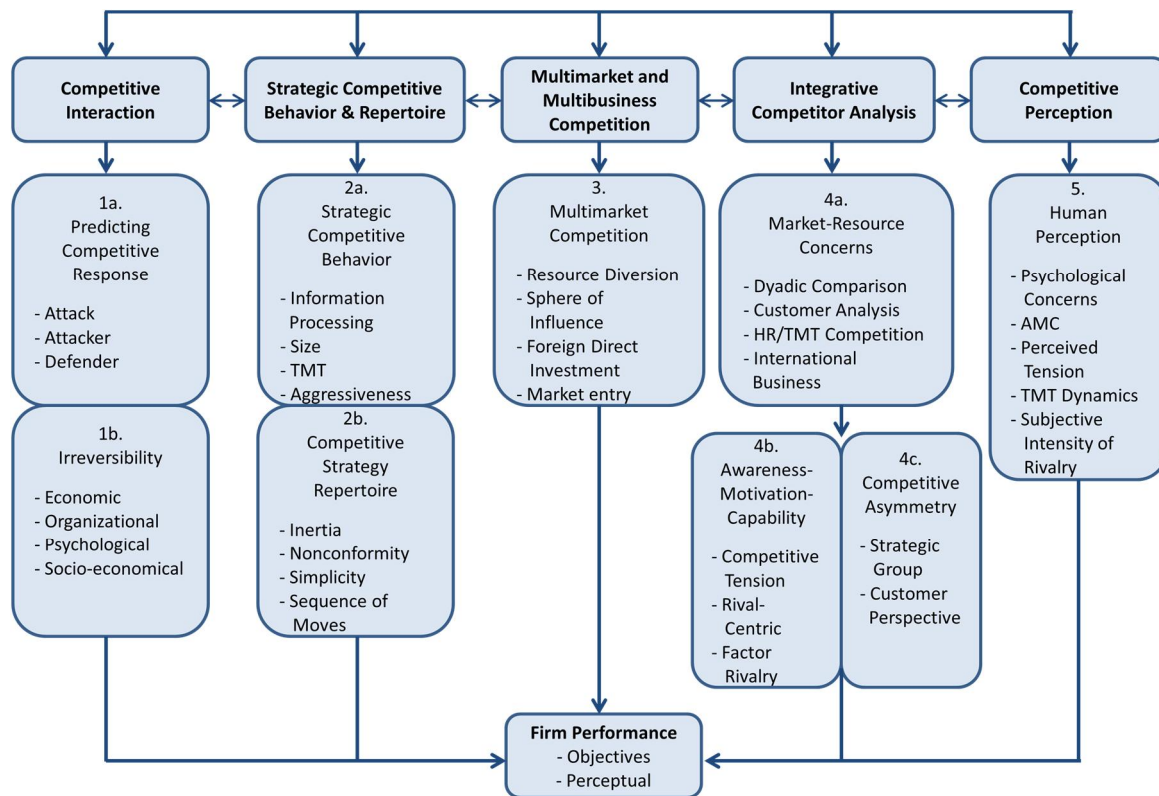


Figure 3.1 Research streams in competitive dynamics
Source: (Chen, Miller 2012)

3.1.1 *Competitive interaction: Action-level studies*

Action level studies focus, as the name suggests, on individual competitive actions and responses to those actions. The focus of this stream is the very basic, concrete level where the competitive interaction occurs and has thus unfolded the very core of strategic action exchanges.

An action is generally defined as an “externally directed, specific, and observable competitive move initiated by a firm to enhance its relative competitive position” (e.g. Young, Smith & Grimm 1996, Smith, Ferrier & Ndofor 2001). Examples of such actions include introducing a new product or entering a new market. A response is an explicit counteraction prompted by an initial competitive action that a firm takes to protect or improve its market share or profitability (Boyd, Bresser 2008, Baum, Korn 1999).

The stream can be divided into two areas of research. One area is characterizing and predicting competitive response, which involves scholars conceptualizing and measuring the key attributes of competitive responses. The other area is attending to irreversibility, which involves research into the extent to which a firm is committed to making economic, organizational or social investments when undertaking a competitive action (Chen, MacMillan 1992).

3.1.2 *Strategic competitive behavior and repertoire: Business-level studies*

This stream takes the individual actions and reactions studied at the previous level and combines them at the business level to more richly characterize strategy. This is consistent with a view that strategy is a pattern in the stream of decisions (Mintzberg 1978). The scholars endeavor to explain the organizational and contextual antecedents that drive competitive behavior and competitive repertoires as well as to capture the consequent performance outcomes.

Also this stream can be divided into two research areas where the first is the antecedents and outcomes of strategic competitive behavior. This research area seeks to understand strategic behavior via a systematic analysis of the attributes characterizing sets of competitive actions and reactions. In this way the firm's behavioral properties are brought into focus. The other area looks into competitive repertoire. Competitive repertoire consists of the entire range of firm's competitive actions and makes the firm's competitive strategy (Ferrier 2001).

3.1.3 Multimarket and multi-business competition: Corporate-level studies

The third stream of research is aimed at the corporate level, with the focus of interest on multimarket and multi-business competition. With the growing economic significance and predominance of diversified national and multinational firms, the research of corporate-level competition and strategies is becoming progressively more significant (Chen, Miller 2012).

In corporate level studies, the multimarket competition and competitive dynamics have been integrated by considering the former as a subset of the latter and thus providing a theoretical framework enabling researchers in the competitive dynamics area to scrutinize inter-firm competition at the corporate level. The focus of research is on areas such as the resource allocation of multidivisional corporations, foreign direct investments, and market entries (Upson et al. 2012).

3.1.4 Integrative competitor analysis

Expanding competitor analysis to include a more integrative approach, the next stream incorporates three different domains. The first is that of market-resource concerns. In this area, firm and market perspectives are integrated for a more balanced and comprehensive approach (Chen, Miller 2012). The construct incorporates market commonality (the degree of presence that a rival firm manifests in the markets it shares with the focal firm) and resource similarity (the extent to which a given rival firm possesses strategic endowments equivalent in both type and amount to those of the focal firm).

The second area of concern concerns competitive asymmetry stemming from the premise that competitive relationships between firms are seldom symmetrical. This asymmetry may help in illuminating perceptual discrepancies and behavioral variations in inter-firm rivalry and information interactions (Chen 1996).

The last area in this stream comprises an awareness-motivation-capability framework. The joint consideration of market-similarity and resource-commonality has led to three essential antecedents that influence the firm's competitive movements: its awareness of competing firm's actions, motivation to react, and capability to react (Chen, Miller 2012, Chen 1996). The AMC framework is further below (Section 3.2).

3.1.5 Competitive perception

The last of the five streams of research is concerned with competitive perception. That is, the researchers acknowledge that action can only take place via human agency and that all human action is filtered by perception. The AMC framework is a central part of this stream as it is seen that all components—awareness, motivation and capability—are shaped by perception. The competitive asymmetry is also closely related to this stream as the human agents of different firms' perceive their own resources and competitive landscape differently. Scholars focus on examining directly the perceptions of managers and TMT members, together with the contexts that shape these perceptions (Chen 1996, Porac et al. 1995).

3.1.6 Interconnections of the streams

The five research streams listed constitute the core of competitive dynamics. Figure 3.2 shows the streams and their interconnections. As shown, an integrative competitor analysis captures the competitive relationships of two firms, and it is this competitive relationship that affects the competitive perception of firms. These two domains as well as the AMC framework components influence the competitive actors in the marketplace leading to certain actions and reactions, or a stream of actions, creating the environment. The individual actions and repertoires of actions, as well as actions in multimarket-business domain, give a possible competitive advantage to a firm resulting in above normal performance of that firm (Chen, Miller 2012).

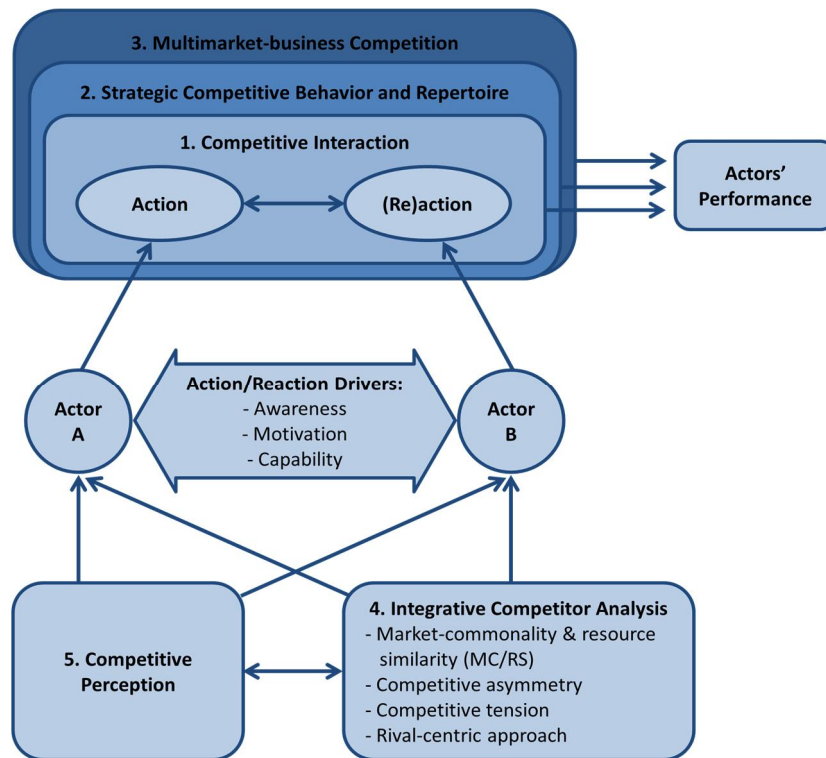


Figure 3.2 Interconnections in competitive dynamics
Source: Modified from (Chen, Miller 2012)

3.2 Competitive Actions and Interactions in the Environment

Figure 3.3 illustrates the components of the model and the associated interactions of factors affecting the strategic, or competitive, actions, as well as characteristics of the action itself (Smith, Grimm & Gannon 1992). The model includes the context in which the actions take place (industry and competitive environment), the firm taking the initiative action (the actor), the strategic action itself, the responder (the reacting competitor), and the response and the performance outcomes of the competitive interaction (change in the firm's competitive position).

All the firms act in a specific competitive environment (Ketchen, Snow & Hoover 2004). This competitive environment depends on factors like industry structure, market growth rate, number of competitors, and so on. The specific industry competitive environment is believed to have an effect on the firm's awareness of competition, its motivation to react to competitive actions, and also its ability both to carry out both competitive actions and respond to rival firms' actions (Scherer, Ross 1990). This influence is shown by arrows at the links numbered 1 and 1r in Figure 3.3.

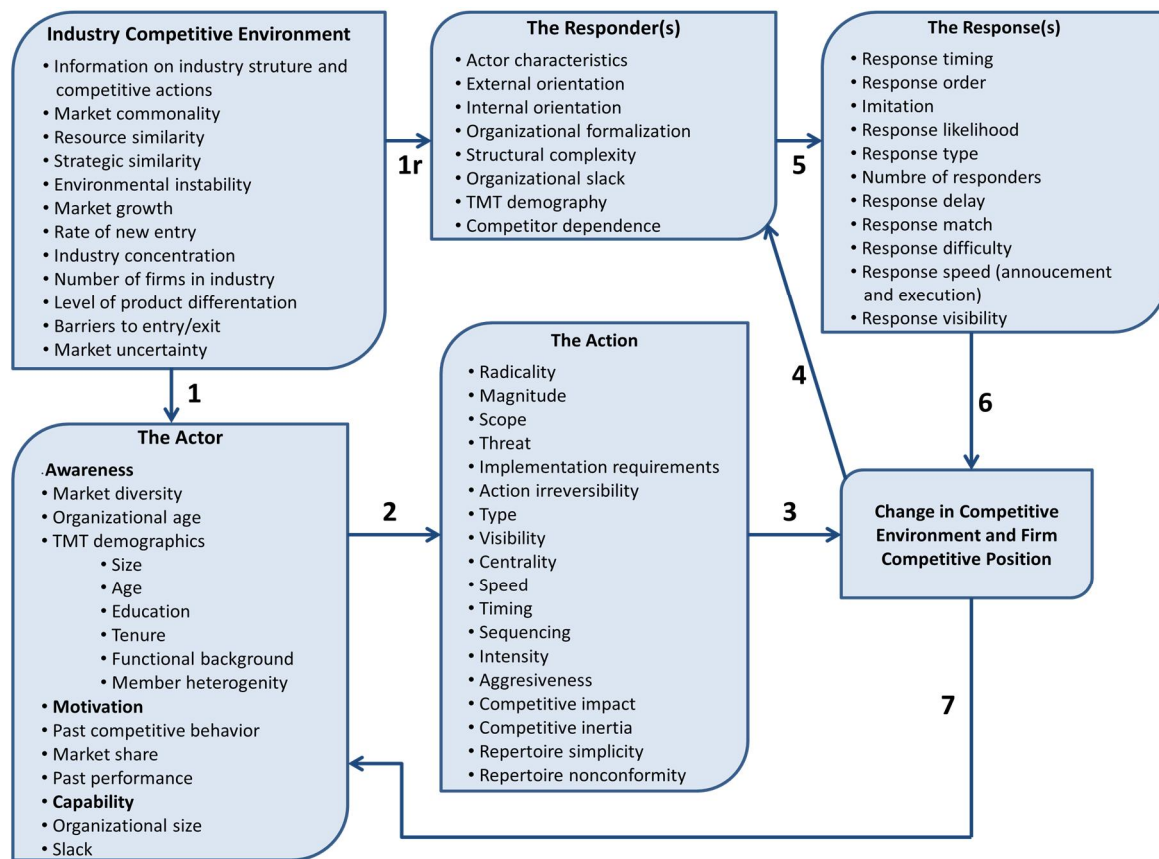


Figure 3.3 Factors affecting the strategic actions
Source: (modified from) (Smith, Ferrier & Ndofor 2001)

The actor is the firm which does the initial competitive action and is the beneficiary in both negative and positive from the competitive action outcome (Smith, Ferrier & Ndofor 2001). The characteristics of the actor influencing the competitive action are often described in competitive dynamics with AMC framework (Yu, Cannella 2007). The AMC framework divides the factors into three characteristics that influence strategic actions through their affect on the awareness, motivation, or ability of the firm to take action. Awareness refers to factors affecting how cognizant the firm is of its competitors and general competitive environment. For example, the top management team experience has a high impact on this (Smith, Ferrier & Ndofor 2001). Motivation refers to incentives driving the firm to take action. This can be, for example, the belief that the firm gains advantages from an action if carried out or losses if not. Thus, if no action is carried out as the result of an intentional decision to not act, this should also be understood as a competitive action (Nokelainen 2008). The final part in the AMC framework is capability, which refers to different factors affecting the firm's ability to undertake a competitive action. This includes decision-making processes mentioned earlier but includes also the resources the firm has available (Yu, Cannella 2007). Research in the area of the resource-based view of the firm has highlighted the importance of diverse resources in taking competitive action (Peteraf 1993). The relationship between the actor and the action is indicated by arrow number 2 in Figure 3.3.

Competitive action is the central part of the competitive dynamic theory and is seen as the principal medium by which firms position themselves in line with its strategy (Smith, Ferrier & Ndofor 2001, Smith, Grimm & Gannon 1992). Competitive action, as well as a response to such, is generally defined as externally directed, specific, and observable competitive move initiated by a firm to enhance its relative competitive position (e.g. Young, Smith & Grimm 1996, Smith, Ferrier &

Ndofor 2001). The number of particular competitive actions is limitless, but most actions can be represented in the following general categories (Smith, Ferrier & Ndofor 2001):

- Pricing actions
- Marketing actions
- New product actions
- Capacity- and scale-related actions
- Service and operation actions
- Signaling actions.

The review article by Smith et al. (2001) has aggregated a comprehensive list of action characteristics and their definitions. The influence that an action has to the competitive environment and to the competitive position of the acting firm is indicated by arrow 3 in Figure 3.3.

The reason for a firm to take a competitive action is to achieve a positive competitive outcome or positive change in the competitive environment (e.g. Smith, Ferrier & Ndofor 2001, Chen, Miller 2012, Ketchen, Snow & Hoover 2004). A number of studies have been made to show this linkage and the change. A correlation has been found between a competitive action and the following positive outcome: changes in market share (Ferrier, Smith & Grimm 1999), cumulative abnormal returns to shareholders (Lee et al. 2000b), sales growth (Ferrier 2000), and profitability and profit growth (Young, Smith & Grimm 1996). The change in competitive environment and its influence on the responder are shown with arrow 4 in Figure 3.3.

All firms are able to take action as well as respond to the actions of other rival firms (Smith, Ferrier & Ndofor 2001). While in competitive dynamics the focus is normally on firm dyads, there can actually be more than one company responding to the competitive action of the first acting firm (Chen, Miller 2012). All characteristics attributed to the actor are also relevant to the respondent (see Figure 3.3). On the other hand, the literature on competitive dynamics has found certain attributes, particularly those related to information-processing capabilities, to be the most pertinent for a responding firm. All competitive actions carry a message, such as the intent of the actor or a signal of the actor's strategy (Smith, Ferrier & Ndofor 2001). To be able to successfully respond and compete, a responder needs to decode the signaled message (Smith et al. 1991). The response of the reacting firm depends on how it perceives and interprets the message, so an ability to interpret such messages becomes a crucial capability of a firm (Smith, Ferrier & Ndofor 2001) (also below, Section 4.2). The linkage to the response is shown by arrow 5 in Figure 3.3.

A firm may react to a competitive action with a competitive response (Chen, Miller 2012). Porter (1980) defines this as a clear-cut, perceptible counteraction carried out by the reacting firm to defend or to improve its position with regard to actions initiated by another firm or firms. A response also has an influence on the competitive environment, as indicated by arrow 6, which then has an influence on the original acting firm, as indicated by arrow 7, as well as on other companies operating in the same competitive environment (Chen, Miller 2012). The firm that made the original action, or any other firm affected by the response, may choose to respond to the responding firm's action, which takes the process back to arrow 4 in Figure 3.3.

A competitive action can be almost anything that a firm believes will improve its position in the market. Before discussion here turns to one specific competitive action, partnering, two related issues are presented. The first is wealth, which is expected to be created through the competitive actions, and the second, signaling which is used to let other actors outside the firm to know what a firm has done or is going to do, including the competitive actions.

Although partnering can be seen to be an aspect of several of the competitive dynamic research streams, the focus of this research is on action level research. This event study is particularly interested in how one specific competitive action, partnering, is seen by the stock markets to affect the partnering firm's competitive position and future profit generation expectations.

4 Signaling Partnering Actions

4.1 Wealth Creation

Firms are constantly changing and evolving in order to better fit to the surrounding environment. The reason for this constant transformation is the firm's environment, which can be described as a dynamically stochastic system, that is, one that is perpetually changing in an unpredictable way. Sources of this transformation include the firm itself, its competitors, regulatory changes as well as consumer taste changes. Firms adapting to their environment are said to compete: the better a firm understands the environmental requirements the "fitter" it is, and the fitter the firm, the better able it is to survive, compete, and thrive in its environment (Nelson 1995).

A firm has a strategy, which is a framework for how that firm competes (Porter 1980). Competition consists of the individual competitive actions and counter-actions a firm executes in order to initiate and react to changes in an environment. The purpose of these competitive actions is to improve the acting firm's relative position as compared to those of the firms regarded as its competitors in the area of the competitive action. Improvement consists of lowering costs, increasing profits or sales, or other ways of acquiring a competitive advantage (Chen, Miller 2012). One competitive action is that of changing the firm's boundaries, boundary spanning, which can be achieved in several different ways, such as mergers, acquisitions, outsourcing, franchising, or partnering. The specific interest in this research in partnering involves the partnering firms coming together with the intention of creating a competitive advantage that neither of the participating firms could do alone (Borys, Jemison 1989).

The competitive advantage obtained through competitive actions should bring increased returns to the firm, which in turn increases distributable retained profits. The increased distributable retained profits are expected to increase the future dividends and thus the positive cash flow to the owners of the shares. Because the share price consists of all the expected future dividends discounted in current value, the expectation of increased dividends also increases the share price (Gordon 1959). The increased share price increases the share owners' wealth directly as well indirectly, with higher future dividends (more discussion on share prices and factors affecting these is given below, Subsection 6.5.1).

Share prices are determined by investor beliefs about firms' generation of dividends in the future. The investors cannot be very certain about what the firms are doing currently or are planning to do in the future, thus making the share price determination difficult. To help the investors in their evaluation, firms guide the investors by announcing information, or signaling (Prabhu, Stewart 2001). When they become known by the markets, these signals, which may be explicitly announced or just implied, affect the share price determination.

4.2 Signaling

Ubiquitous in markets (Prabhu, Stewart 2001), signals are seen as cues from which other firms can draw inferences about the senders' actions or intentions (Herbig 1996). According to Prabhu and Stewart (2001), the most common definition of signals is that supplied by Porter (Porter 1980): "Signals are the actions and/or announcements of a firm that convey information about its intentions and abilities."

Herbig (1996) lists three criteria which a cue needs to meet before it can be considered a true signal:

1. It must be transmitted by someone who has the ability to alter the nature and intensity of the signal;

2. It is defined as an easy-to-acquire, extrinsic informational cue, as a piece of information that can be searched out, obtained, and processed with minimal effort and energy;
3. A signal can be used to form inferences about the sender.

Prabhu and Stewart (2001) use a simplified framework to describe the signaling process (Figure 4.1), which they have adapted from Robertson, Eliashberg, and Rymon (1995) and which is appropriate also for the purposes of this research. This framework consists of information sent, its interpretation, and the response of the markets. Additionally, there is a feedback link for repeated interaction (although feedback and its impacts on the signaling is not of interest here).

Information that a firm sends can be divided in two types: signals and contextuels. Signals are the actions or announcements by the firm and contextuels are the observable features of the sender or environment. Before the receiver can respond to the information, it needs to interpret the received information. The interpretation is affected by the strength and accuracy of the information, but also by the reputational beliefs the interpreter has about the sender. These beliefs include, among others, what the receiver believes about the sender's abilities and intentions. The strength, speed, and direction of response depends on the interpretation of the signal, as well as on the intentions of the responder.

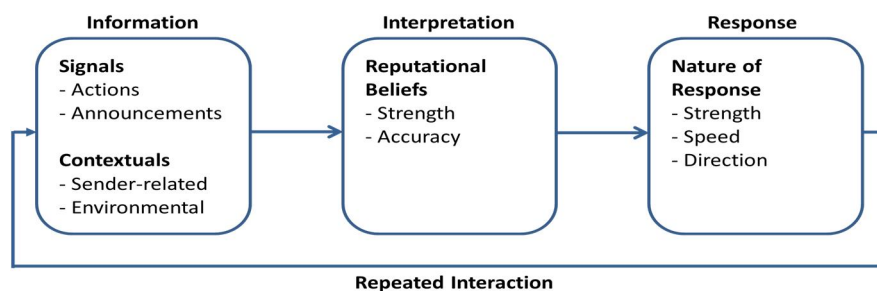


Figure 4.1 Conceptual framework for the study of signaling
Source: (Prabhu, Stewart 2001)

Elaborating on the signal and its characteristics, Heil and Robertson (2006) posit that aspects like signal consistency, clarity, and aggressiveness affect the signal interpretation and through that the magnitude and speed of reaction.

Further, Herbig and Milewicz (1996) as well as Prabhu and Stewart (2001) point out that concepts like trust and credibility significantly affect the signal interpretation. A firm, through acting consistently over time, builds up its credibility as a trustworthy actor. When a firm's reputation as a credible source of signaling is established, investors believe they can trust the signals it is sending and can adjust their responses accordingly. On the other hand, if a firm has a reputation as bluffing repeatedly, or knowingly and intentionally creating and releasing erroneous signals manipulating other market participants into action or non-action, its credibility is lost and the firm's signaling loses its effectiveness.

Firms use signals to convey information about their intentions or strategies, as well as to initiate responses or build reputation (Prabhu, Stewart 2001). Herbig and Milewicz (1996) state that signaling can be used to indicate the intent to pursue an aggressive strategy of market penetration or to enter into another market. They continue that the use of signaling enables firms to gain additional profits as compared to a situation in which there would not be signaling. Announcements can thus be seen as business-to-business communications in which firms can initiate positive responses from markets, like changes in share price, to specific actions by the firms, such as announcing a

partnership (Herbig, Milewicz 1996). According to Madhavan and Prescott (1995), the idea that partnering announcements are signals to investors is implicit in the event study method.

4.3 Classification of Partnering

As discussed, the basic element of competitive dynamics is a competitive action and a competitive response to another firm's action (Chen, Miller 2012, Ketchen, Snow & Hoover 2004, Smith, Grimm & Gannon 1992). One of the possible competitive actions a firm can execute is to form a partnership, or partnering (these terms are used interchangeably here). Partnering can be seen as a hybrid between internal resources (make decisions) and external resources (buy decisions) (Kantarelis 2010 Chapter 7, see also chapter 2.1.2 above). Villalonga and McGahan (2005, also Hennart 1993) take a wider view and posit that acquisitions, partnerships, and divestitures are alternatives for governance modes along a continuum that can be decided according to the firm's strategic intentions at the moment of decision.

Different types of partnering actions among firms are ubiquitous, and there is an extensive literature on this (Gulati 1998). For example, Lavie (2007) has divided research into the following categories:

1. The strategic partnering literature (focusing on partnering meta-studies);
2. Stock market returns (following partnering announcements focusing on event studies);
3. Social network theory applications (focusing on human social network effects on partnering);
4. Strategic networks (focusing on partnering networks instead of partnering dyads).

Lavie (2007) suggests that even though the research has contributed considerably to our understanding of partnering, it is still inadequate to fully explain the contribution that partnering portfolios have to firm performance and its wealth creation.

Gulati (1998) has taken another view and categorized the research of strategic partnering in more specific areas. He has identified five key questions linked to the different stages of partnering that he uses to organize the literature for partnering research:

- (1) The formation of partnerships;
- (2) The choice of governance structure;
- (3) The dynamic evolution of partnerships;
- (4) The performance of partnerships;
- (5) The performance consequences for firms entering partnerships.

Gulati has also separated the dyadic and network perspective questions in his article as he argues that a network perspective brings an additional set of issues to be considered in the research. These issues, questions and perspectives are shown in Table 4.1.

Elmuti and Kathawala (2001) have classified reasons for strategic partnerships in four groups: growth strategies and entering new markets; to obtain new technology and/or best quality or cheapest cost; to reduce financial risk and share costs of research and development; and to achieve or ensure competitive advantage. All these are competitive actions that are ultimately undertaken to add value to the firm and create wealth for the shareholders (Anand, Khanna 2000, Reuer 2001).

Table 4.1 Dyadic and network perspectives on key issues for strategic partnerships

Research Issue	Empirical questions	Dyadic perspective	Network perspective
Formation of Partnerships	Which firms enter partnerships? Whom do firms choose as partners?	Financial and technological imperatives that lead firms to enter partnerships. Complementarities that lead them to choose specific partners (e.g. Pfeffer, Nowak 1976, Mariti, Smiley 1983).	Social network factors that may constrain and also create opportunities for firms to discover partner prospects and choose specific partners (e.g. Kogut, Shan & Walker 1992, Gulati 1995b, Gulati, Westphal 1999).
Governance of partnerships	Which <i>ex ante</i> factors influence the choice of governance structure?	Transaction costs, interdependence, and power asymmetries (e.g. Pisano, Russo & Teece 1988, Harrigan 1987).	Social networks that may mitigate <i>ex ante</i> appropriation concerns and coordination costs that can affect the choice of governance structure (e.g. Zajac, Olsen 1993, Gulati 1995a, Gulati, Singh 1998).
Evolution of partnerships and networks	Which <i>ex ante</i> factors and evolutionary processes influence the development of individual partnerships and networks?	Social and behavioral dynamics between partners in partnerships (e.g. Ring, Van De Ven 1989, Doz 1996).	Social, behavioral, and competitive dynamics that occur across organizational boundaries among groups of firms in partnerships (e.g. Nohria, Garcia-Pont 1991, Gomes-Casseres 1994). Emergence and development of a social network (e.g. Gulati, Gargiulo 1999).
Performance of partnerships	How should the performance of partnerships be measured? Which factors influence the performance of	Examination of terminations as partnership failure (e.g. Kogut 1988). Partner characteristics and evolutionary dynamics that affect the success of partnerships	Firm capabilities that enhance the success of partnerships (e.g. Doz 1996, Dyer, Singh 1998). Influence of co-membership of partners in social networks on the success of their joint

	partnerships?	(e.g. Harrigan 1986).	partnerships (e.g. Levinthal, Fichman 1988, Kogut 1989, McEvily, Perrone & Zaheer 2003, Gulati, Lawrence & Puranam 2005).
Performance advantages for firms entering partnerships	Do firms receive social and economic benefits from their partnerships?	Event studies of stock market reactions to partnership announcements Survival of firms entering partnerships (e.g. Baum, Oliver 1991, Baum 1992).	Influence of membership in social networks and relative position in networks and relative position in network on performance and survival of firms (e.g. Dyer 1996, Westphal, Gulati & Shortell 1997).

Source: (Gulati 1998).

The focus of this research is on certain types of partnerships. Just as partnering is one strategic choice among a continuum of governance modes (Villalonga, McGahan 2005), so also is there a continuum among types of partnerships (Robinson 2008, Kale, Dyer & Singh 2002). This ranges from joint ventures forming an independent legal entity to loose contractual agreement. Partnerships can be defined as voluntarily initiated, long-term cooperative agreements between legally distinct organizations that provide for sharing the costs and benefits of a mutually beneficial activity (Robinson 2008, Gulati 1995b). This definition includes, for example, joint ventures, joint R&D and production agreements, technology exchange, and marketing or distribution agreements (Kale, Dyer & Singh 2002), and excludes one-time marketing and promotion agreements (e.g. joint charity campaigns), technology purchase agreements (e.g. one-off license purchases), and state-supported research and development programs (e.g. Tekes¹-financed programs).

The reason for excluding the above mentioned actions is due to the nature of the actions. Government supported programs are (Park, Russo 1996) very different from two independent publicly traded firms joining forces. Thus, in order to compare like with like, these are excluded. Also, one-off charity campaigns are more likely to be PR-focused instead of trying to increase sales. Even though these may ultimately affect sales, the effectiveness of marketing campaigns is not a focus for this research.

Additionally, even though partnerships may be seen to be made intentionally temporary structures (Xia 2011), the focus is on the strategic character of the partnerships, which refers to the expectation of a long-term duration of the agreements between the partners (Hagedoorn 1993), which is the reason to exclude one-off technology purchases from this research.

These limitations in scope focus the research on the longer term cooperative partnerships of which the value to the partnering firm can be commensurately evaluated by the markets discounting expectations about the present day share price value. This makes the evaluation of the market reactions more coherent and reliable.

¹ Tekes is Finnish Funding Agency for Technology and Innovation

In the next section some of the partnering research and their results are presented covering the area of partnering and the method of research that is of interest to this study.

4.4 Partnering Announcement Research

As the number of partnerships has increased during the past decades strongly (e.g. Gulati, Lavie & Singh 2009, Häussler 2006) so has increased the amount of studies on partnerships (Gulati, Lavie & Singh 2009) including the event study method researches (Park, Mezas & Song 2004) that are the interest of this research. Event studies in the partnering realm generally research the effects of partnership formation announcements as firms tend to inform the markets quite actively about the formation of or plans to form a partnership. On the other hand, firms are equally passive in informing the markets about a failed partnership or ending of a partnership (Park, Russo 1996). For this reason, only a few studies can be found on partnership termination.

Event studies of market reactions to partnership announcements can also be thought of as market efficiency studies (Dimson 1998) and market signaling efficiency studies (Heil 2006). When firms announce that they will be engaging in a competitive action such as partnership formation in the near future, or that they have already done so, the firm is signaling to the markets that they expect this action to affect (i.e. to improve) the performance of the firm in the future (Prabhu, Stewart 2001). With this signaling, the purpose of the firm is to influence markets to better “show” the firm’s future earnings in the stock price. And, as the market value “reflects investors’ performance expectations with respect to the level, timing and variance characterizing the firm’s future cash flows and is determined by multiplying the number of outstanding shares issued by the firm against the firm’s stock price” (Boyd, Spekman 2008), the share price should react positively (i.e. rise) in response to this new information.

Table 4.2 lists some event studies made between 1985 and 2009 on signaling various aspects of different types of partnering actions to the markets and how the actions have affected the share prices. The list is not exhaustive but gives a good understanding of what has been studied using the event study method, including partnering actions outside the interest area of this research, as well as those that are of interest to this research, that is, studies that have as their main focus international, marketing, or technology partnerships.

The focus of event studies listed in Table 4.2 varies considerably, covering domestic joint ventures (McConnell, Nantell 1985), joint ventures in general (Woolridge, Snow 1990), joint ventures in the IT sector (Koh, Venkatraman 1991), and joint ventures in other specific industries (Madhavan, Prescott 1995), as well as non-equity partnerships (Chan et al. 1997), asymmetric information impacts on wealth creation (Reuer, Koza 2000), whether firms learn to make better partnerships over time with more accumulated experience on partnering (Anand, Khanna 2000), joint venture termination effects on wealth creation (Reuer 2001), specific partnership function existence impacts on wealth creation (Kale, Dyer & Singh 2002), value creation by e-firm partnerships (Park, Mezas & Song 2004), wealth creation by indirect partnerships (Boyd, Spekman 2008), software industry partnership wealth creation (Gao, Iyer 2009), and whether firms create more wealth when they partner with the same partner repeatedly over time (Gulati, Lavie & Singh 2009). There are also event studies focusing on marketing and technology partnerships, as well as on international partnerships (Sleuwaegen et al. 2003, Swaminathan, Moorman 2009, Merchant 2002, Das 1998, Neil 2001, Häussler 2006), which are the focus of this research. As can be seen, the area of interest in partnerships is quite diverse and can be studied from many aspects.

The research seems to be relatively unanimous in its conclusions that partnering, whether it is in the area of joint ventures (e.g. McConnell, Nantell 1985, Woolridge, Snow 1990, Koh, Venkatraman 1991, Reuer, Koza 1999), or involving software industry partnerships (Gao, Iyer 2009), e-commerce partnerships (Park, Mezias & Song 2004), or just strategic partnerships in general (Chan et al. 1997), generates abnormal returns and thus increases the wealth of the firms' shareholders. There also seems to be evidence that smaller partners earn relatively higher returns, although in monetary terms the gains are more equal (McConnell, Nantell 1985, Koh, Venkatraman 1991). One study also indicates that premiums in partnering are similar to those with mergers (McConnell, Nantell 1985).

Table 4.2 Overview of partnership formation announcement event studies

Author(s) (year)	Research Focus	Partnership Years	Focal Partnership Types	Focus Country	Sample Size (Alliances: N Firms: F)	Main Findings
McConnell, Nantell (1985)	Value creation by JVs compared to mergers.	1972–1979	Domestic JVs, parents listed in stock exchange and not in price regulated industry.	USA	N=136, F=210	1) Significant wealth gains from JVs (0.73%) 2) Smaller partner earns larger excess rate while \$ gains more equal 3) Premiums similar to those in mergers.
Woolridge, Snow (1990)	Value creation by strategic investment decisions including JVs as one case.	1972–1987	JVs	USA	N=197, F=248	1) Significant positive 2-day CAR for JVs (0.8%), specifically R&D JVs (0.4%), shared assets/resources JV (1.4%), and asset construction (0.52%).
Crutchley, Hansen (1991)	Value creation by international JVs.	1979–1987	International JVs between US and Japanese companies.	USA & Japan	F=146	Both Japanese (1.08%) and US (1.05%) side gained positive return, though roughly half did not realize significant abnormal return; excess returns of US-Japan JVs tend to be larger for both sides when Japanese company is larger partner.
Koh, Venkatraman (1991)	Value creation using JVs, relationship between ex ante announcements and ex post assessments.	1972–1986	JVs in IT sector	USA	N=175, F=239	1) Mean 2-day CAR 0.87% for all JVs 2) Technology exchange agreements had 0.8% CAR 3) Marketing agreements did not have significant reaction 4) Related ventures create more value than unrelated 5) Smaller partner has higher returns than larger partner
Madhavan, Prescott (1995)	Effects of information multiplexity related to industry differences to JV value creation.	1978–91	JVs in three industries.	USA	N=108	1) Significant difference between returns for light and moderate information-processing load industries as well as between heavy and moderate information-processing load industries forming U-shaped curve.

Chan, Kensinger, Keown, Martin (1997)	Under what circumstances non-equity alliances create value.	1983–1992	Non-equity alliances types, at least one partner's common stock publicly traded.	USA	N=345, F=460	<ol style="list-style-type: none"> 1) Strategic alliances produce positive wealth effect with no evidence of wealth transfers between partners 2) Horizontal, same industry alliances and non-horizontal alliances are both valuable 3) Horizontal alliances add more value when alliance involves transfer and/or pooling of technical knowledge compared with marketing alliances 4) Firms that enter into strategic alliances exhibit superior operating performance relative to their industry peers.
Das, Sen, Sengupta (1998)	Value creation using contractual alliances.	1987–1991	Technological and marketing alliances with two parties and at least one party with publicly listed common stocks, no JVs.	USA	N=119	<ol style="list-style-type: none"> 1) Significant positive two-day CAR for technological alliances 2) Insignificant negative return for marketing alliances 3) Smaller partners realize larger benefits than larger partners 4) Variance of abnormal returns increases in case of marketing alliances, but no change with technological alliances.
Merchant, Schendel (2000)	Value creation using international JVs.	1986–1990	International JVs, at least US-party publicly listed.	USA + non-USA pairs	N=393 (complete data N=101)	<ol style="list-style-type: none"> 1) Abnormal returns larger with partner-venture business relatedness, greater equity ownership, large firm size, undertake R&D activity 2) Negative abnormal returns when firms facing low levels of competitive pressure enter into JVs 3) No reaction with partner-partner business relatedness, previous JV experience, relative partner size
Reuer, Koza (2000)	Asymmetric information effect in value creation by equity JVs.	1985–1995	Two parent equity JVs terminated during time period, at least one parent publicly traded in USA.	USA	N=297	<ol style="list-style-type: none"> 1) Positive abnormal returns for JVs formed under conditions of asymmetric information between transacting parties

Anand, Khanna (2000)	Learning to create value by using alliances.	1990–1993	JV and licensing alliances, at least one party from USA.	USA	N=870 for JVs, N=1106 for Licenses	<ol style="list-style-type: none"> 1) Clear evidence that firms learn to create value in R&D and production JVs with experience 2) No evidence that firms learn to create value with marketing JVs and licensing alliances.
Neill, Pfeiffer, Young-Ybarra (2001)	Value creation using R&D alliances.	1987–1994	Non-equity information technology joint R&D alliances, at least one partner US based.	USA	F=89	<ol style="list-style-type: none"> 1) Significant positive abnormal returns during two-day window 2) No asymmetric gains depending on relative size of partners.
Reuer (2001)	JV termination effects on shareholder wealth.	1985–1995	Publicly traded US firm that ended a separate entity JV hold by two or more parents.	USA	N=139	<ol style="list-style-type: none"> 1) R&D intensive firms generally exercise greater control over their JV prior to internalization 2) Markets do not react negatively to JV internalization 3) CARs from JV internalization positively related to firm's R&D intensity 4) Shareholder wealth effects of JV partner buyouts are greater when acquirer is R&D intensive 5) CARs from JV partner buyouts negatively related to cultural distance
Campart, Pfister (2002)	Partnerships wealth effects in biotechnology/pharmaceutical industries.	1995–2000	Publicly traded US biotechnology and pharmaceutical firms.	USA	N=237, F=65	<ol style="list-style-type: none"> 1) CAR for contractual alliances 3.91% and statistically significant 2) CAR for JVs 4.09% and statistically significant 3) No significant difference in CAR between contractual alliances and JVs 4) Cumulated increase of 13.2% in volumes of transaction 5) No evidence of wealth transfer between partners 6) Technological partnerships generate greater value.

Kale, Dyer, Singh (2002)	Whether value creation by alliances is correlated with firm-level alliance capability, especially with existence of alliance function.	1993–1997	All alliances in selected industries done by firms with more than \$500M annual sales for the year 1997.	USA	N=1572, F=292	<ol style="list-style-type: none"> 1) Firms with dedicated alliance function had greater abnormal return (1.35%) and 63% of alliances were ex post reported to be successful 2) Firms with no dedicated alliance function had lower abnormal return (0.18%) and 50% ex post success rate 3) Positive correlation between market ex ante evaluation and ex post managerial evaluation of success rate.
Merchant (2002)	Value creation using international JVs.	1986–1990	International JVs in mainly manufacturing sector industries between publicly traded US firm and non-US-firm.	USA	N=351	<ol style="list-style-type: none"> 1) Abnormal returns increased when JVs for research, marketing activities, high level competition in US partner's main industry, both partners were firms, US partner controlled JV, returns augmented by business relatedness of US partner 2) Abnormal returns not influenced by US partner previous JV experience; level of partners' culturally-embedded opportunism; level of political risk in JV country; equity structure of JV 3) Ceteris paribus, abnormal returns lower for larger firms.
Hanvanich, Miller, Richards, Cavusgil (2003)	Effects of cultural difference on investor reactions in JV formations.	1998–1999	Manufacturing US firms forming JVs, at least one partner headquartered in the US.	USA	N=1015	<ol style="list-style-type: none"> 1) Positive and significant CAR (0.57%) with JVs 2) Highest CAR by cross-national IJV, followed by tri-national IJV and then domestic IJV 3) Parent with local JV partner achieved low CAR compared with one with home-country partner 4) Partners with cultural differences achieved significantly lower CARs than JVs with no cultural differences.
Sleuwaegen, Schep, den Hartog, Commandeur (2003)	Value creation by strategic alliance announcements.	1985–1992	All international alliances with Dutch firms	NL	N=105	<ol style="list-style-type: none"> 1) Clear positive effect in alliances with firms in other European countries, stronger in production and marketing alliances (2.66%) 2) Large negative effect in alliances with non-EU, non-US firms 3) No significant effect with US firms.

Park, Mezias, Song (2004)	Value creation by alliances in e-commerce firms.	2000–2001	All e-commerce firms.	USA	N=272, F=69	<ol style="list-style-type: none"> 1) Alliances of e-commerce firms have positive effect 2) Marketing alliances have positive and significant and technology alliances have negative not significant effect 3) No difference in alliances with on-line and off-line firms 4) Firm age has positive and significant effect.
Kumar (2005)	When acquiring or divesting a JV creates value.	1989–1998	All JVs where JV was an independent legal entity, at least one parent publicly listed in the US and that firms stock prices available.	USA	N=78	<ol style="list-style-type: none"> 1) Firms acquiring venture with objective of growth and expansion in target market showed insignificant CARs 2) Firms divesting venture to refocus product-market portfolio had significant CAR (0.63%)
Park, Mezias (2005)	Market valuation of e-commerce partnerships before versus after environmental jolt.	1995–2001	All "pure" e-commerce partnerships with public share prices available.	USA	N=408, F=75	<ol style="list-style-type: none"> 1) On average, CARs for all partnerships 2.62% and significant 2) Environmental munificence significantly associated with CAR 3) Stock market responds more favorably to e-commerce partnerships during low-munificence period 4) Marketing partnerships (2.83%) have higher CAR than technology partnerships (1.77%)
Haeussler (2006)	Value creation using alliances.	1997–2002	All alliances by German firms.	Germany	N=1037	<ol style="list-style-type: none"> 1) Alliance formations have positive and significant effect (3.9%), technology higher than marketing but not significantly 2) Unforeseen terminations have negative and significant effect (-4.2%) 3) High technology firms have 4.7% and non-high-tech firms 2.2% positive and significant effect 4) Firm age has positive and significant effect.

Boyd, Spekman (2008)	Value creation indirect technology alliances.	1998–2000	Technology alliances formed by focal firms' partners with new partner not directly tied to focal firms, JVs excluded.	USA	N=73, F=51	<ol style="list-style-type: none"> 1) Positive significant effect higher with older indirect alliances 2) Negative significant effect on international rather than national alliances 3) Positive significant effect higher when indirect alliance portfolio is large but diminishing returns after size 40 alliances 4) Negative significant effect when partners' portfolio populated with parallel alliances.
Gao, Iyer (2009)	Value creation using alliances within the software industry.	1999–2002	Two publicly traded information technology firms in alliance, at least one party SIC classification as software, no JVs.	USA	N=103	<ol style="list-style-type: none"> 1) In software industry, alliances between firms that produce in same layer earn higher abnormal returns, but as distance on stack increases, abnormal return decreases 2) Technical alliances earn significantly higher abnormal returns when compared to non-technical alliances.
Gulati, Lavie, Singh (2009)	Partner-specific alliance experience effects on value creation by alliances.	1987–1996	Bilateral joint ventures among Fortune 300 firms	USA	N=628, F=184	<ol style="list-style-type: none"> 1) Partner specific experience has positive and significant effect 2) Partner specific experience is moderated by partner distinctiveness, firm resources and firm-specific uncertainty.
Swaminathan, Moorman (2009)	Effects of firm's network of partnerships on value created by new marketing alliance announcement	1988–2005	Marketing alliances between two publicly traded firms in computer software industry existing five years prior to alliance.	USA	N=230, F=103	<ol style="list-style-type: none"> 1) Marketing alliances have positive significant effect 2) Network efficiency and network density have the strongest positive impact when moderate 3) Marketing alliance capability has positive impact 4) Network reputation and network density have no effect.

Some of the results of the event studies are inconclusive and some even strongly contradictory. The technology, or R&D, partnerships sometimes generate significant and positive reaction (Koh, Venkatraman 1991, Anand, Khanna 2000) and sometimes non-significant and negative reaction (Park, Mezias & Song 2004). Also marketing partnerships seem to have contradictory results as some state positive and significant effect (Park, Mezias & Song 2004, Merchant 2002, Sleuwaegen et al. 2003) and some state non-significant effect (Koh, Venkatraman 1991, Das, Sen & Sengupta 1998). The research focus of each study is differing from the others so comparison cannot be done directly. Other results include that having separate partnership function to manage the partnerships generates higher return than those without the function (Kale, Dyer & Singh 2002), and that the generated wealth effect increases when the number of partnerships increase to a certain point after

which the effect diminishes (Boyd, Spekman 2008). Learning effects in partnership creation either had (Anand, Khanna 2000) or did not have (Merchant 2002) significant positive effect on abnormal return. One study also states that there is no difference between partnering with on-line firm or with off-line firm (Park, Mezas & Song 2004).

If the results from only those event studies which are closer to the focus of this research are considered, they are more homologous. The marketing partnerships have positive impact on firm value in several studies (Sleuwaegen et al. 2003, Swaminathan, Moorman 2009, Merchant 2002) even though one study does not find any significant effect (Das, Sen & Sengupta 1998). The results for technology partnerships are all showing positive effect (Neill, Pfeiffer & Young-Ybarra 2001, Häussler 2006, Das, Sen & Sengupta 1998, Merchant 2002). Also international partnerships show positive effect (Crutchley, Guo & Hansen 1991), but cultural distance seems to affect the level of impact (Sleuwaegen et al. 2003). Other factors affecting the impact on firm value seem to include at least size of firms (Das, Sen & Sengupta 1998), firm age (Häussler 2006), high technology (Campart, Pfister 2002) and the efficiency and density of the partnership network (Swaminathan, Moorman 2009).

Many of the event studies include speculation for the reasons of the contradictory results. It may be that some effect on the differences and contradictory results could be the diversity of different foci of the studies; including only dyadic partnerships into the study (Gulati, Lavie & Singh 2009); or mixing dyadic and multiparty partnerships in the study (Chan et al. 1997). Things like small subsample (e.g. Chan et al. 1997, Reuer 2000, Sleuwaegen et al. 2003) might also have an effect to the results.

Despite the speculation, there are no clear reasons found for the contradictory effects. One reason may be that as the event studies have day level analysis where the exact time of the partnership announcements are not known and the effect of the announcement cannot be seen due to dilution of the reaction. This is studied in this research.

Another reason may be that the factors affecting the partnership's valuation are not clear yet despite many event studies done on the subject. The factors affecting the partnership valuation is discussed in the next chapter.

4.5 Factors Affecting Value of Partnering on Share Prices

There are several factors that may influence investor expectations on a partnered firm's future success, which in turn affect investors' firm valuation and thereby influence abnormal returns generated by the partnership announcement. The variety of factors taken into account in any one study alone suggests that there is no common agreement about the factors (or even a pool of the most likely ones) which would have highest impact on the success of a partnership. In addition to independent factors, most studies include only one to three control factors that have been suggested before and then add others that have not been previously tested. Again, this may be a sign of researchers trying to find new factors that have a visible impact on partnership valuation. The following discussion highlights some of the factors suggested to have an impact of the value of the partnership for the firm partnering.

The most used control factors in previous event studies seem to be the size of the focus firm (Gulati, Lavie & Singh 2009, Gao, Iyer 2009, Madhavan, Prescott 1995, Häussler 2006, Das, Sen & Sengupta 1998, Merchant 2002, Reuer 2001, Kale, Dyer & Singh 2002, Park, Mezas & Song 2004, Boyd, Spekman 2008, Chan et al. 1997, Merchant, Schendel 2000). This size is normally controlled by asset size, but sales and number of employees have also been used (Das, Sen & Sengupta 1998).

It has been suggested that the size of the focus company moderates the impact of partnerships on market value (Das, Sen & Sengupta 1998). McConnell and Nantel (1985) find that the wealth effect is higher in smaller firms than in larger firms, while Chan et al. (1997) contend that these gains in absolute money terms are roughly equal even (although in relative terms smaller firms do have higher gains). This indicates the next most popular control factor in event studies, relative size, which is generally used together with the focus firm size (Neill, Pfeiffer & Young-Ybarra 2001, Gulati, Lavie & Singh 2009, Gao, Iyer 2009, Häussler 2006, Swaminathan, Moorman 2009, Merchant, Schendel 2000). The reason for including this in studies is to check whether there is wealth transfer between firms of different sizes.

The next most popular control factor seems to be the specific industry in which the focus firm is operating. This is normally tested with the Standard Industry Classification (SIC) code, but some studies directly select specific industries (Gulati, Lavie & Singh 2009, Madhavan, Prescott 1995, Merchant 2002, Kale, Dyer & Singh 2002, Boyd, Spekman 2008). The assumption behind this is some industries may be more attractive than others (Reuer 2001).

Equity investment seems to be another factor that is often used (Häussler 2006, Merchant 2002, Reuer 2001, Kale, Dyer & Singh 2002, Merchant, Schendel 2000). Investing equity in a partnership, it is suggested, may indicate a firm's commitment to the venture (Merchant 2002, Palmberg, Martikainen 2003) and thus the potential success of the partnership.

The next two factors are equally popular as they are normally included together as a pair. Marketing versus technology partnerships are normally contrasted with each other in an effort to learn which type of partnership is of more value to the firm (Häussler 2006, Merchant 2002, Park, Mezas & Song 2004, Merchant, Schendel 2000). It seems that in earlier studies technology has been seen as more valuable than marketing, and that in newer studies the preference has been reversed. Earlier, it was thought that marketing partnerships were made only at the phase when the firm's products entered maturity or started to decline, and that marketing alliances thus showed weakness (Das, Sen & Sengupta 1998). Recently, opinion has veered more towards a positive understanding of marketing alliances, such as giving a firm access to new markets, new products, and new knowledge (Swaminathan, Moorman 2009) thus adding to the firm's value.

Cultural distance (Merchant 2002, Reuer 2001, Merchant, Schendel 2000), political risk (Merchant 2002, Merchant, Schendel 2000), and partner location (by country) (Häussler 2006) are also among the often used factors. It is believed that there could be culturally-embedded opportunism in partnerships (Merchant 2002) which is responsible for partnerships being not successful. All of these three factors can be seen as proxies for international partnerships as none would have any relevance if all partners were in the same country.

Researchers using number of partnerships (Gao, Iyer 2009, Park, Mezas & Song 2004, Boyd, Spekman 2008) and repeat partnering (Swaminathan, Moorman 2009, Reuer 2001) as an explanatory factor believe that partnering may be an ability that can be learned, with the idea that the more firms do it, the better they get at it.

Another classification involves dividing partnering firms between horizontal and vertical partnership partners (Swaminathan, Moorman 2009, Chan et al. 1997) or between high- and non-high- (or low-)technology firms (Häussler 2006, Chan et al. 1997, Campart, Pfister 2002). Chan et al. (1997) find that horizontal partnerships produce a higher wealth impact due to complementary skills and knowledge. Häussler (2006) explains the higher impact of the horizontal partnership with increase of market power. Further, Häussler (2006) posits that the fastest way to keep pace with

competitors in the fast-changing high-technology industry is by collaborating with other high-technology firms.

One interesting factor suggested to influence the wealth effect is the age of the firm. The hypothesis is that for young firms it is crucial to attract partners in order to survive whereas the older, more established firms do not have the same need for this (Häussler 2006, Park, Mezas & Song 2004). This hypothesis was also supported in Häussler's research (2006).

There are plethora of other factors suggested, including firm level competition in home markets (Merchant, Schendel 2000), host market growth rate (Reuer 2001), competitive efficiency (Merchant 2002), online activities (Park, Mezas & Song 2004), debt leverage (Gao, Iyer 2009), indirect ties to partner firm (Boyd, Spekman 2008), and multi-purpose of the partnership (Swaminathan, Moorman 2009).

Among the other possible factors affecting the size of the wealth effect are partner firm size (e.g. Lavie 2007, Gulati 1995b, Merchant, Schendel 2000), sales growth rate of the focus firm (Das, Sen & Sengupta 1998, Reuer 2001), and market sentiment of the time of announcement (Tetlock 2007, Baker, Wurgler 2006, Park, Mezas 2005).

The factors listed above have been used in previous studies both as independent and as control variables, depending on the focus of the research. The factors used here as variables are explained below (Section 7.4).

5 Hypothesis Development

The research in the field as described in the previous discussion of theory derives the hypotheses developed for this study.

5.1 Partnering and Wealth Creation

As partnering is one of the competitive actions and, therefore, aims to improve firm's performance, the following hypothesis can be derived.

It is widely agreed that the task of the firm is to maximize its market value and thus create wealth to the shareholders (Stevens 1974). Firms maximize their market value by selecting strategies that will produce above average returns (Hitt, Ireland & Hoskisson 2008) and by realizing the selected strategies through engaging in inter-firm rivalry by executing strategic actions (Chen, Miller 2012). One of these strategic actions is partnering and the ultimate reason for partnering is value maximization (Gulati 1998). Market value increase has been also empirically found in partnering event studies (e.g. Gulati, Lavie & Singh 2009, Kale, Dyer & Singh 2002, Chan et al. 1997).

Hypothesis 1: Announcing a partnership causes a positive and significant abnormal return in the share price of the announcing firm.

5.2 Impact of Signaling to Wealth Creation

As different announcement channels have different characteristics and are therefore interpreted differently by stock markets, the following hypothesis can be derived.

Stock releases and press releases are overt communication forms that a firm can employ to signal its intentions to markets (Herbig 1996). Signaling is used to initiate a change in the markets according to the intentions of the firm signaling (Prabhu, Stewart 2001). Magnitude and speed of market reaction depend on the interpretation of the signal, which in turn depends on the signal characteristics, including signal clarity (Heil, Robertson 2006) and reliability (Prabhu, Stewart 2001). The impact depends also on the signaling firm's commitment to the signaled action (Herbig 1996) which, in the case of stock exchange release, can be seen higher than press release. Additionally, Finland's Securities Market Act (Finlex 2005) requires that the stock exchange discloses all stock exchange releases without undue delay to public. This makes the stock exchange releases swifter and more reliable than information announced through press releases, which may be delayed, or may be based on rumors.

Hypothesis 2: Partnerships announced through stock releases have higher abnormal returns than those announced through press releases.

5.3 Marketing and Technology Partnerships

Since markets evaluate the potential future cash flow effects of different partnership types, which may vary and, therefore, have different value for a firm's performance, the following hypothesis can be derived.

Technology partnerships are formed to have a lasting effect on the product market positioning of participating firms and thus increase the wealth of the owners (Hagedoorn, Schakenraad 1994). On the other hand, technological partnerships include uncertainties, with, among others, timing and results of the partnerships, which increase the risk to the participating firms (Palmborg, Pajarinen 2005b) and thus increase the expected discounting rate, which then decreases the expected present

day value. Also marketing partnerships are formed to increase the wealth of the shareholders (Elmuti, Kathawala 2001). Compared with technology partnerships, marketing partnerships have lower risk as they provide faster access to new markets and knowledge resulting in a faster value increase (Swaminathan, Moorman 2009).

Hypothesis 3: *Marketing partnerships have higher abnormal returns than those of technology partnerships.*

5.4 International and Domestic Partnerships

Since markets evaluate the potential future cash flow effects of different partnership types which may vary and therefore, have different value to firm's performance, the following hypothesis can be derived.

The increasing global competition is the standard for today's competitive environment (Möller, Rajala & Svahn 2005). Finnish companies have responded by internationalizing themselves actively over recent years (Palmberg, Pajarinen 2005b). In small countries where the home markets are rather limited, many firms are expanding into foreign markets in order to be able to continue growing (George, Wiklund & Zahra 2005). Also in Finland, the markets can be seen as "expecting" Finnish firms to internationalize (George, Wiklund & Zahra 2005). Furthermore, firms are competing against each other aggressively (Stoelhorst, van Raaij 2004), and thus the competition forces them to find new advantages in competition (Kohtamaki et al. 2006). International partnerships are seen as an opportunity to gain market power and achieve faster market entry (Xia 2011), thus increasing the wealth of the shareholders.

Hypothesis 4: *International partnerships have higher abnormal returns than domestic partnerships.*

5.5 International Marketing Partnerships

Since markets evaluate the potential future cash-flow effects of different partnership types, which may vary and therefore have different values for a firm's performance, the following hypothesis can be derived.

On one hand, markets can be seen as "expecting" firms in small home-country markets, such as in Finland, to internationalize (Palmberg, Pajarinen 2005b). Also, firms are competing against each other aggressively (Stoelhorst, van Raaij 2004), and international partnerships are seen as an opportunity to gain market power and achieve faster market entry (Xia 2011). On the other hand, marketing partnerships have lower risk than technology partnerships as they provide faster access to new markets and knowledge, so the value increase is also faster (Swaminathan, Moorman 2009). These assumptions would lead us to believe that international marketing partnerships are preferred by the markets, at least in Finland, taking into account the small domestic markets.

Hypothesis 5: *International marketing partnerships have higher abnormal returns than those of domestic marketing, international technology, or domestic technology partnerships.*

5.6 Domestic Technological Partnerships

Since markets evaluate the potential future cash flow effects of different partnership types, which may vary and therefore have different values for a firm's performance, the following hypothesis can be derived.

International partnerships are seen as a better opportunity to gain market power and achieve faster market entry (Xia 2011), and technological partnerships are understood to include uncertainties, including the timing and results of the partnerships, which increase the risk to the participating firms (Palmberg, Pajarinen 2005b) and thus decrease the expected value creation. These assumptions would lead us to believe that domestic technology partnerships are less preferred by the markets.

Hypothesis 6: *Domestic technology partnerships have lower abnormal returns than those of domestic marketing, international technology, or domestic technology partnerships.*

PART III: METHODOLOGICAL DISCUSSION

6 Methodology for Market Reaction Research

According to Finland's Securities Market Act:

The issuer of a security subject to public trading shall, without undue delay, disclose and file with the party in charge of the public trading in question all its decisions as well as all information on the issuer and its activities that are likely to have a material effect on the value of the security. The issuer shall keep the information disclosed available to the public (Finlex 2005).

All important partnerships are likely to have a material effect on the value of the security and thus all partnerships made should be available at the company's Internet page, either as a press release or a stock exchange release. Also, because of the act, the information of a partnership should be given to all participants in the markets simultaneously, which makes it easy to discern any abnormal reaction to the share price. This gives a good basis for using event study methodology in the research.

6.1 Event Study Methodology

The event study method has been widely used in research on finance (McConnell, Nantell 1985), as well as in management research (McWilliams, Siegel 1997). Event study method is a statistical tool that helps researchers to assess the financial impacts of various corporate actions. There are several definitions of the method, each emphasizing slightly a different aspect of the method, but in general the definitions are very close to each other. One definition given by MacKinlay (1997) is: "Using financial market data, an event study measures the impact of a specific event on the value of a firm."

The first event study is normally traced back to Fama et al. (1969) even though the first to be published was performed by Ball and Brown (1968). They did not use the term "event study," which was given only later to this specific research method. Over the decades, the method was gradually refined (e.g. Brown, Warner 1985, Bowman 1983, Henderson Jr 1990) and its use widened (e.g. Barclay, Litzenberger 1988), but the steps described in any one procedure (Henderson Jr 1990) were still not unambiguous. More precise steps for the performance of an event study were outlined by McWilliams and Siegel (1997), and it is this procedure which is used also in this research.

McWilliams and Siegel (1997) state that in conducting an event study, the inference of significance relies in three assumptions:

1. Market are efficient,
2. The event was unanticipated,
3. There were no confounding events during the event window.

The concept of *efficiency* is central to finance. The term "efficiency" is mostly used to describe a market in which relevant information is included in the price of financial assets (Dimson, Mussavian 1998). This means that in adequately efficient markets, investors cannot achieve abnormal profits from their investments.

Samuelson (1965) noted that "in competitive markets there is a buyer for every seller," so that "If one could be sure that a price would rise, it would have already risen." This approach, and a taxonomy suggested by Roberts (1967) in his unpublished manuscript, helped Fama (1970) to pull

together a comprehensive review of the market efficiency theory and evidence created and collected until then. His article included three forms of market efficiency that were “to serve the useful purpose of allowing us to pinpoint the level of information at which the hypothesis breaks down.” The levels are:

1. **Weak form**, which states that market prices fully reflect the information implicit in the sequence of past market prices;
2. **Semi-strong form**, which states that market prices reflect all relevant information that is publicly available;
3. **Strong form**, which states that all information known to any participant is reflected in market prices.

An efficient market is thus defined to be one in which the investor cannot create abnormal profits by trading when knowing the available information (Dimson, Mussavian 1998).

Fama (1970) concludes that there is strong support for the weak form of market efficiency. Mixed results for the support of semi-strong form have been found in some later research. In Indian markets, for example, Chordia et al. (2005) finds support for the semi-strong form, but Gupta and Basu (2011) does not. Interestingly, Metghalchi et al. (2011) found no support for the semi-strong form in the S&P 500 from 1954 to 1984, but from 1984 to the present there was clear support for this. Despite these mixed results, however, the hypothesis has been in general widely accepted “as a fact of life” (Jensen 1978).

Fama reviews in sequel (1991) to his seminal article Efficient Capital Markets (Fama 1970) the progress made since the publication of the original article. In the article he confirms the existence of support for weak and semi-strong form of market efficiency but states that strong form is “surely false” and lists some research supporting this statement. He also cites that “a weaker and economically more sensible version of the efficiency hypothesis says that prices reflect information to the point where the marginal benefits of acting on information do not exceed the marginal costs.”

Fama reminds of the fact that market efficiency per se is not testable (1970, 1991) but must be tested “jointly with some model of equilibrium, an asset pricing model.” He also states that the best evidence for the support on market efficiency comes from event studies on daily return. Dimson and Mussavian (1998) agree with Fama (1991) in stating that event studies are actually “tests of the speed of adjustment of prices to new information.”

The second assumption, that the event to be studied is unexpected at the time when it became known to the markets, is discussed together with event selection in Section 6.2. The third assumption, regarding the absence of confounding event, is also discussed separately, in Section 6.4.

When the assumptions are valid for a certain piece of research, the event study also needs to be implemented properly. McWilliams and Siegel (1997) collated empirical and theoretical advances made over the years and defined a ten-step event study implementation guideline that paid special emphasis to research design and implementation issues, in particular paying attention to the points mentioned above and thus ascertaining a better validity for the research conducted with the method. The steps are:

- “Step 1: Define an event that provides new information to the market.
- Step 2: Outline a theory that justifies a financial response to this new information.

- Step 3: Identify a set of firms that experience this event and identify the event dates.
- Step 4: Choose an appropriate event window and justify its length, if it exceeds two days.
- Step 5: Eliminate or adjust for firms that experience other relevant events during the event window.
- Step 6: Compute abnormal returns during the event window and test their significance.
- Step 7: Report the percentage of negative returns and the binomial Z or Wilcoxon test statistic.
- Step 8: For small samples, use bootstrap methods and discuss the impact of outliers.
- Step 9: Outline a theory that explains the cross-sectional variation in abnormal returns and test this theory econometrically.
- Step 10: Report firm names and event dates in data appendix.”

These steps are still a guideline and do not provide unambiguous instructions on implementing event studies. Also, they are done for event studies using day level data, so when the event study is performed at transaction level, not all the guidance in the framework is valid for implementation as such. All of the issues mentioned in the McWilliams-Siegel framework are discussed later in this research, although not necessarily in the same order as listed above.

The event study method is not without its limitations, and it has been criticized regarding departures from the capital market efficiency assumptions and as being inappropriate for the evaluation of incremental change, anticipated change, and the impact of past events. Despite the criticism, the method has provided a well-accepted way of testing market reactions to different corporate changes (Madhavan, Prescott 1995).

6.2 Market Reaction to an Event with New Information

The first step in McWilliams and Siegel’s (1997) guideline is to define an event that provides new information to the market and which can then be studied. For an event to cause a reaction in the market, in addition to being new, it also needs to be unanticipated; otherwise, there is no reaction (Samuelson 1965).

Market reactions are very closely related to efficient market theory insofar as they are the phenomenon that is being scrutinized. Many of the research articles that specifically mention study market reactions are studying, for instance, the speed of market reaction to information (e.g. Clarkson, Joyce & Tuticci 2006) or whether previously published information has any effect on markets (Gilbert et al. 2006).

As discussed above, Fama (1991) and many others state that there is clear market reaction on release of new information to market, so there is no need for further discussion here. The formulas for calculating the market reaction size are presented in Subsection 6.5.2.

6.3 Length of the Event and Estimation Windows

Step four in the guideline is to choose an appropriate event window and justify its length, should this exceed two days. The two-day limit for the event window is relevant to the day level event studies where there the intraday information does not exist. This research focuses on transaction level analysis but includes a comparison with day level analysis, so the discussion on day level is justified even though the main focus is on intraday transaction level.

There are three kinds of event windows in an event study (See Figure 6.1) (Campbell, Lo & MacKinlay 1996, Chapter 4.). Estimation window is used to calculate ordinary least square

regression equation that gives the smallest error in describing the movements of the stock price compared to the index used. The second event window is specified by the time when the event under study and the assumed abnormal movement occur. The post-event window is used sometimes to check if the regression equation is still valid after the event, which might be in some cases radical enough to change the relationship between the used index and stock price (Campbell, Lo & MacKinlay 1996, Chapter 4.). In this research, the post-event window estimation is not used.

One reason for the importance of the length of the event window is that the longer the event window is, the more difficult it is for researchers to claim that they have controlled for confounding events (McWilliams, Siegel 1997, see also Section 6.4). Another reason is that a short event window usually captures the effects of an event better, as has been demonstrated empirically (Ryngaert, Netter 1990). Some studies have found that stock price adapts to new information within as little as 15 minutes (Busse, Clifton Green 2002, Dann, Mayers & Raab 1977).

In the following discussion the numbering of the days studied are marked “-1,” “-2,” “-3,” and so on if they are days before the event date and “+1,” “+2,” “+3.” and so on if they are days after the event day. The event day is marked with “0.”

In the event studies focusing on partnership announcements, the lengths of event windows vary greatly, between -20 to +10 days. In many studies the length is -1 to 0 (Gulati, Lavie & Singh 2009, Koh, Venkatraman 1991), 0 to +1 (Merchant 2002, Merchant, Schendel 2000), or -1 to +1 (Gao, Iyer 2009, Boyd, Spekman 2008).

McWilliams and Siegel (1997) were mostly concerned about the length of the event window, but MacKinlay (1997) paid more attention also to other windows, as well as to their respective positions. Figure 3.1 shows the windows and their respective positions.

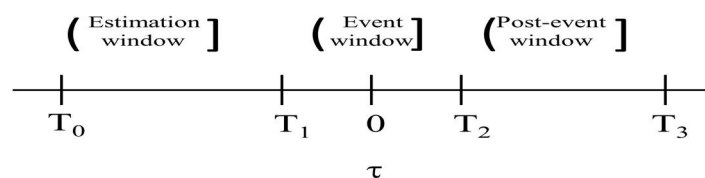


Figure 6.1 Time line for event study
Source: (Campbell, Lo & MacKinlay 1996, Chapter 4.)

The estimation window is used to select a normal performance model and could be estimated over the 120 days prior to the event (MacKinlay 1997). Normally the event window is not included in the estimation window. The length of estimation window varies greatly, from 45 days (Madhavan, Prescott 1995) to 250 days (Gulati, Lavie & Singh 2009), and from ending 70 days before the event day (Koh, Venkatraman 1991) to ending 10 days before the event day (Swaminathan, Moorman 2009). The reason for the estimation window ending normally well before the event, is to avoid the actual event influencing the normal performance model (MacKinlay 1997).

The event studies referenced above all used daily stock price data for the event studies. This means that the price of the stock in question at the end of each trading day was used in the study to see if the studied event had an impact on it. This means, for example, that when estimation window is 120 days long, there are 120 data points used to calculate the ordinary least square regression equation. As distinct from previous studies, this research is uses data at the transaction level (i.e. each separate share purchase is included in the data), and thus 120 data points can mean in real time maybe just a fraction of a second, depending on the calculation method. For the purposes of this

event study, that is not a sufficiently long time to acquire the reliable regression model formulated. The selected window lengths and justifications for the selection of these are given in Section 7.4.

6.4 Confounding Events

Eliminating or adjusting for firms that experience other relevant events during the event window is the fifth step in the framework (McWilliams, Siegel 1997). These other relevant events are called “confounding” or “contaminating” events.

Event studies should measure the financial impact of a change in information about a company’s strategy, policy, or actions. To be able to do this reliably, the time of the measured event should be clean of other events that might contaminate or distort the results (McWilliams, Siegel 1997). This kind of confounding event can be things like the declaration of dividends, or announcement of a merger or major contract, or anything else that might have impact on share price. McWilliams and Siegel (1997) connote that most event studies do not report whether they have taken possible confounding events into account in their study. Studies that do not take confounding events into consideration include Chan et al. (1997), Neill et al. (2001), and Gulati et al. (2009).

Again, having the data at transaction level has a great impact on event studies. For example, due to confounding events the number of qualifying events is higher as the number of announcements made by one firm on one day is much lower as compared to that made by one firm on three consecutive days. A detailed description of how confounding events are controlled for in this research is given in Section 7.2.

6.5 Abnormal Return Calculation and Test Statistics

Before the abnormal return calculation formulas and statistical tests are introduced, different approaches to stock valuation are presented.

6.5.1 Approaches to Stock Valuation

The expected response of markets to an unanticipated news announcement is a change in shareholder value, that is. in stock price (Das, Sen & Sengupta 1998). In order to understand why the stock price should change, we need to first understand how stock price is decided and what kind of factors affect its formation.

There are two different approaches to stock valuations; one is based on discounted growing cash flows that a stock creates to its owner, as introduced by Gordon (1959), and other one is based on efficient arbitrage-free markets, as introduced by Roll and Ross (1980).

Gordon’s hypotheses begin with the idea that when an investor acquires a share of common stock, “he is buying (1) both the dividends and the earnings, (2) the dividends, and (3) the earnings”. To test his hypotheses, Gordon acquired price, dividend, and earnings data for four industries from a two-year period. From the empirical data he derived an equation for what investors pay when purchasing a share of stock:

$$P_0 = \frac{1 - b}{k - br} Y_0 \quad \text{Equation 6-1}$$

where	P_0	is the stock price at $t=0$,
	b	is the fraction of income the company is expected to retain and invest,
	r	is the rate of profit it is expected to earn on investment,

k is the rate of profit at which the stock is selling,
 Y_0 is the expected income at year $t=0$.

From the equation, it can be seen that the present price of a stock depends on the discounted cash flows created by the company, which in turn depends on the amounts of dividends the company distributes to shareholders and expected growth rate of the dividends, as well as the rate of profit expected from the shares of the company.

A discussion followed Gordon's article (1959) by Miller and Modigliani (1961, 1963) and Baumol (1963), which ended with understanding that the amounts of dividends is just one aspect in valuation of the stock.

Another approach to stock valuation is that of the capital asset pricing model (CAPM). Developed by Sharpe (1964), Lintner (1965), and Mossin (1966), CAPM has only one systematic factor influencing the stock valuation, which makes it a special case of arbitrage pricing theory (which was introduced later (Ross 1973)).

$$E_i = r_f + \beta_i(r_m - r_f) \quad \text{Equation 6-2}$$

where E_i is the expected return of a stock i ,
 r_f is the risk free rate of return,
 r_m is the stock-specific risk premium,
 β_i is coefficient.

To correct the equation's biggest weakness, having only single systematic factor to explain common variability in asset returns (Roll, Ross 1980), Fama and French (1992) added two company-specific factors. The new factors, size (market capitalization) and book-to-market ratio, improved the explaining power of the model (Fama, French 1992).

The last approach introduced here, arbitrage pricing theory (APT), was formulated by Ross (1973) as an alternative to CAPM to better explain the empirical constellation of asset returns (Roll, Ross 1980).

$$E_j = \lambda_0 + \lambda_1 b_{j1} + \dots + \lambda_k b_{ji} \quad \text{Equation 6-3}$$

where E_j is the expected return of stock j
 λ_0 is the riskless rate of return,
 $\lambda_1, \dots, \lambda_k$ is systematic factors (loadings),
 b_{j1}, \dots, b_{ji} is correlation coefficients (betas) of stock j .

The above equation (Roll, Ross 1980) allows the return and price of stock to correlate with multiple systematic factors. The APT is a theoretical tool for understanding stock prices and macroeconomic market equilibrium, and, at least as of now, there is no standard set of factors that can be used with the model. In later studies (e.g. Chen, Roll & Ross 1986), support has been found for several systematic macroeconomic variables, such as industrial production and changes in the risk premium, to be significant in explaining expected stock returns.

The described models of stock valuation consider price formation from different points of view, but are all useful in rationalizing the use of event study methodology in price reactions if the market receives new information.

6.5.2 Abnormal Return Calculation Equations

Detailed discussions about different equations and methods as well as their properties presented here, have been made by Henderson (1990) and MacKinlay (1997), as well as in Campbell's *The Econometrics of Financial Markets* (1996). Only selected equations are presented below, with further discussion on the equations used here given in Section 7.3.

The abnormal return for a period is the actual ex post return of the security over the event window minus the normal return of the firm over the event window. The normal return is the expected return without conditioning on the event taking place (MacKinlay 1997).

For a firm i and event period τ the abnormal return $AR_{i\tau}$ is

$$AR_{i\tau} = R_{i\tau} - E(R_{i\tau}) \quad \text{Equation 6-4}$$

where $R_{i\tau}$ is the actual ex post return,
 $E(R_{i\tau})$ is the expected normal return for the period τ .

The actual ex post returns $R_{i\tau}$ are retrieved from actual stock price information source. For expected normal return there are several models, but in this research the single-index market model, also known as the market model (Chaney, Devinney & Winer 1991) or ordinary least squares (OLS) market model (Brown, Warner 1985), is used. The OLS market model is widely used in partnership event studies (Gulati, Lavie & Singh 2009, Häussler 2006, Anand, Khanna 2000, Kale, Dyer & Singh 2002, Koh, Venkatraman 1991, Merchant, Schendel 2000).

According to the OLS, for any firm the normal return $R_{i\tau}$ for stock i in period τ

$$R_{i\tau} = \alpha_i + \beta_i R_{m\tau} + \varepsilon_{i\tau} \quad \text{Equation 6-5}$$

where α_i is the intercept estimated from the regression of the estimation period,
 β_i is the market sensitivity level estimated from the regression of the estimation period,
 $R_{m\tau}$ is the market return for period τ ,
 $\varepsilon_{i\tau}$ is the zero mean disturbance term (MacKinlay 1997, Henderson Jr 1990).

When this equation is combined with Equation 6-4, the OLS abnormal returns are

$$AR_{i\tau} = R_{i\tau} - E(R_{i\tau}) = \varepsilon_{i\tau} \quad \text{Equation 6-6}$$

The abnormal return calculation rests on the deviation of an individual stock price from a market index, and therefore the index selection is of importance. The selected index should reflect all the changes in the general business environment, but be affected as little as possible by the changes in one firm's abnormal reactions.

Even if there seems to be small abnormal gains in the stock prices, the reactions can be within the normal variation of the stock price movements. To check if the observed change in the stock prices is significant and thus represents a genuinely abnormal return, it needs to be tested mathematically. McWilliams (1997) suggests the use of the binomial Z or Wilcoxon test in the next step. Instead of using those, this research uses J_2 to test the null hypothesis, as suggested by Campbell (1996). J_2 is a

special case of binomial Z with p set to 0.5 to test that outliers are not the reason for significance, with a higher J_2 figure indicating a reduced likelihood of the reaction being within the normal variation of the stock price movement.

More discussion and presentation of the J_2 formula is given in Section 7.3 with the presentation of software programs used in this research.

To study whether the market reactions to different types of partnerships differ, the partnerships are divided into groups by the partnership type. The reaction, or the size of CAR resulting from the announcement of certain type of partnerships, normally does vary according to partnership type. If the cumulative abnormal return percentages of different types of partnership announcements are different but there is no statistical difference between the groups, however, it can be assumed that the different types of partnerships have similar reactions and the observed small difference is just normal variation.

The significance tests between different groups can be performed with different parametric or non-parametric tests to check whether or not the statistical means of two or more groups are all equal. If the means are different, the null hypothesis is discarded.

The tests can be done with analysis of variance (ANOVA), but there are some assumptions related to the models that need to be fulfilled in order for the ANOVA results to be reliable. First, the samples must be independent, that is, there must be no correlation between error terms or independent variable and error. Second, the samples must be normally distributed and the different groups roughly the same sizes. Finally, the variances also need to be homogeneous.

If the above mentioned assumptions are not fulfilled, the null hypothesis needs to be tested with non-parametric tests. An appropriate non-parametric test for this research is the Kruskal-Wallis test, which requires only independence of the samples as an assumption.

7 Data, Software Programs, and Variables

7.1 Announcement type

The events studied in this research are partnerships announcements with the limitations in the types as listed in Section 1.3. The sample of events for this research was selected from companies listed in the Helsinki Stock Exchange.

7.2 Data and Its Collection

7.2.1 Event Raw Data Collection

The raw data used in this research is all stock exchange and press releases published by companies listed in Helsinki Stock Exchange during the period from January 1st, 2006 to December 31st, 2010. The stock releases were collected from Kauppalehti internet pages where all stock releases of all companies have been collected and are freely available. The press releases were collected directly from the web pages of each individual company. The raw data from the five year period, were 20,816 stock exchange releases and 10,716 press releases making total of 31,532 releases published by the 125 listed companies included in the research (Table 7.1).

Table 7.1 Number of releases per year in raw data

	2006	2007	2008	2009	2010	Total
Stock	4 722	4 156	4 326	3 858	3 754	20 816
Press	1 715	1 970	2 148	2 283	2 600	10 716
Total	6 437	6 126	6 474	6 141	6 354	31 532

The distinction between press release and stock exchange release was made by the companies themselves. If the release was named as stock exchange release, it was classified as stock release, and if the release was named as press release, it was classified as press release. There were also cases with both types of releases including the same information. In these cases, only the announcement released earlier was included in the raw data. In practice, this meant that in most cases it was the stock release which was included and the press release was rejected. The same selection was made in cases where the same releases were made in different languages.

The raw data was collected by three people for triangulation purposes. There was a 2.5% difference (510 announcements) in the number of stock exchange releases and 11.4% difference (1,096 announcements) in the number of press releases totaling 5.4% difference (1,606 announcements) in the number of total announcements. The main difference in the numbers came from “invitation to the press” announcements and personnel nomination announcements, which were not collected from the beginning. Further differences also arose from additional English press releases that were found later, in addition to the Finnish press releases. All additional announcements found that had not yet been included were added to the raw data.

The total number of announcements and their relative shares as well as the changes per year can easily be seen in Figure 7.1.

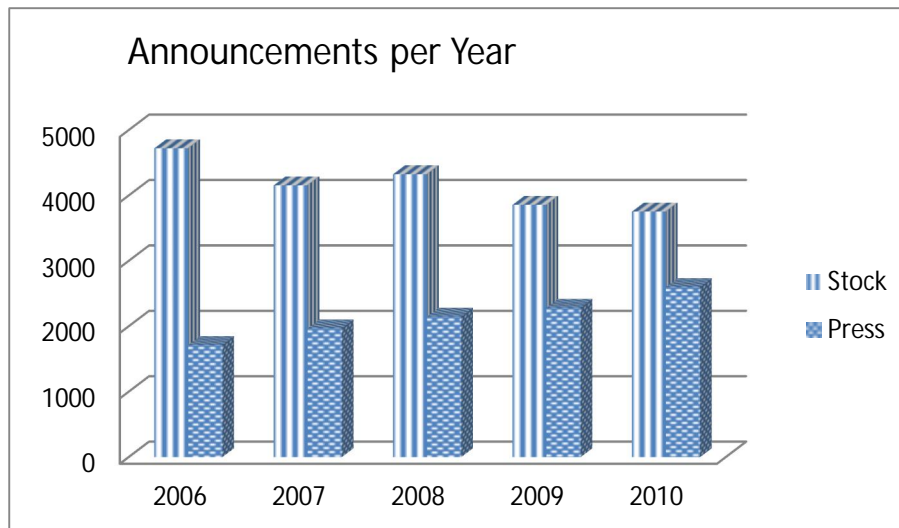


Figure 7.1 Announcements per year and by type.

In the process of collecting the raw data, an Excel list of all releases was prepared. The list included one sheet per company, with each sheet including the following information on each release:

- Company ticker symbol
- Release type (Press or Stock)
- Release date
- Release time
- Person who included the release to the list
- Possible difference with other lists
- Header of the release
- International Securities Identification Number (ISIN).

This raw data for all the releases was the master list where all following actions and selections were to be marked. Once this raw data was available, the information in the announcements was studied to find the relevant events for the research.

All the releases included in the raw data were turned into a PDF file and saved in the university server and in the researcher's personal computer for record.

7.2.2 Event Selection Process

Once the raw data set was prepared, the selection of relevant events began. Also this intermediate data set was triangulated. For that purpose, two people examined the raw data set to locate all partnership related announcements.

If the header of a release was clearly not relevant, as in the case of personnel nominations, interim reports, invitations to press for interim report publication, and so on, the release was ignored. If the header was clearly interesting or the relevance was not completely clear, the actual release was read. If there were words referring to a partnership, formation of such, or any other action related to partnership, the news was marked as a possibly interesting event.

It was understood that there might be also other ways to express the creation of a partnership, so the list is indicative, but not complete. News releases about partnerships were thus looked for even if none of the words listed was found. The possibility for creative ways to express a partnership was

the main reason to use human judgment, instead of computer program, to decide if there seemed to be any indication towards partnership or joint action with another company.

After the raw data set was gone through the first time, there were approximately 1000 stock and press releases with a possible qualifying partnership announcement. All of these releases were then read to decide whether the release was an announcement of a partnership that would be an object of interest for this study. In order to decide whether the individual release was to be included in the events, it was determined that the release was to be included if fell under any of the descriptions below:

- The release clearly stated an intention to form any kind of partnership;
- The focal company was buying a share of another company making it a joint venture;
- The focal company and another company were making a reciprocal agreement, e.g. maintenance agreement on each other's equipment;
- A "standard" trade agreement was made that included a facility, e.g. a factory, being built next to the customer.

The release was excluded if it fell under any of the following descriptions:

- The release concerned an isolated marketing activity, e.g. a firm or firms inviting customers to swimming pool for free;
- It concerned a "standard" trade agreement, or transaction, even if in case of more complicated bundle of products and services;
- It involved more than two parties in the agreement, except in case where a third party was parent company of either company;
- It was a charity or charity related activity, e.g. firm collecting money from customers to be given in charity.
- It concerned purchasing part of a company with an option to buy the rest later (i.e. firm preparing for an acquisition);
- It concerned an investment company making an investment in another company;
- It concerned an investment company advising its own partnering investments, e.g. a firm announcing that its senior manager was advising a customer how to invest to its products;
- It concerned an investment in an investment fund;
- It included more than one news item in the same release;
- It was a joint product announcement, e.g. existing partnerships announcing that the joint development was now ready to be launched as earlier announced;
- It concerned a Tekes or similar kind of governmental investment organization funding or supporting the focal company's action;
- It was a general agreement on future product or service purchasing, e.g. a firm making a agreement to buy products in the future at certain quantities per year.

The exclusion rules were used to ascertain that all partnerships were, from the investors' point of view, as similar as possible, and thus that the valuation process would be also as similar as possible.

After the screening following these inclusion/exclusion criteria, the number of announcements that qualified came to 595 releases (Table 7.2).

Table 7.2 Number of partnership-related stock and press releases

	2006	2007	2008	2009	2010	Total
Stock	69	53	35	17	26	200
Press	66	69	77	79	104	395
Total	135	122	112	96	130	595

Finally from the set of different types of partnerships, only those of interest to this research were selected to the intermediate data set. Those partnerships which were not relevant to this research included, such as logistics partnerships or operational partnerships, were excluded. It should be noted that if a partnership was included in addition to, for example sales and marketing or some other type of co-operation, this was included in the research (Das, Sen & Sengupta 1998, Palmberg, Pajarinen 2005b). After this selection the number of remaining releases totaled 360 (Table 7.3).

Table 7.3 Number of relevant partnership stock and press releases in intermediate data set

	2006	2007	2008	2009	2010	Total
Stock	36	23	23	10	11	103
Press	40	51	45	55	66	257
Total	76	74	68	65	77	360

7.2.3 Final Selection of Events

At this point of selecting qualifying events, the remaining partnership announcements of intermediate data set were deemed relevant for the research. Before the partnership type classification can be made, any confounding events need to be checked. Each remaining partnership announcement was checked so that the same company did not have any press or stock release within a half hour of the announcement time (before or after) in the case of transaction level analysis, or, for day level data analysis, in the day previous to or the following the date of the announcement. In case in which there was such an announcement, the content of the release was checked, and where there was a possibility that the announcement might be thought to disturb the impact of the partnership event, the announcement was cleaned from the data set. For example, if the second event was something like an invitation to press conference, it was judged to be a non-confounding event, whereas if it was things like new product announcements or interim report announcements were seen as confounding events and resulted in removal.

There were a total of 68 confounding events found in the data within the one-hour event window. This means that after confounding events, there were 292 releases left in the transaction level analysis (Table 7.4).

Table 7.4 Number of partnership announcements after adjustment for confounding events for transaction level analysis

	2006	2007	2008	2009	2010	Total
Stock	30	20	21	9	7	87
Press	31	34	39	44	57	205
Total	61	54	60	53	64	292

Additionally, in the transaction level analysis the exact time stamp is crucial to the method; therefore, all the events without time stamps were also excluded. After this, there were 222 events usable for the analysis (Table 7.5).

Table 7.5 Number of partnership announcements with proper time stamp for transaction level analysis

	2006	2007	2008	2009	2010	Total
Stock	30	20	21	9	7	87
Press	13	21	28	32	41	135
Total	43	41	49	41	48	222

For the purpose of the two-day level analyses, two other sets of data were prepared. The qualifying events for both day level data sets were cleaned from confounding events from the three-day event window. In the day level data sets, the number of confounding events in that window was 153. This means that additional 85 confounding events were found compared to the transaction level data set, leaving 206 events for day level analyses.

Similarly to the transaction level analysis, second day level data set is additionally cleaned for all events that do not have time stamp. There were 49 of events without time stamp.

Table 7.6 Number of partnership announcements for day level Traditional Daily Model analysis

	2006	2007	2008	2009	2010	Total
Stock	22	16	15	7	3	63
Press	23	21	29	32	36	143
Total	45	39	44	39	39	206

There were now three sets of data ready for analysis. The transaction level analysis had 222 events (Table 7.5) in the final analysis, the first set of day level data 206 events (Table 7.6), and the second set of day level data 157 events (Error! Not a valid bookmark self-reference.). The reason for the low number of events in the second set of day level analysis was that confounding events from the three-day event window period as well as the events without time stamp were cleaned from that data set.

Table 7.7 Number of partnership announcements for Transaction Daily Model analysis

	2006	2007	2008	2009	2010	Total
Stock	22	16	15	7	3	63
Press	9	15	21	23	26	94
Total	31	31	36	30	29	157

It is interesting to note that when comparing the relative number of stock exchange and press releases shown in Figure 7.2 with the relative number of stock exchange and press releases, overall there are two stock exchange releases to one press release, but in the case of partnership announcements the proportion is the other way around.

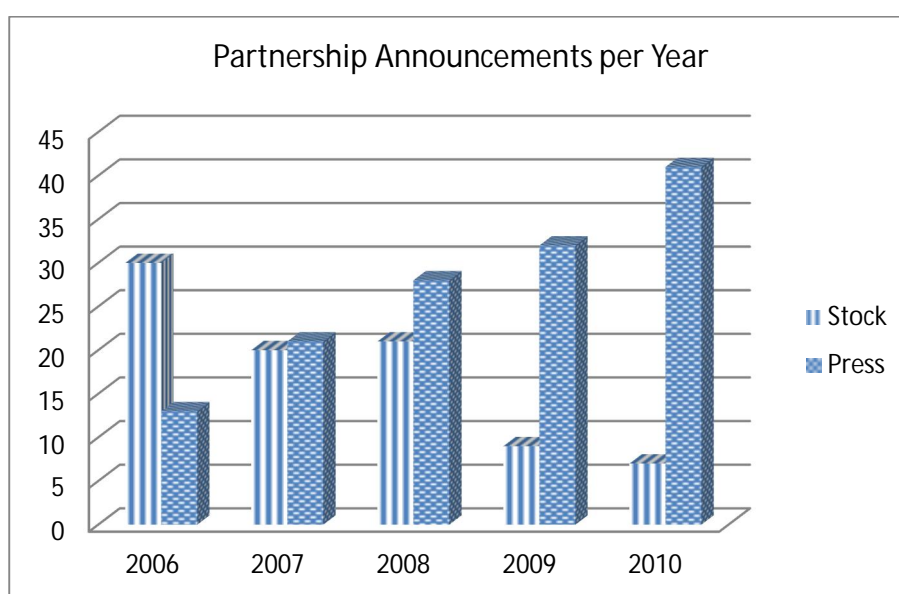


Figure 7.2 Partnership announcements per year and type

Finally, all the partnership announcements were classified by the type of partnerships into relevant categories. There were three classes used in the classification:

- Nationality
 - o Same, i.e. domestic partnerships
 - Both companies in partnership had headquarters in the same country (i.e. either in Finland or in Sweden);
 - o Different, i.e. international partnerships
 - Companies starting a partnership had company headquarters in different countries (e.g. one in Finland and the other in the USA) (Boyd, Spekman 2008);
- Sales & Marketing
 - o Not sales & marketing related partnership
 - The purpose of the partnership was not sales & marketing related;
 - o Sales & marketing related partnership
 - The purpose of the partnership was sales & marketing related. Similar to the practice of e.g. Palmberg and Pajarinen (2005b, also Das, Sen & Sengupta 1998), also production partnerships with the purpose of increasing sales were

included in this group even though these are not strictly for sales & marketing purposes only;

- Technology
 - o Not technology related partnership
 - The purpose of the partnership was not technology, R&D or product related;
 - o Technology related partnership
 - The purpose of the partnership was technology, research, or product development (Das, Sen & Sengupta 1998).

For triangulation purposes the classification was made independently by three different people to ensure that it was performed correctly. The classifications made the three people differed as follows:

- International versus domestic: 15 cases (5.1%)
- Marketing related or not: 42 cases (14.4%)
- Technology related or not: 56 cases (19.2%).

After all three people had classified the events, they discussed each case in which there was disagreement and jointly decided which on the best classification.

Figure shows the number of announcements of sales and marketing and technology partnerships before the removal of the announcements with no time stamp. The number of partnerships is quite steady during the five year period at around 58 partnerships per year, but the balance between press releases and stock market release has a clear trend; the share of stock exchange releases are 48% in 2006 and steadily decreases until, in 2010, the share of stock exchange releases are at 11% (Table 7.8 and Table 7.9). The share of partnerships announcements made by stock release does not become equally low in the final transaction level analysis because all announcements removed due to no-time-stamp are from the press release group.

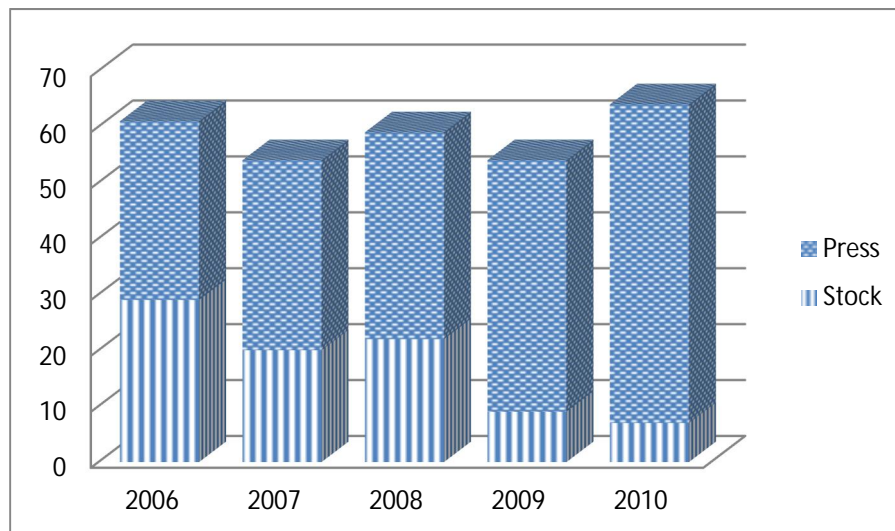


Figure 7.3 Number of partnership announcements per year and per announcement channel.

Table 7.8 Share of each channel in announcements on transaction level analysis

	2006	2007	2008	2009	2010	Total
Stock	48 %	37 %	37 %	17 %	11 %	30 %
Press	52 %	63 %	63 %	83 %	89 %	70 %

Table 7.9 Share of each channel in announcements on Traditional Daily Model analysis

	2006	2007	2008	2009	2010	Total
Stock	47 %	44 %	34 %	18 %	8 %	31 %
Press	53 %	56 %	66 %	82 %	92 %	69 %

7.3 Software Programs Used in the Research

For mathematical treatment and analysis of the data as well as for the drawing of the figures, a software program was made using Matlab R2011b. The equations used in the program are from Campbell's *The Econometrics of Financial Markets* (1996), in which detailed derivation of the equations can be found (in Chapter 4, "Event-Study Analysis"). More discussion about event study method and basic equations is provided in Chapter 6. In the present chapter, only the main equations used by the Matlab program are given.

The market model (Equation 6-5) is estimated using the ordinary least squares (OLS) procedure. The market-model parameters' OLS estimators using an estimation window of L_1 observations are

$$\hat{\Theta}_i = (X_i'X_i)^{-1}X_i'R_i \quad \text{Equation 7-1}$$

$$\hat{\sigma}_{\epsilon_i}^2 = \frac{1}{L_1 - 2} \hat{\epsilon}_i'\hat{\epsilon}_i \quad \text{Equation 7-2}$$

$$\hat{\epsilon}_i = R_i - R_i\hat{\Theta}_i \quad \text{Equation 7-3}$$

$$Var[\hat{\Theta}_i] = (X_i'X_i)^{-1}\sigma_{\epsilon_i}^2 \quad \text{Equation 7-4}$$

where

$\hat{\Theta}_i$	is parameter estimates for event i,
$X_i = [tR_m]$	is (L1x2) matrix,
R_i	is returns for event i,
$\hat{\sigma}_{\epsilon_i}^2$	is estimates of variance for ϵ_i ,
L_1	is length of estimation-window,
$\hat{\epsilon}_i$	is estimates of ϵ_i ,
$Var[\hat{\Theta}_i]$	is variance of $\hat{\Theta}_i$,
$\sigma_{\epsilon_i}^2$	is variance of ϵ_i .

Using the OLS estimators and market model to measure the normal return, we have for the abnormal return vector:

$$\hat{\varepsilon}_i^* = R_i^* - \hat{\alpha}_i \iota - \hat{\beta}_i R_m^* \quad \text{Equation 7-5}$$

where R_i^* is estimate of returns for event i,
 $\hat{\alpha}_i$ is estimate of α_i
 ι is vector of ones,
 $\hat{\beta}_i$ is estimate of β_i , and
 R_m^* is estimate of market returns.

Conditional covariance matrix V_i is

$$V_i = I\sigma_{\varepsilon_i}^2 + X_i^*(X_i'^X_i)^{-1}X_i^{*'}\sigma_{\varepsilon_i}^2 \quad \text{Equation 7-6}$$

where I is (L2 x L2) identity matrix,
 R_i^* is estimate of returns for event i.

From abnormal return and covariance we get standardized abnormal return SAR_i for time τ as

$$SAR_i(\tau) = \frac{AR_i(\tau)}{\hat{\delta}_i^{AR}(\tau)} \quad \text{Equation 7-7}$$

where AR_i is abnormal returns for event i,
 $\hat{\delta}_i^{AR^2}$ is estimate of variance of AR_i .

Cumulative abnormal return (CAR) for event i from τ_1 to τ_2 where $T_1 < \tau_1 \leq \tau_2 \leq T_2$, was calculated as

$$\widehat{CAR}_i(\tau_1, \tau_2) \equiv \gamma' \hat{\varepsilon}_i^* \quad \text{Equation 7-8}$$

where γ' is transposes of γ ,
 $\hat{\varepsilon}_i^*$ is estimate of abnormal returns for event I.

Standardized cumulative abnormal return (SCAR) was then calculated as

$$\widehat{SCAR}_i(\tau_1, \tau_2) = \frac{\widehat{CAR}_i(\tau_1, \tau_2)}{\hat{\sigma}_i(\tau_1, \tau_2)} \quad \text{Equation 7-9}$$

The null hypotheses were tested using J2 with the following equation:

$$J_2 = \left(\frac{N(L_1 - 4)}{L_1 - 2} \right)^{1/2} \frac{\widehat{SCAR}(\tau_1, \tau_2)}{a} \sim \mathcal{N}(0,1) \quad \text{Equation 7-10}$$

where N is number of events.

The Statistical Package for the Social Sciences (SPSS) version 20.0.0 was used to calculate non-parametric tests, namely, the Kruskal-Wallis test, Pearson correlations, and regression models. Additionally, this application was used to check the distributions and variances of the samples.

7.3.1 Variables Used in the Analysis

The abnormal return calculation was made by MatLab macro program and included several variables affecting the calculation and which could be selected. These variables are explained here.

Two types of analysis were performed. One was the traditional day level analysis made in the previous event studies (e.g. Neill, Pfeiffer & Young-Ybarra 2001, Robinson 2008, Reuer, Koza 1999, Merchant, Schendel 2000), and the other was the transaction level analysis using events with an exact time stamp of when the announcement had been released to the markets.

Day Level Analysis

In day level analysis only the last stock value of a trading day is used in calculation. For example, if the event window is three days long, there are three different values used in the abnormal return calculation for the stock in question. This calculation method also assumes that the abnormal return stays in the stock at least until the end of the day of the event.

The variables used in daily analysis comprised Event Window Steps (i.e. days), Estimation Window Steps (i.e. days), Accept Null Times, and Daily Analysis type.

Event Window Steps

The length of event window was selected to be three days, which included days -1 , 0 and $+1$. In previous studies (e.g. Gulati, Lavie & Singh 2009, Gao, Iyer 2009, Swaminathan, Moorman 2009, Robinson 2008), it has been shown that the impact of an event can be seen during the actual event day or at the latest on the day after the event. This was also confirmed by testing a window length of five days. Starting the window before the event day allows confirmation of whether there is any information leakage before the official release of the announcement. An additional benefit from the short event window is the minimization of confounding events, as explained.

Estimation Window Steps

The estimation window length used in previous studies has varied considerably. Gulati et al. (2009) used 250 days and Madhavan and Prescott (1995) 45 days. Most of the other studies have been somewhere in between these. In this research, the estimation window was selected at 120 days and to end on the day previous to that of the event window (Section 6.3).

Accept Null times

This variable defines whether events with no time stamp are accepted in the calculation. This was selected to be “Yes” in the data set for the Traditional Daily Model. For the Transaction Daily Model, this variable was set to “No.”

Daily Analysis

The daily analysis variable determined whether a daily analysis was used or not. If this was selected for “No,” then the macro program automatically used a transaction based calculation.

The daily analysis variable was selected to be “Use Next Close,” which means that all events were assumed to have their first impact at the end of the same day of the date information, that is, the next time the trading was assumed to be closed.

Transaction Level Analysis

Since no event studies have been conducted with transaction level data, finding the best practices from the literature was not possible. The variable settings were selected by extensively testing

different variable sets and the results they produced. The starting point for testing was the general idea of the guidelines and methods used. For example, when the estimation window has traditionally been 120 to 250 days, this could be understood to be equal to 120 to 250 data points in the past and so was used here as a starting point to test the length of estimation window.

Interval

There can be thousands of transactions made each second in a stock exchange. Calculating each of them separately is not practical. To solve this impracticality, the stock prices are only calculated within certain selectable intervals. All transactions made at the same moment at the end of the selected interval are volume weighted, and that result is determined as the stock price at that moment.

The selected period can be anything from one second to one day, which is the time when the transaction based analysis becomes day level analysis. Here, the period was selected to be something from one minute to one hour. As there are no previous studies, several intervals were tested within this range in order to achieve a clear effect without too much noise in the result. Based on the testing, the interval was selected to be three minutes.

Event Window Steps

The event window should be long enough to show the impact but not too long to distract attention from the focus of the research. Again, there are no studies in this field to give guidance, but Busse and Green (2002) have studied how CNBC TV broadcasts affect stock prices. According to their findings, positive news is incorporated in stock prices within one minute and negative news in around fifteen minutes. This was also confirmed by testing the window at different lengths. Most of the impact occurs in ten to twenty minutes, and after that, while the price in some cases continues to drift, this is only in small steps and slowly.

Based on Busse and Green (2002) and testing, the event window was selected to be thirty minutes or 10 steps.

Estimation Window Steps

The estimation window steps are equal in length to the event window steps. It has been suggested (McWilliams, Siegel 1997) that the estimation window in daily analysis event studies should be at least 120 days. That equals several months in real time when 120 steps with a three-minute step length is only six trading hours in real time.

To maximize the estimation equation's variables, the length of estimation window was selected to be 240 steps, or about the same size as the longest estimation windows in previous daily level event studies (Swaminathan, Moorman 2009).

Accept Null Times

This variable defines whether events with no time stamp are accepted to the calculation. In order to have as precise results as possible, events with no time cannot be accepted. This variable was selected to "No."

7.4 Selection of Variables

7.4.1 Dependent Variable

The dependent variable in the research is the firms' cumulative abnormal stock returns (e.g. Madhavan, Prescott 1995, Swaminathan, Moorman 2009, Robinson 2008, Kale, Dyer & Singh 2002). Details of the model and related methodological variables are given in Sections 6.5 and 7.3.

7.4.2 Independent Variables

There are three independent variables used in this research. The independent variables are selected so that they answer to the hypotheses of this research.

Type of Announcement

Finland's Securities Market Act clearly states that information that is likely to have a material effect on the value of the security needs to be published without undue delay. The act does not specify what information needs to be published or how; that judgment is left to the firms. Most information is duly published either by stock exchange release or by press release. These different types of release channels are likely to be viewed differently by investors, and thus may also have differing levels of impact on investors.

If the different types of releases are viewed differently, either in "seriousness" or "relevance" of information or in the speed of conveyance to investors, there should also be clear distinction in the response to the transmitted by either type. This measure focuses on this difference.

Partnered Function of the Focus Firm

Consistent with previous research (Das, Sen & Sengupta 1998), this research is interested in whether there are differences in wealth creation depending on the function in the key partnering role of the firm. Similar to Das, Sen, and Sengupta (1998), the main interest here is on the technology and marketing functions.

Partnerships classified under technology concern research and development, licensing, co-development, and other activities dealing with the development or research of new technologies and methods needed in future products and services (Das, Sen & Sengupta 1998).

Nationality Type of the Partnership

This research measures how the nationality type of the partnership affects the dependent variable. This distinction has also been made in previous research (e.g. Boyd, Spekman 2008) and stated to have an influence.

The partnership has been marked as domestic if both focus and partner firms' headquarters is in the same country and international they are in different countries (E.g. Boyd, Spekman 2008).

7.4.3 Control Variables

Previous studies have shown that other factors in addition to those selected affect the abnormal returns generated by partnership announcements. This research controls for several of these, as explained below.

Focus Firm Size

It has been suggested in prior research that the size of the focus company moderates the impact of partnerships on market value (Das, Sen & Sengupta 1998), and the size of each focal firm has thus been controlled for (e.g. Anand, Khanna 2000, Koh, Venkatraman 1991). Here, the size of the focus

firm size was measured based on the level of total assets reported in the last annual report prior the partnership announcement. Standard deviation and distribution have been normalized by taking the log of the asset size (Häussler 2006).

Partner Firm Size

Some papers have stated that the partner size may have an effect on the abnormal return (e.g. Lavie 2007, Gulati 1995b, Merchant, Schendel 2000). Similar to the focus firm, partner firm size was measured here based on the level of total assets reported on the last annual report prior the partnership announcement and the log value of that used.

Relative Firm Sizes

Another possible explanatory factor studied is that of the relative size of the partnering firms (e.g. Häussler 2006, Swaminathan, Moorman 2009, Gulati 1995b). The relative size of the partnering firms is measured here by dividing the *Partner Firm Size* by the *Focus Firm Size*.

High-tech Firm versus Non-High-tech Firm

The industry sector is hypothesized to influence the evaluation of partnership success (Häussler 2006). Each of the focus firms were classified as either a high-technology firm or a non-high-technology firm. The high-technology classification is made by Germany's Federal Financial Supervisory Authority (BAFIN).

In the classification, the following industries are high-technology: biotechnology, Internet, it services, software, technology, and telecommunication. The following were classified as non-high-technology: automobile/transportation and logistics, banking, construction, basic resources, financial services, industrial, retail/consumer cyclical/food and beverages, machinery, entertainment, utilities, and others (Häussler 2006).

Partner Firm's Location

Some researchers have suggested that partner location may have an effect on partnership success (e.g. Häussler 2006). The reasons for the differences in success with partners from different countries have been suggested as depending on the similarities or differences in business cultures (e.g. Reuer 2001). A simple way to code this is to separate the locations of the partner firms (e.g. Häussler 2006).

The partners were coded as from the following groups: Finland, Europe, Japan, China, rest of Asia, North America, South America, Middle-East, Russia and Africa.

Single or Multipurpose Partnership

If a partnership has more than one purpose, such as product development and joint marketing activities, it may be valued differently than a pure product development partnership (Swaminathan, Moorman 2009, Palmberg, Pajarinen 2005b). To measure this effect, a dummy variable was added to indicate whether there was only one purpose for the partnership or more than one.

Age of Focus Firm

Some researchers have theorized that the age of the firm influences the size of the abnormal return (Häussler 2006, Park, Mezas & Song 2004). The hypothesis is that it is crucial for young firms to attract partners in order to survive, whereas the older, more established firms have a reduced need for this.

As the establishment date for most firms is not available, stock listing is used as approximation. The log of the number of days from listing to the announcement of the partnership is used as a proxy variable for the age of focus firm (Häussler 2006).

Sales Growth Rate of Focus Firm

The growth rate of a firm may influence the future expectations of investors in their evaluation of the partnership. To measure whether past growth rate influences the evaluation, the percentage of turnover increase in the last annual report as compared to that of the previous annual report is used.

Market Sentiment

Research has shown (Tetlock 2007, Baker, Wurgler 2006) that market sentiment has a short-term effect on the valuation of stocks and their expected returns, and that during certain times the impact of this is especially high. Also, according to Baker and Wurgler (2007), this sentiment is most influential when the stock value is difficult to estimate.

To measure the short term market sentiment, the market index change during the last half hour before the event is calculated and its correlation with the size of possible abnormal return checked.

Horizontal Partnership versus Vertical Partnership

Another suggested influencing factor is direction of the partnership. Following Swaminathan and Moorman (2009) intra-industry partnerships have been classified as horizontal and inter-industry partnerships as vertical.

Previous studies have used US Standard Industry Codes (SIC), but as the coding is different in different countries, Finland's industry classification is used here. This coding is available at the Kauppalehti firm listing for all companies registered in Finland. For the companies not registered in Finland the coding was decided based on the firm's industry.

The coding is five digits but the classification was made according to three digits. That resulted 52 (23%) of the partnerships being classified as intra-industry or horizontal partnerships. A four-digit coding would have resulted in 34 (15%) and two-digit coding 67 (30%) horizontal partnerships.

Equity Investment

Some researchers (Häussler 2006, Stuart, Hoang & Hybels 1999) have suggested that equity investment signals a higher commitment to the partnership and thus should have a clear effect on the reaction by the investors. This reaction is measured by a dummy variable indicating if there was an equity investment made in the partnership by the focus company.

7.5 Market Index and Transactions

Abnormal return calculation rests on the deviation of an individual stock price from a market index, so there is a need to use a market index and its selection is of importance. In this research, all firms followed are in the Helsinki Stock Exchange, making it straightforward to select an index from OMXH. The selected index is OMXHPI, which is a capitalization weighted price index following all firms listed in the Helsinki stock exchange (Federation of European Securities Exchanges).

The reason for selecting this index is that it is the largest index in the Helsinki so any single firm's sudden share price changes will have the smallest effect on the index as compared to the other indexes available for this Stock Exchange. This means that no single firm or sector can dominate the weighting, but the index still follows the changes in the general investment environment.

In addition to the market index information, data containing all stock market transactions in the Helsinki Stock Exchange from the period of January 1st, 2006 to December 31st, 2010 was purchased from Nasdaq OMX. The data included all realized transactions during the period together with transaction specific information like number of shares, price, time of transaction, seller, buyer, company, and so on. During the period in question, there were 68,827,956 stock purchase transactions made in the Helsinki Stock Exchange.

PART IV: RESULTS OF THE EVENT STUDY

8 Results

8.1 Results of the Event Study

The results of the event studies are presented in this chapter. Three different analyses have been made. The first, following the Traditional Daily Model, is a day level analysis performed with a data set that would have been done in the traditional method. That is, the data includes also the events with no time stamp and the confounding events have been cleaned from the three-day event window. The Traditional Daily Model includes total of 206 events. The second analysis, using the Transaction Daily Model, is also a day level analysis, but the data set does not have any events without a time stamp. Also, the Transaction Daily Model analysis has been cleaned from confounding events from the three-day event window and includes total of 157 events. The last analysis, Transaction Level Model, is, as the name suggests, a transaction level analysis and includes 222 events. The Transaction Level Model analysis has been cleaned from confounding events from the one-hour event window and only has events with time stamps.

The measurement results for the research are taken at the end of the event window in each of the models. If the figures below, this is shown as the outermost column on the right-hand side.

After the analysis, the results are presented, the three different models and their results are compared to each other, and the results and their differences are considered, before a final, further analysis of whether there are statistical differences in abnormal returns between of the different types of partnerships. The final section presents a summary of the analyses.

8.1.1 Traditional Analysis of the Daily Data

The cumulative abnormal return over the three-day (previous day, event day and day after the event day) period (CAR) for all announcements used in Traditional Daily Model is 1.31% with a statistical significance level 99.9%, as shown in

Figure 8.1 and Figure 8.2.

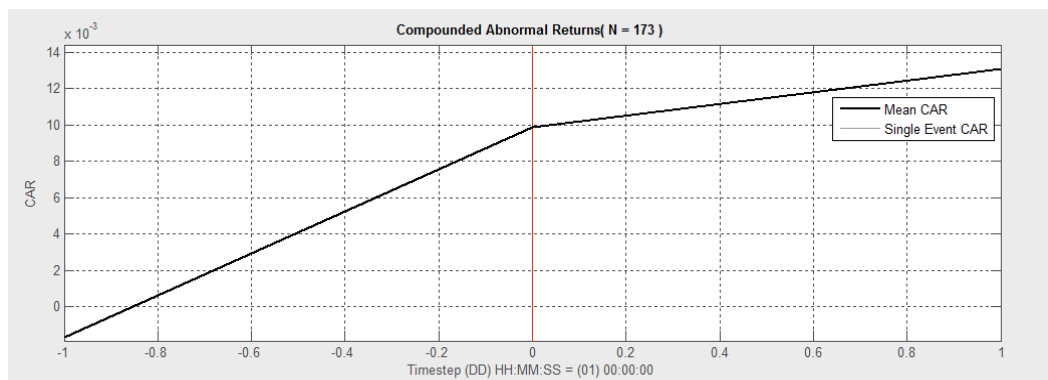


Figure 8.1 CAR for all partnership announcements

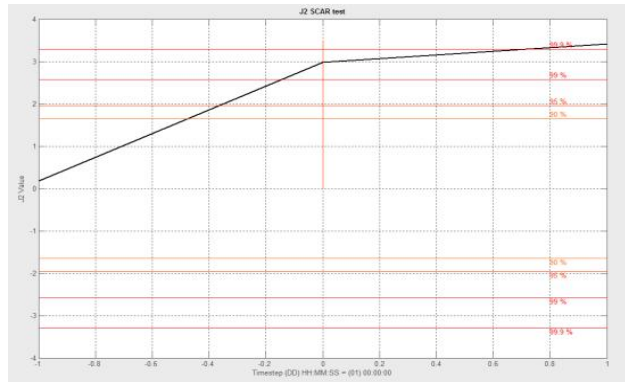


Figure 8.2 Statistical significance for all partnership announcements

When only the stock announcements are studied the CAR increases to 3.87% and the statistical significance increases well above 99.9%, as shown in Figure 8.3 and Figure 8.4.

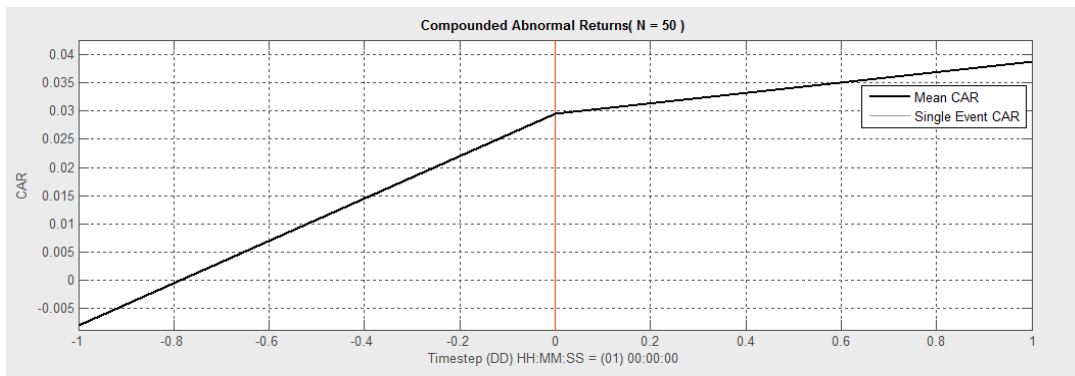


Figure 8.3 CAR for all stock exchange partnership announcements

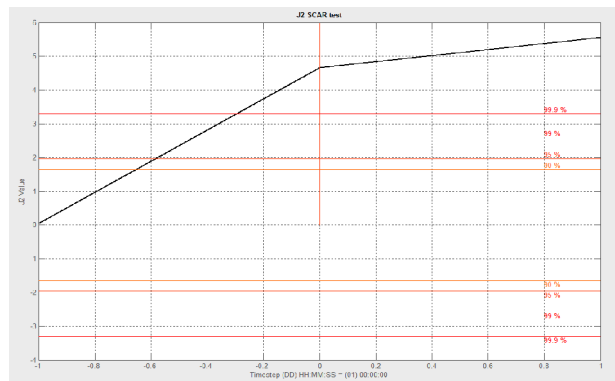


Figure 8.4 Statistical significance for all stock exchange partnership announcements

Where the CAR increases when studying only stock exchange releases, in press release cases the CAR is 0.27% and is not statistically significant (Figure 8.5 and Figure 8.6).

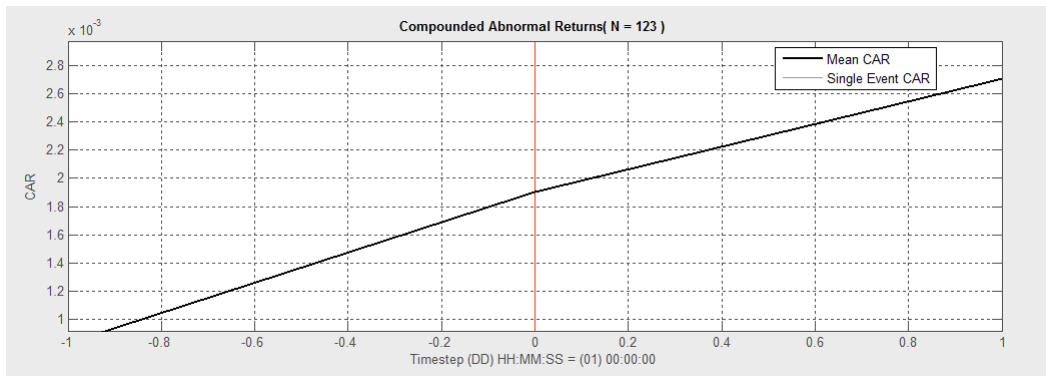


Figure 8.5 CAR for all partnership press announcements

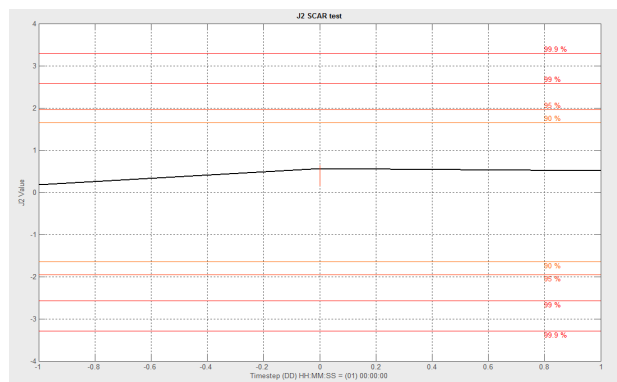


Figure 8.6 Statistical significance for all partnership press announcements

When looking into international partnerships, the CAR is 1.65% in the case of all announcements, 4.92% in the case of only stock exchange releases and 0.22% for press releases. The respective statistical significance levels are 99.0%, 99.9%, and statistically not significant (NS) (Figure 8.7 to Figure 8.11).

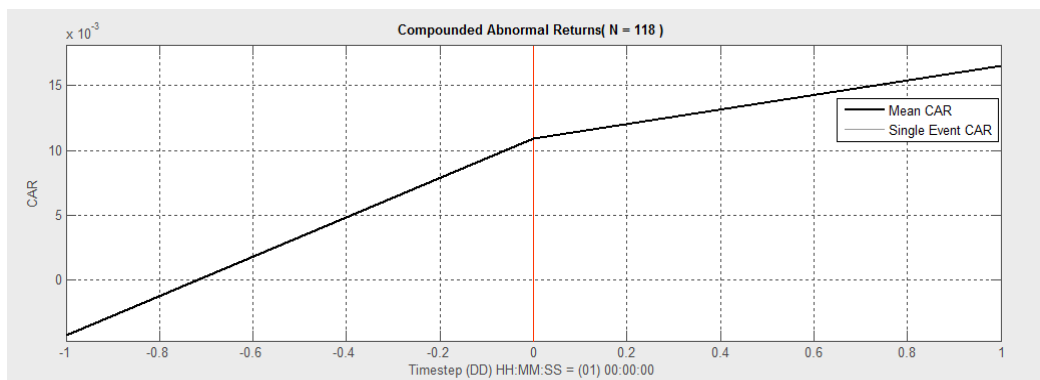


Figure 8.7 CAR for all international partnership announcements

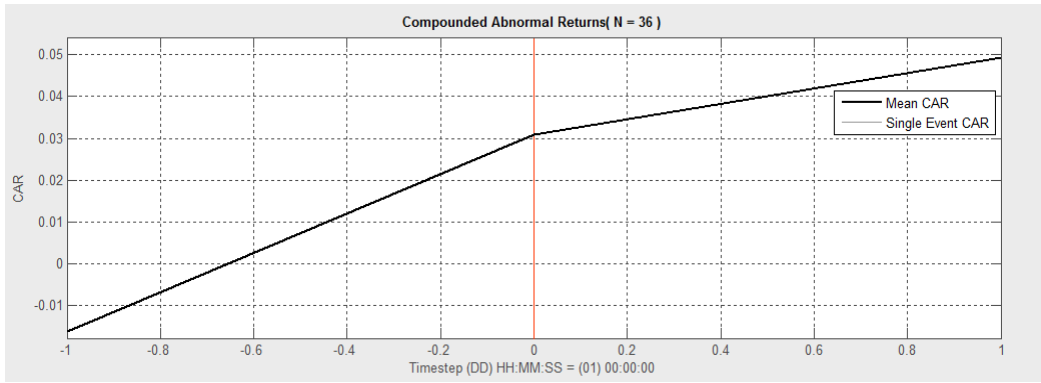


Figure 8.8 CAR for international partnership stock announcements

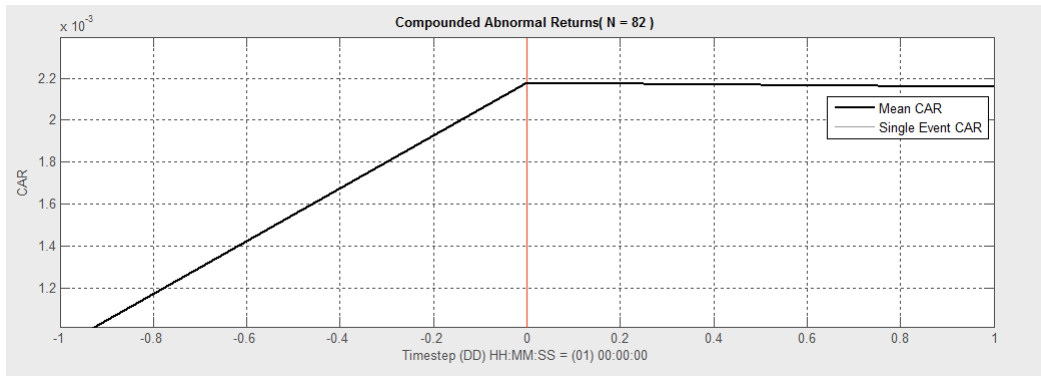


Figure 8.9 CAR for international partnership press announcements

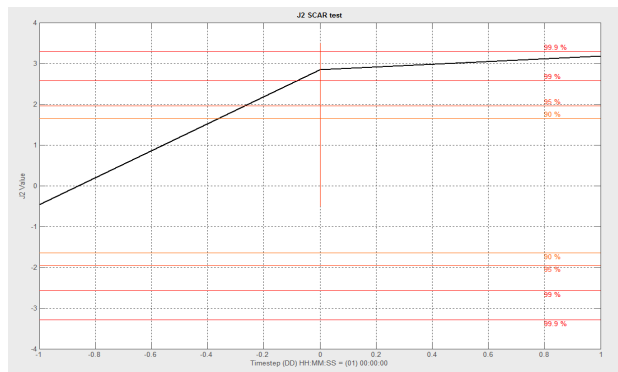


Figure 8.10 Statistical significance return for all international partnership announcements

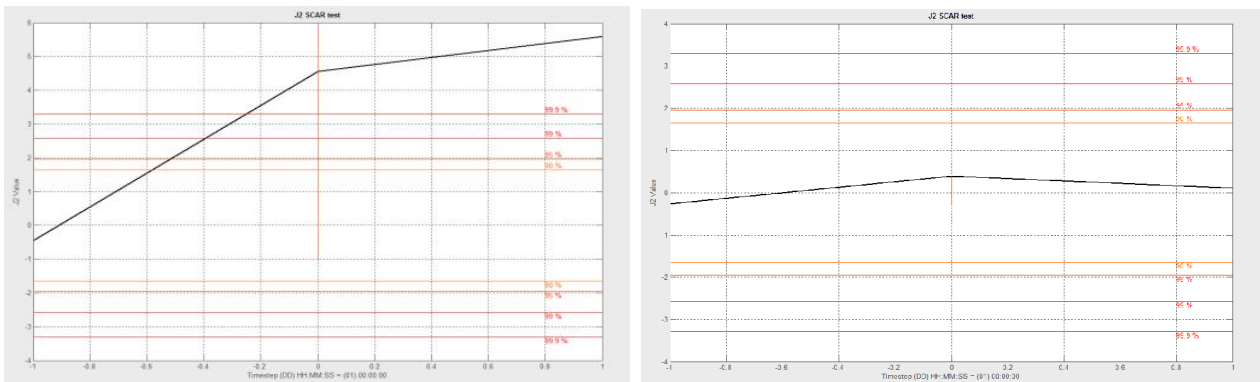


Figure 8.11 Statistical significance for international partnership stock (left) and press (right) announcements

All domestic partnerships announcements have a CAR of 0.58% but is statistically not significant. Also, both domestic stock exchange announcements and press announcements are statistically not significant, but CARs are respectively 1.18% and 0.38% (Figure 8.12 to Figure 8.16).

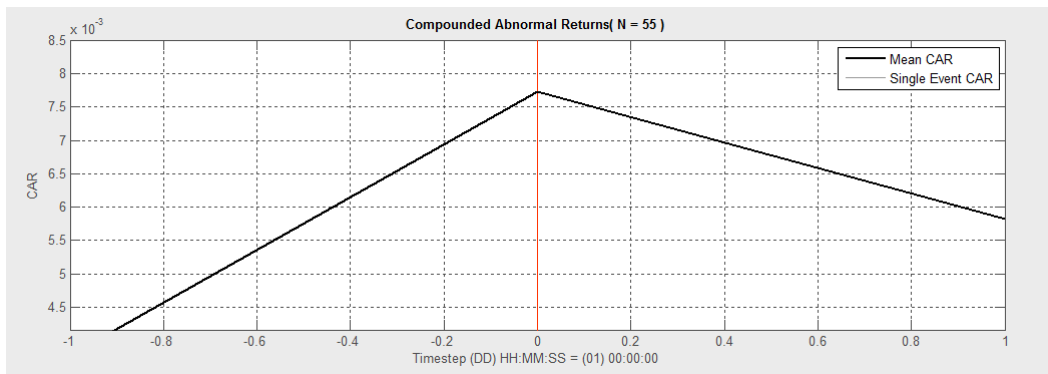


Figure 8.12 CAR for all domestic partnership announcements

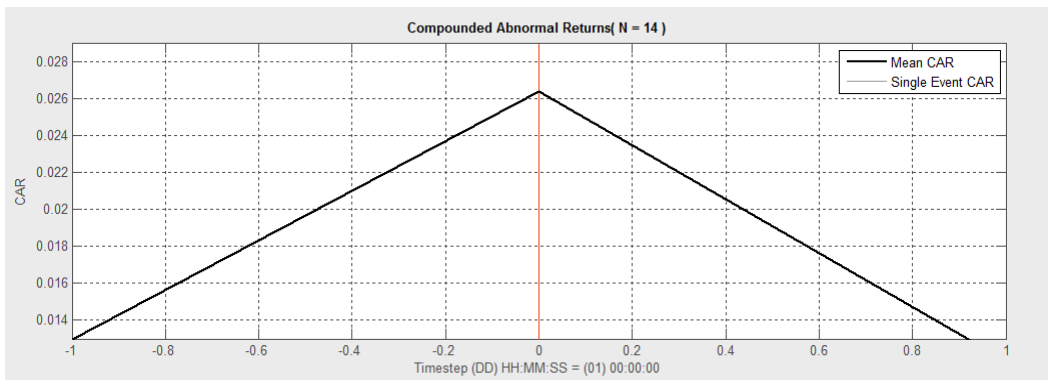


Figure 8.13 CAR for domestic partnership stock announcements

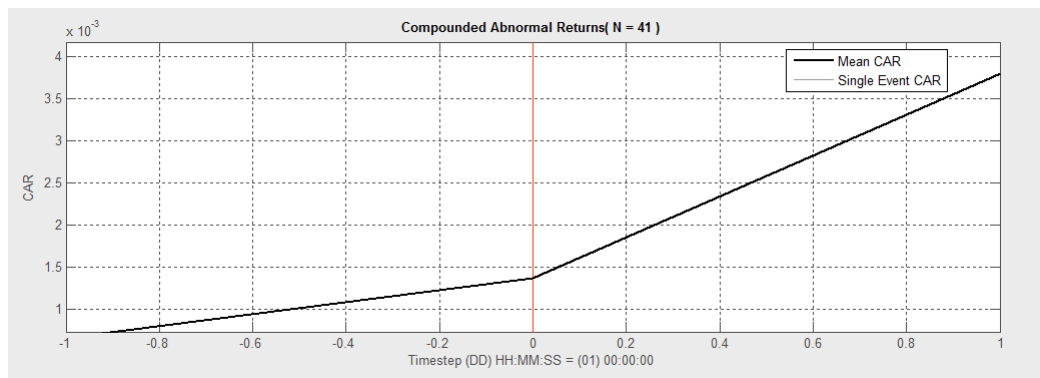


Figure 8.14 CAR for domestic partnership press announcements

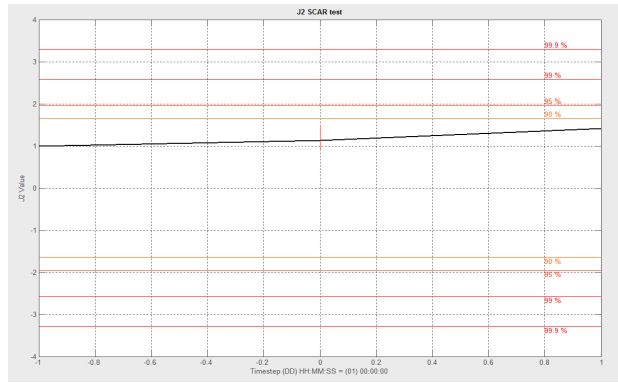


Figure 8.15 Statistical significance for all domestic partnership announcements

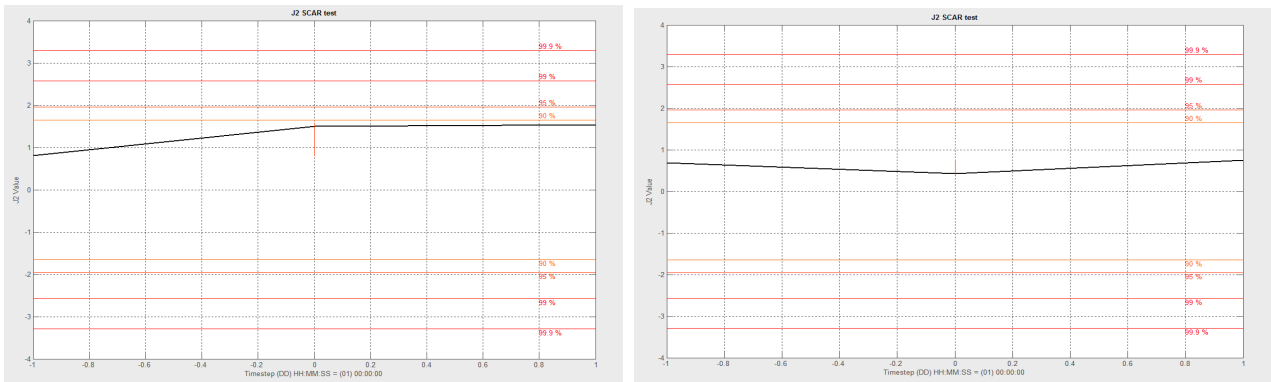


Figure 8.16 Statistical significance for domestic partnership stock (left) and press (right) announcements

The next partnership type under scrutiny is marketing partnerships. In all marketing partnership cases the CAR is 1.53% with a statistical significance level of 99.9%; when looking only at marketing partnerships announced through stock exchange release, the CAR is 4.30% with a 99.9% statistical significance. Announcements through press releases cumulate only 0.39% abnormal return with no statistical significance (Figure 8.2217 to Figure 8.261).

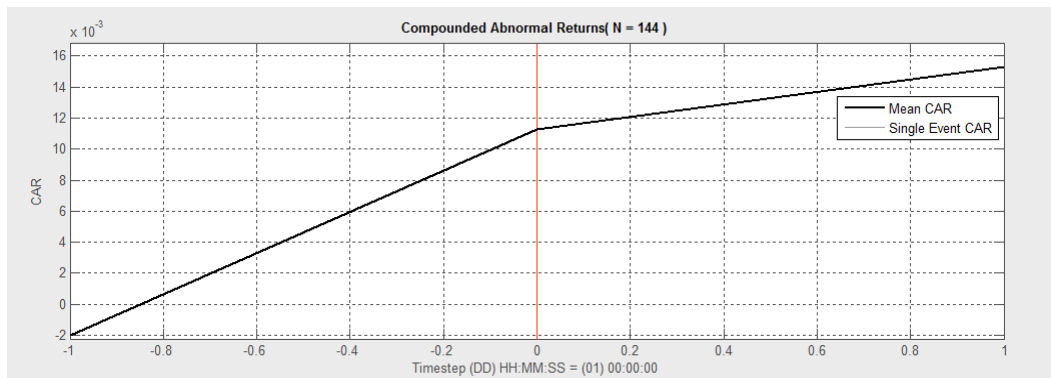


Figure 8.17 CAR for all marketing partnership announcements

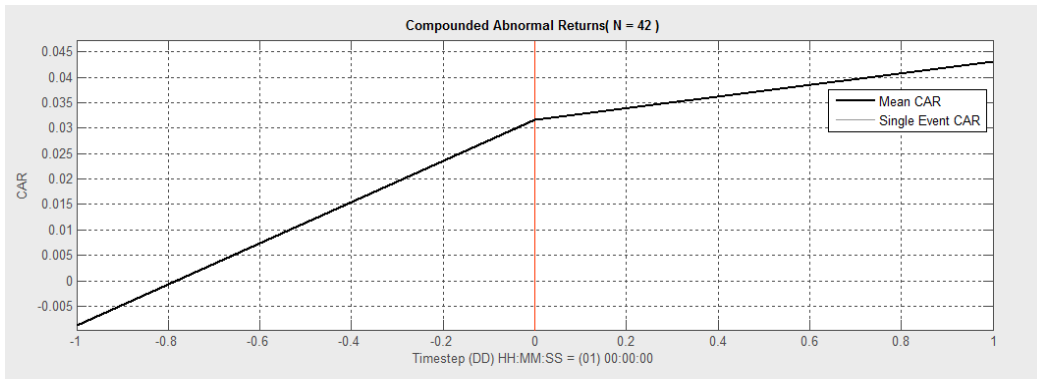


Figure 8.18 CAR for marketing partnership stock announcements

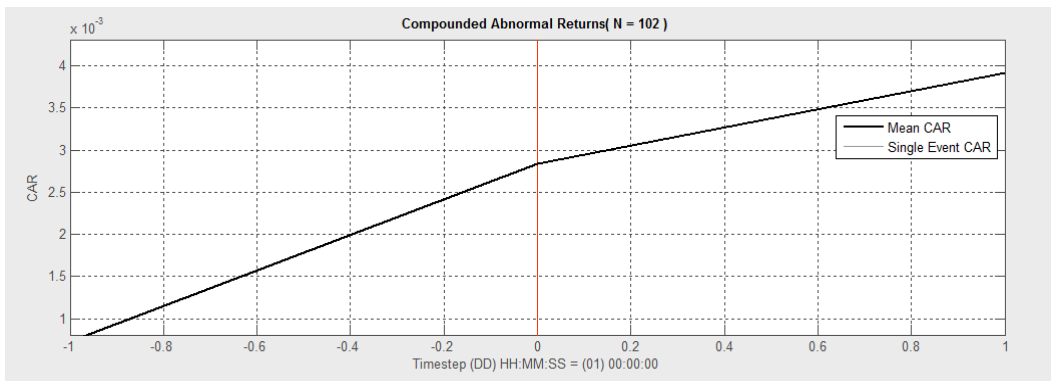


Figure 8.19 CAR for marketing partnership press announcements

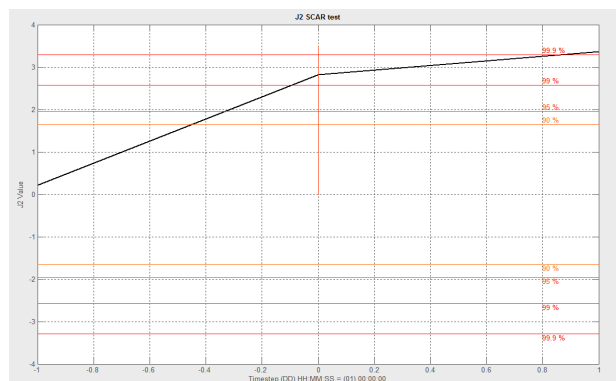


Figure 8.20 Statistical significance for all marketing partnership announcements.

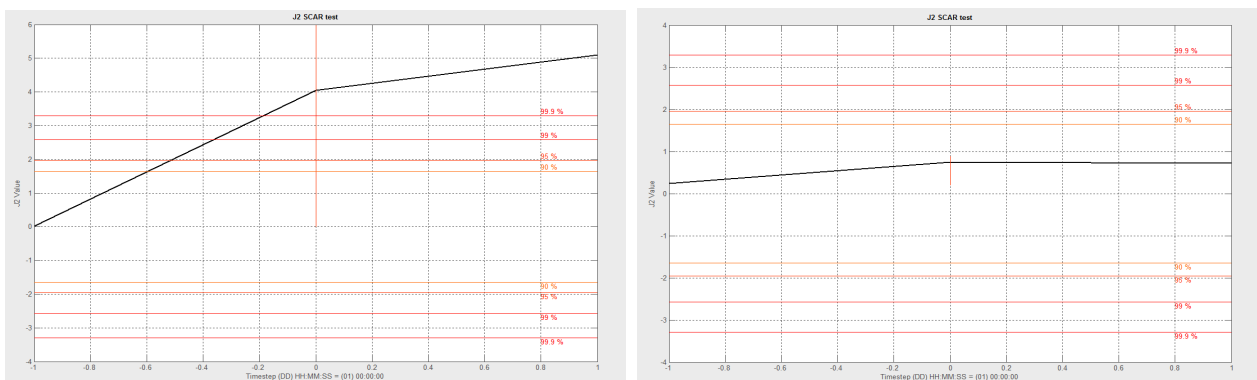


Figure 8.21 Statistical significance for marketing partnership stock (left) and press (right) announcements

Technology partnerships have a slightly lower abnormal return compared to marketing partnerships, having a CAR of 1.25% for all technology partnerships with no statistical significance. Whereas technology partnerships announced through stock exchange release have a CAR of 3.99% with a 99.0% statistical significance, the same type of partnerships announced through press releases have a negative CAR, or -0.24% with no statistical significance (Figure 8.22 to Figure 8.26).

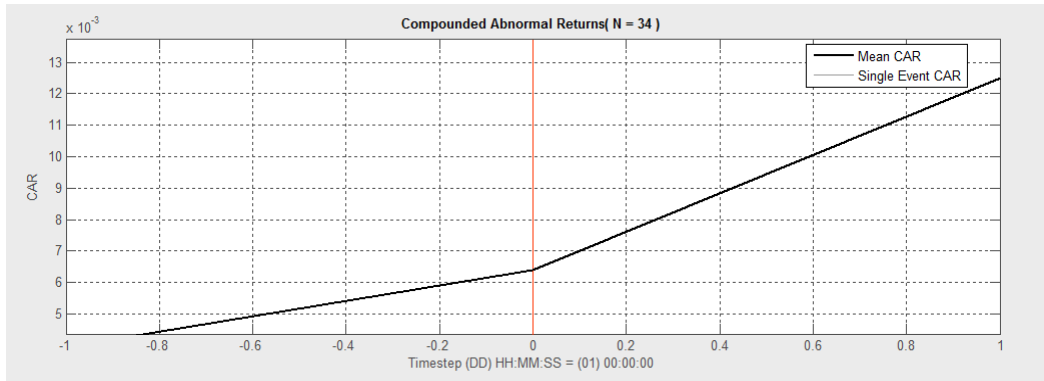


Figure 8.22 CAR for all technology partnership announcements

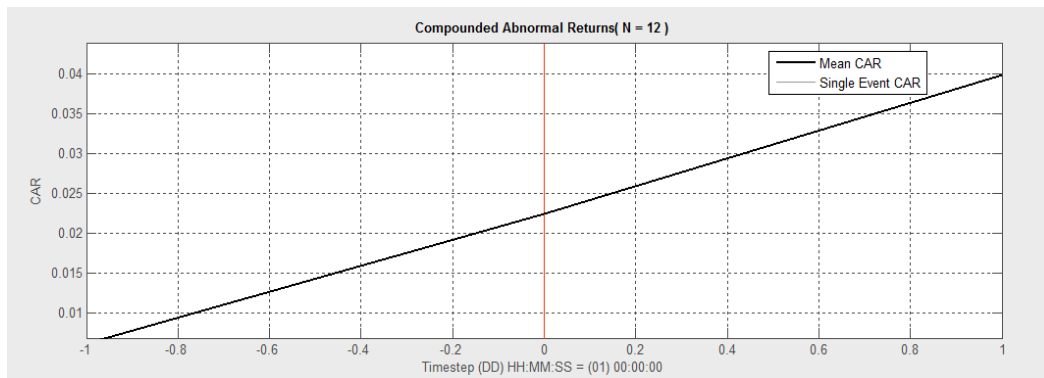


Figure 8.23 CAR for technology partnership stock announcements

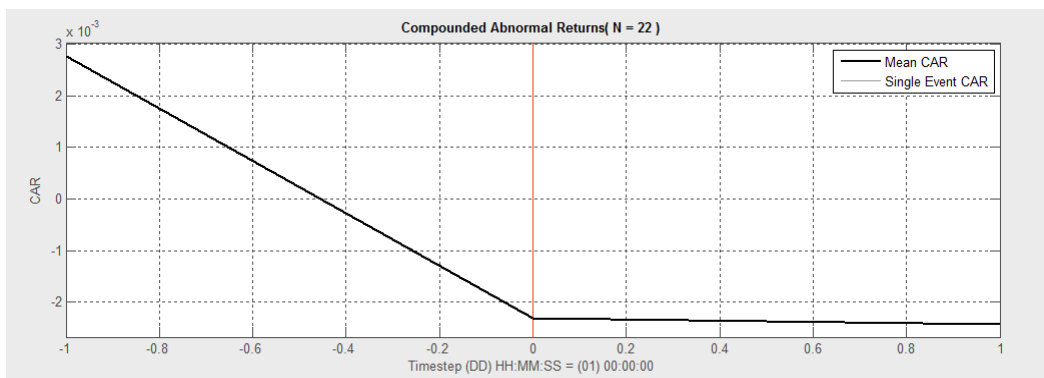


Figure 8.24 CAR for technology partnership press announcements

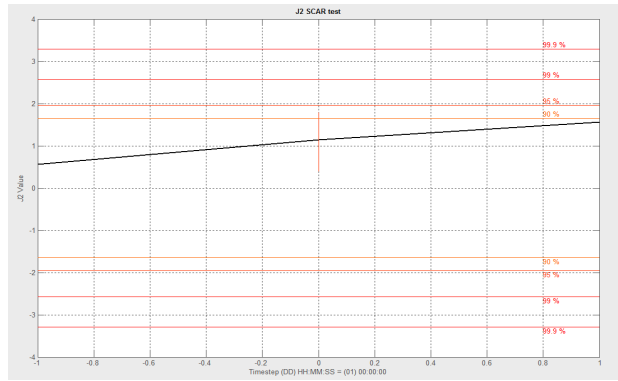


Figure 8.25 Statistical significance for all technology partnership announcements

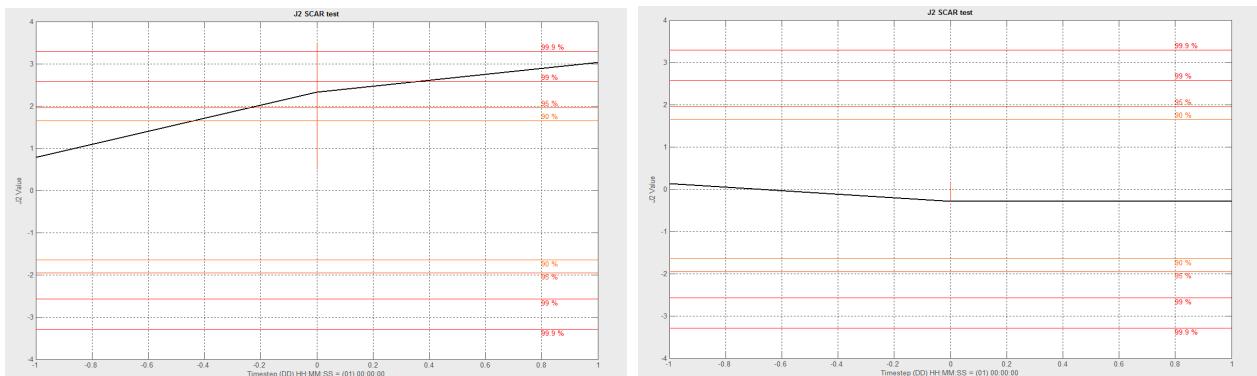


Figure 8.26 Statistical significance for technology partnership stock (left) and press (right) announcements

When further dividing the partnership types, the international partnerships focusing on marketing activities have an overall CAR of 1.86% with 99.0% statistical significance. The same type of partnering announced through stock exchange releases gain a 5.52% cumulative abnormal return over the three-day period with a 99.9% statistical significance, whereas the press release announcements have only a 0.26% CAR with no statistical significance (Figure 8.27 to Figure 8.31).

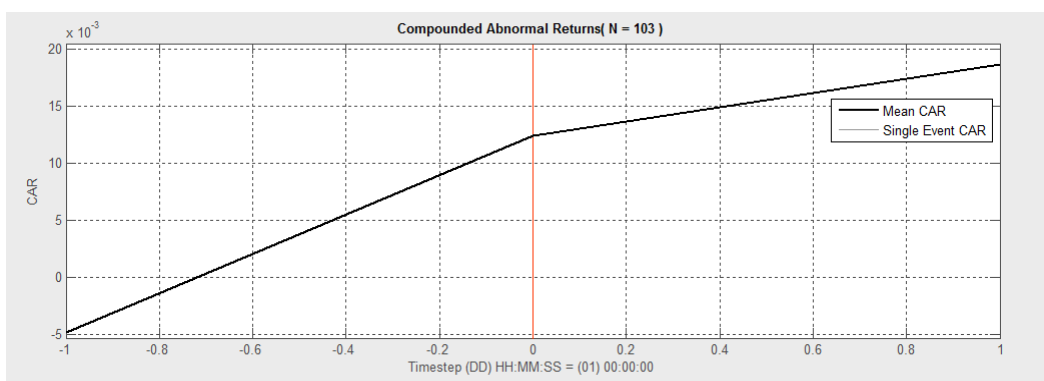


Figure 8.27 CAR for all international marketing partnership announcements

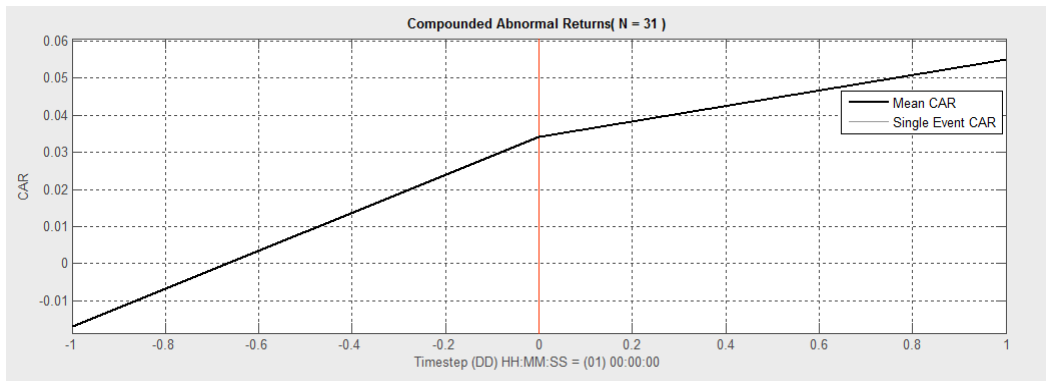


Figure 8.28 CAR for international marketing partnership stock announcements

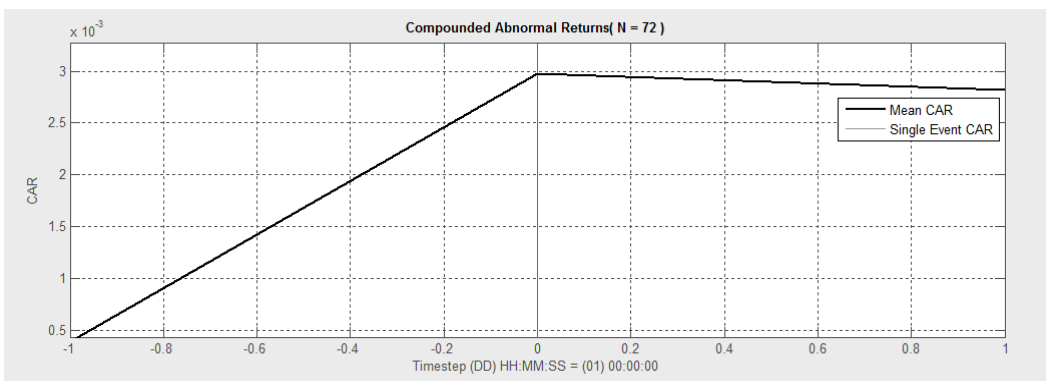


Figure 8.29 CAR for international marketing partnership press announcements

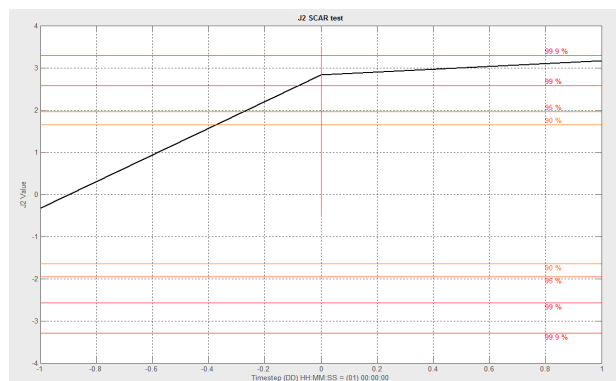


Figure 8.30 Statistical significance for all international marketing partnership announcements

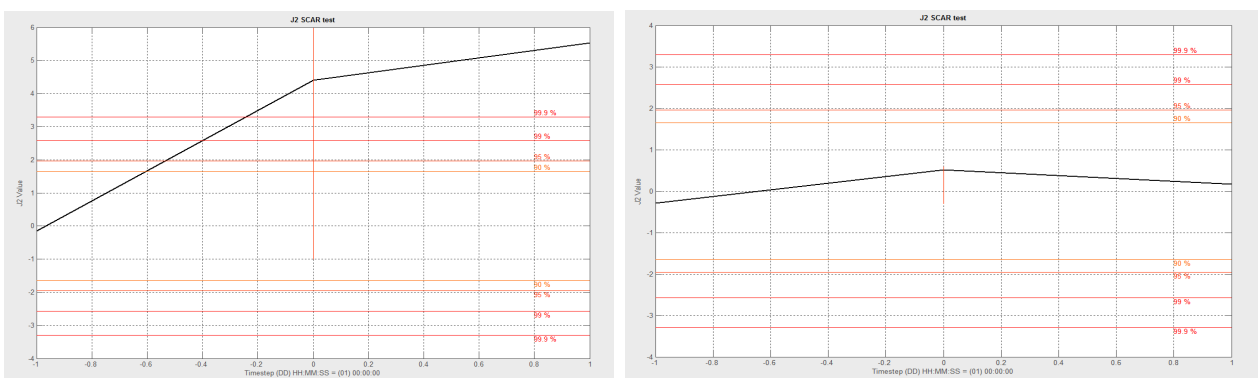


Figure 8.31 Statistical significance for international marketing partnership stock (left) and press (right) announcements

The other type of marketing partnership is domestic. Domestic partnerships have a 0.71% CAR over the three-day period without statistical significance. Also, domestic partnering announced through stock exchange releases and press releases do not have any statistical significance, with the respective CARs of 0.87% and 0.65% (Figure 8.32 to Figure 8.36).

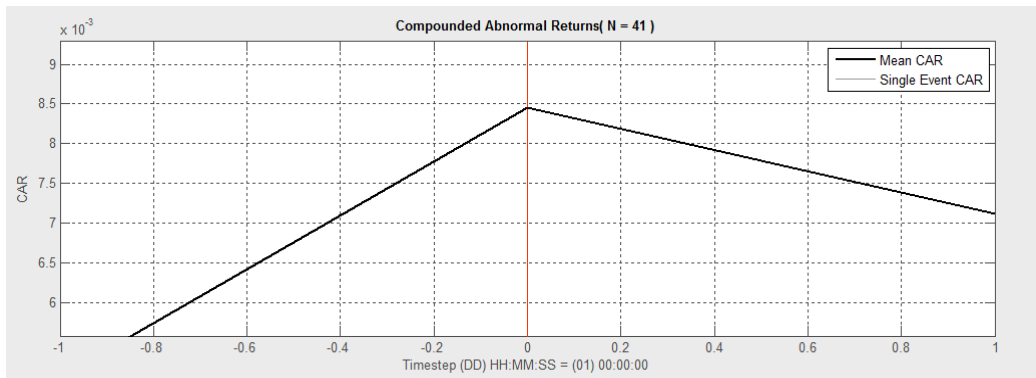


Figure 8.32 CAR for all domestic marketing partnership announcements

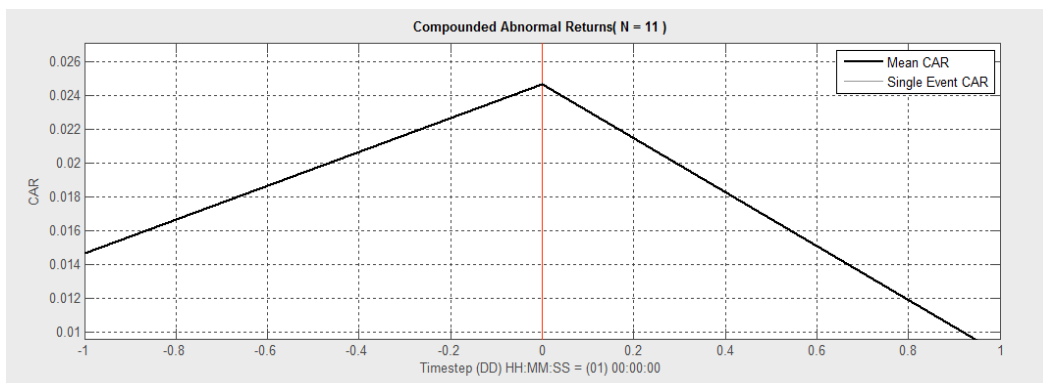


Figure 8.33 CAR for domestic marketing partnership stock announcements

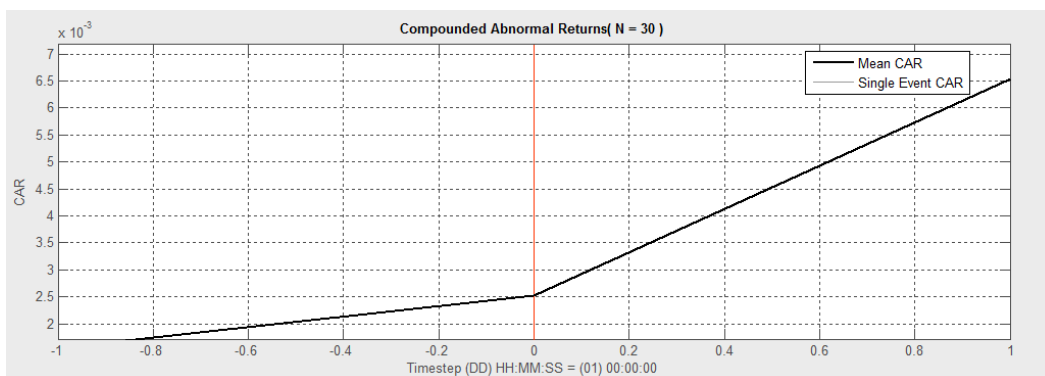


Figure 8.34 CAR for domestic marketing partnership press announcements

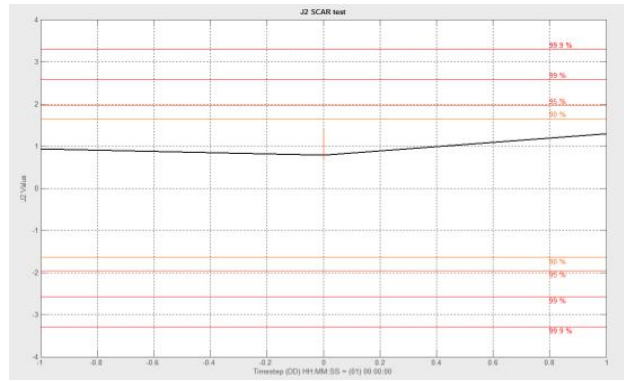


Figure 8.35 Statistical significance for all domestic marketing partnership announcements

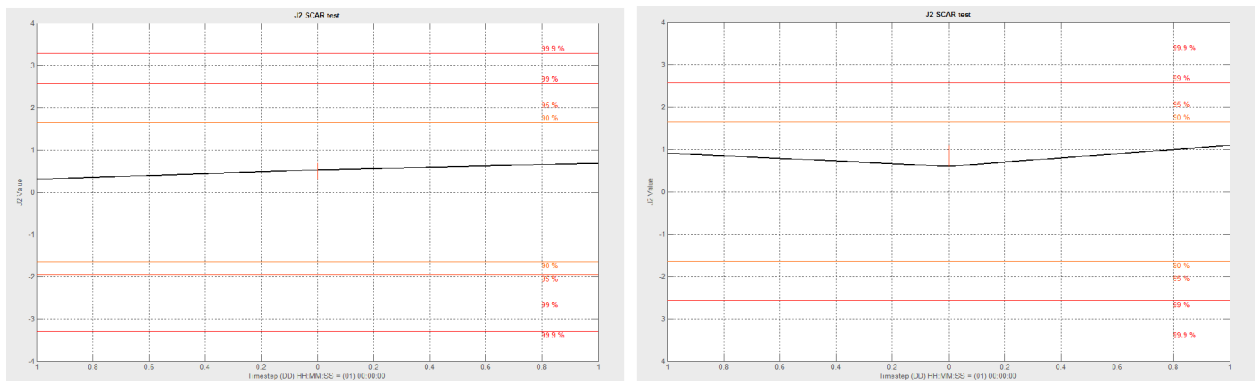


Figure 8.36 Statistical significance for domestic marketing partnership stock (left) and press (right) announcements

Domestic technology partnerships have CAR of 1.07% in case of both release types with no statistical significance, through stock exchange releases of 3.73% with statistical significance of 95.0%, and through press releases 0.05% CAR and no statistical significance (Figure 8.37 to Figure 8.41).

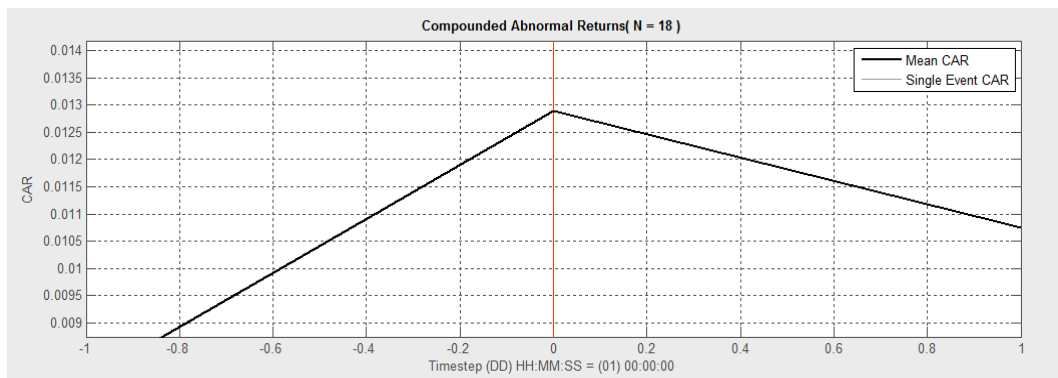


Figure 8.37 CAR for all domestic technology partnership announcements

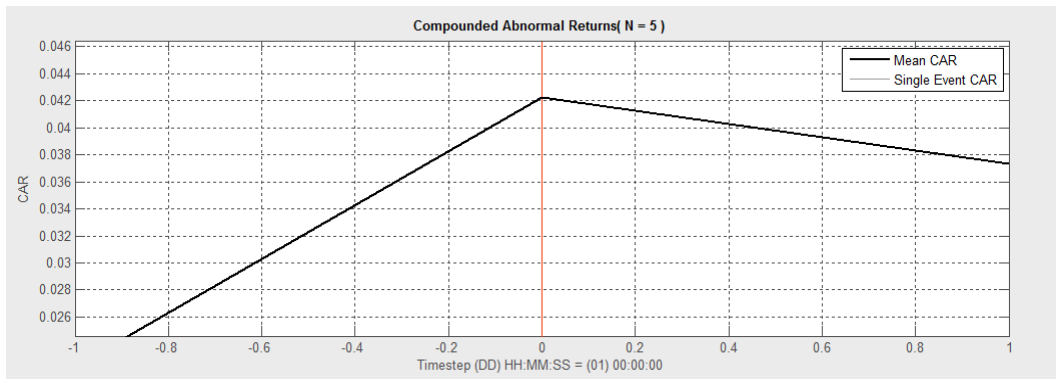


Figure 8.38 CAR for domestic technology partnership stock announcements

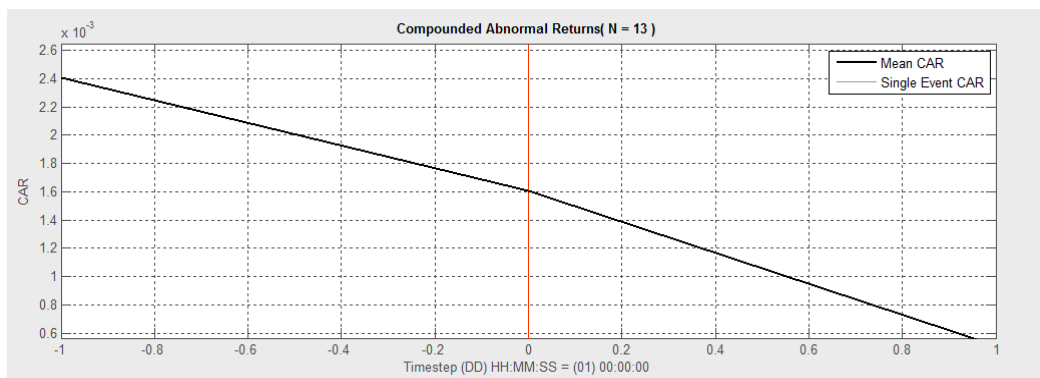


Figure 8.39 CAR for domestic technology partnership press announcements

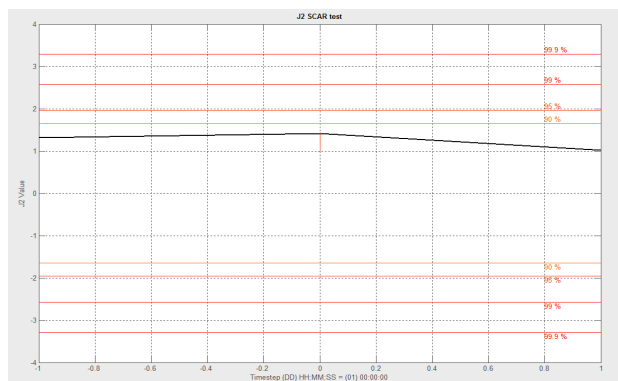


Figure 8.40 Statistical significance for all domestic technology partnership announcements

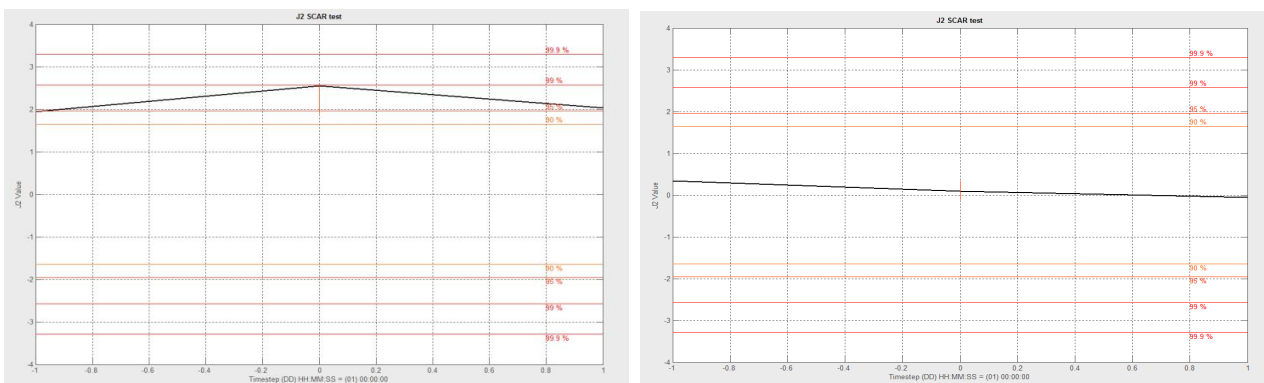


Figure 8.41 Statistical significance for domestic technology partnership stock (left) and press (right) announcements

The last category is international technology partnerships. The cumulative abnormal return for this class is 1.45% for both release types combined, with no statistical significance. The CAR for international technology partnerships announced through stock exchange releases is 4.17% with 95.0% statistical significance, and through press release announced partnerships CAR is -0.67% with no statistical significance (Figure 8.42 to Figure 8.46).

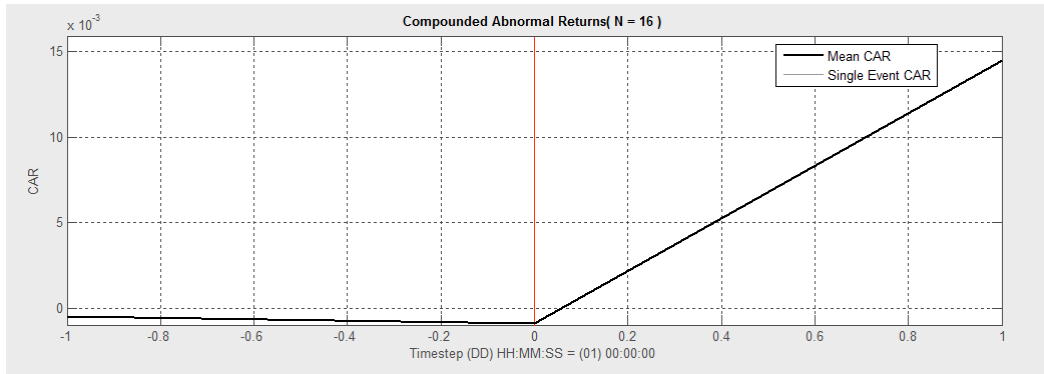


Figure 8.42 CAR for all international technology partnership announcements

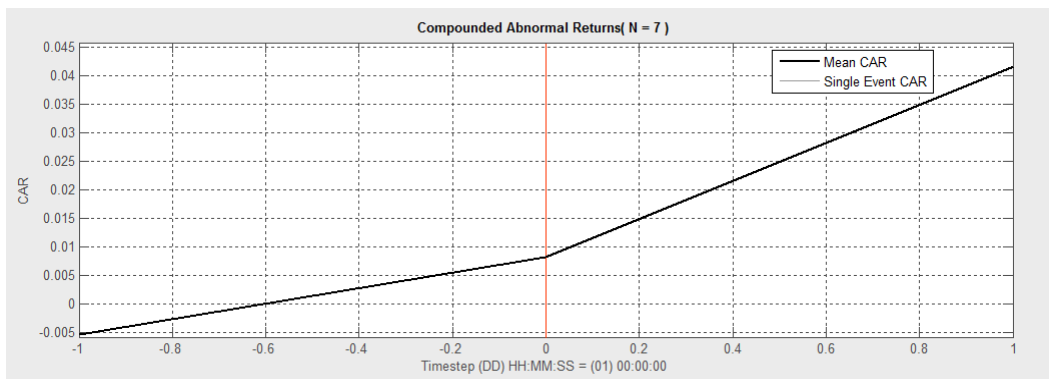


Figure 8.43 CAR for international technology partnership stock announcements

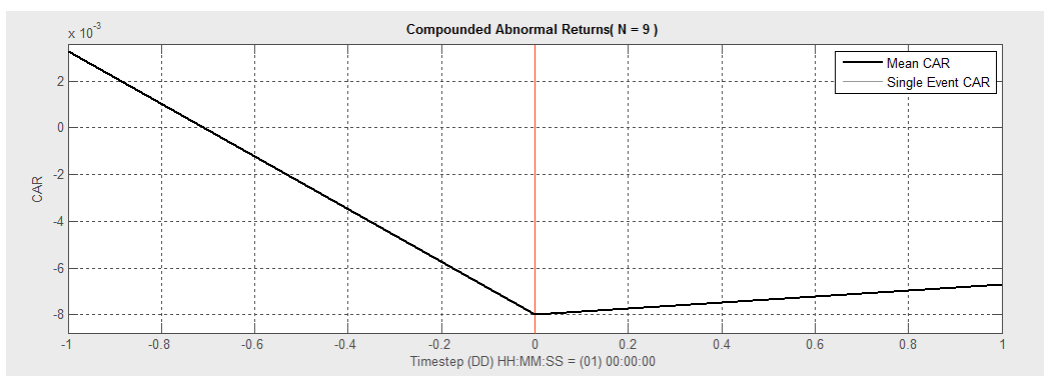


Figure 8.44 CAR for international technology partnership press announcements

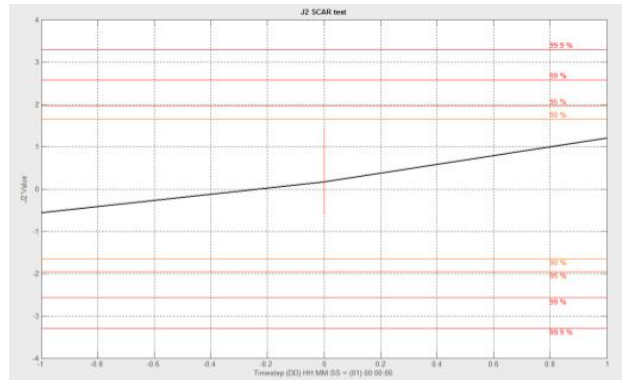


Figure 8.45 Statistical significance for all international technology partnership announcements.

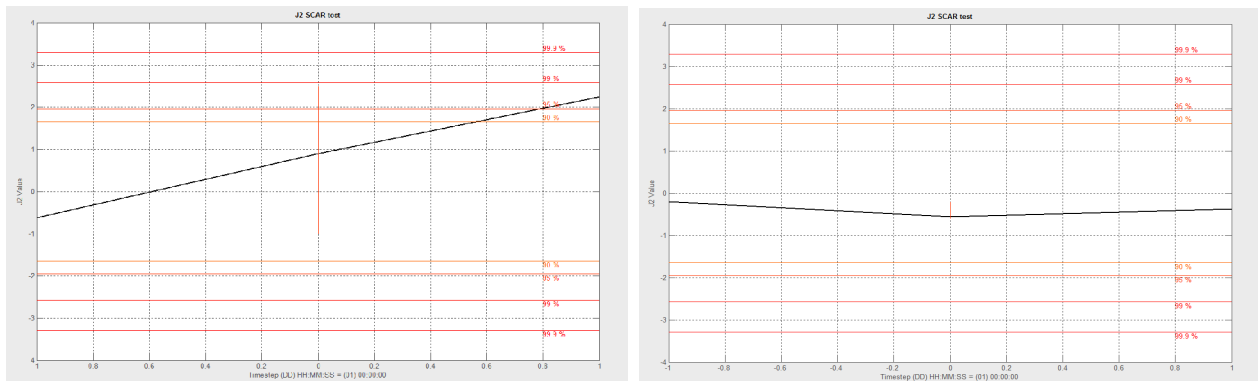


Figure 8.46 Statistical significance for international technology partnership stock (left) and press (right) announcements

The cumulative abnormal return over the three-day period, statistical significance, number of events, and number of positive events in each type of partnerships are collected in Table 8.1 in the descending order of CAR.

After cumulative abnormal returns and their significance J_2 were calculated, and the correlations between the variables were checked. The descriptive statistics and inter-correlations between the variables of the day level Traditional Daily Model are shown in Table 8.2.

It can be seen that there is very significant correlation between CAR and the stock release versus press release variable, as well as with the relative size of the partnering firms. Also, age of the focus firm has a significant correlation with CAR. The international versus domestic partnering variable has very a significant correlation with country of origin of the partnering firm, as well as with partner's size. The direction of the partnership, horizontal versus vertical, also has a significant correlation with the internationalization aspect of the firm.

Table 8.1 CAR, statistical significance, N and percentage of positive events by partnership type calculated by Traditional Daily Model

Type of Partnership	Traditional Daily Model			
	CAR	Significance	N	% of Positive
International Marketing Stock Announcements	5.52%	99.9%	31	65 %
International Stock Announcements	4.92%	99.9%	36	61 %
Marketing Stock Announcements	4.30%	99.9%	42	64 %
International Technology Stock Announcements	4.17%	95.0%	7	57 %
Technology Stock Announcements	3.99%	99.0%	12	67 %
All Stock Announcements	3.87%	99.9%	50	62 %
Domestic Technology Stock Announcements	3.73%	95.0%	5	80 %
International Marketing Announcements	1.86%	99.0%	103	50 %
All International Announcements	1.65%	99.0%	118	50 %
All Marketing Announcements	1.53%	99.9%	144	53 %
International Technology Announcements	1.45%	NS	16	50 %
All Announcements	1.31%	99.9%	173	52 %
All Technology Announcements	1.25%	NS	34	53 %
Domestic Stock Announcements	1.18%	NS	14	64 %
Domestic Technology Announcements	1.07%	NS	18	56 %
Domestic Marketing Stock Announcements	0.87%	NS	11	64 %
Domestic Marketing Announcements	0.71%	NS	41	61 %
Domestic Marketing Press Announcements	0.65%	NS	30	60 %
All Domestic Announcements	0.58%	NS	55	56 %
Marketing Press Announcements	0.39%	NS	102	49 %
Domestic Press Announcements	0.38%	NS	41	54 %
All Press Announcements	0.27%	NS	123	48 %
International Marketing Press Announcements	0.26%	NS	72	44 %
International Press Announcements	0.22%	NS	82	45 %
Domestic Technology Press Announcements	0.05%	NS	13	46 %
Technology Press Announcements	-0.24%	NS	22	45 %
International Technology Press Announcements	-0.67%	NS	9	44 %

Table 8.2 Traditional Daily Model: Kruskal-Wallis test results of significance of the difference between groups' mean values

Category	Asympt. Sig.	Test Statistic
International vs Domestic	0,860	0,031
Marketing vs Technology	0,243	1,360
Stock vs Press	0,070	3,282
High tech vs Low tech	0,535	0,385
Country of partner	0,492	7,423
Single vs multi-purpose	0,005	8,045
Horizontal vs vertical	0,937	0,006
Equity vs non-equity	0,098	2,744
Int.nat. Marketing vs other	0,793	0,069
Domestic Tech. vs other	0,945	0,005

Listwise N=173

The marketing partnership versus technology partnership variable has a significant correlation both with single or multi-purpose partnership and with the focus firm's size. The stock release versus press release variable has a significant correlation with the equity versus non-equity partnership

variable, with single or multi-purpose partnership, with relative size of the partnering firms, and with focus firm's size. The focus firm's size in turn has a significant correlation with relative size of the partnering firms and age of the focus firm, as well as with the high-technology versus low-technology variable of the focus firm.

Table 8.3 Descriptive statistics and inter-correlations of Traditional Daily Model

	Mean	Std. Deviation	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. CAR	0,02	0,09	1													
2. International vs Domestic	0,59	0,49	,065	1												
3. Marketing vs Technology	0,82	0,38	,041	,061	1											
4. Stock vs Press	0,28	0,45	,243**	,022	-,009	1										
5. Firm size	2,72	1,09	-,162	,139	-,226*	-,220*	1									
6. Partner size	18732,3	75678,5	-,079	,185*	,046	-,057	,070	1								
7. Relative size	197,6	632,0	,312**	,099	-,014	,339**	-,440**	,139	1							
8. Age of firm	3,59	0,31	-,230*	,056	-,042	-,035	,282**	,155	-,080	1						
9. Sales growth rate	0,07	0,19	-,147	,000	-,008	,024	-,078	-,019	-,208*	-,076	1					
10. Market sentiment	0,00	0,03	-,054	-,064	-,063	-,054	-,009	-,077	,080	-,062	,062	1				
11. High tech vs Low tech	0,47	0,50	,091	,139	,039	,018	-,261**	-,085	,195*	-,336**	-,072	,052	1			
12. Country of partner	1,71	2,12	-,085	,614**	,156	,101	,021	,205*	,128	,081	,020	,026	,295**	1		
13. Single or Multi-purpose	0,31	0,46	,047	-,028	-,261**	,273**	,037	-,092	-,053	-,026	,150	-,018	,058	-,055	1	
14. Horizontal vs Vertical	0,23	0,42	-,119	,209*	,040	-,022	-,096	-,066	,044	-,085	-,098	-,010	,052	,206*	-,060	1
15. Equity vs Non-equity	0,13	0,33	,055	,061	,043	,274**	,173	-,074	-,113	-,031	,107	-,015	-,104	-,056	,401**	-,024

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Listwise N=119

The partnering firm's size has a significant correlation with country of origin of the partnering firm. The relative size of the partnering firms has a significant correlation with focus firm's sales growth rate and with the high-technology versus low-technology variable of the focus firm. Also, the age of the focus firm has a significant correlation with the high-technology versus low-technology variable. The high-technology versus low-technology variable in turn has a significant correlation with partner's country of origin, and the country of origin then has a significant correlation with the direction of the partnership. Finally, the single or multi-purpose variable correlates significantly with the equity versus non-equity aspect variable of the partnerships.

The next step was to check if there are significant differences between the cumulative abnormal returns of different groups. Before the tests, the distribution of the data was checked. Because the tests gave 5.350 for skewness and 48.542 for kurtosis, the testing was done with Kruskal-Wallis non-parametric tests. The first group was international partnerships versus domestic partnerships, and the tests did not find any significant difference between the means of the groups. There was also no significant difference between the marketing partnerships and technology partnerships. There was a significant difference between the partnerships announced through stock release announcement and through press release announcement. The high-technology and low-technology groups also had no significant difference between their means, and neither had the countries of origin of the partnering firms. The groups of single-purpose partnerships and multi-purpose partnerships did have a significant difference in their means. The direction of the partnerships, that is, whether they were horizontal or vertical partnerships, have no significant difference in means. There is, however, a significant difference in the mean values of the groups with equity partnerships as compared to the partnerships with no equity invested.

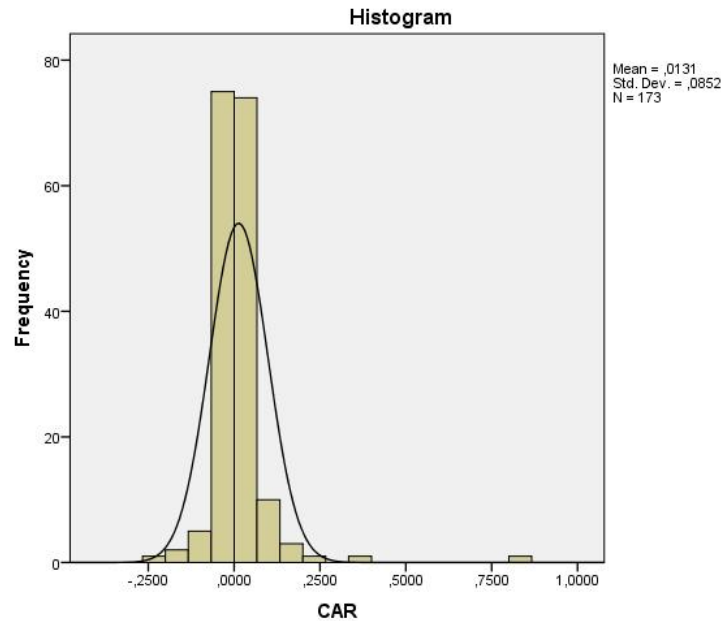


Figure 8.47 Histogram of Traditional Daily Model CAR

The two final tests were used to check if there is significant difference in the means of international marketing partnerships compared to the rest of the partnerships, and domestic technology partnerships compared to the rest of the partnerships. The test gave no significant difference in the mean values in both cases.

Finally, the cumulative abnormal return was tested with different regression models. The results of different regression models can be seen in Table 8.3. Variance inflation factors (VIF) are not reported, but they did vary between 1 and 2, staying well below the critical value of 10 (Gulati, Lavie & Singh 2009), alleviating concerns of multicollinearity. Some independent variables with missing values were treated with listwise deletion giving unbiased estimates for regression analysis.

Traditional Daily Model 1a is a baseline model that included all the control variables. Model 1b has all the control variables with the international versus domestic variable added. Model 1c includes also all control variables along with the marketing versus technology variable, and Model 1d likewise has the all controls and stock versus press variable added. Model 1e includes the all controls and independent variables.

The relative size of the partnering firms and age of the focus firm are significant control variables in all models, and the direction of the partnership is significant in Models 1a, 1c, and 1e. The F-Statistic is lowest in Model 1c, having the value of 2.325. All models have an F-statistic between that and 2.607 which is that of Model 1b. Also, the statistical significance or p-values show a strong statistical significance in all models.

Table 8.4 Results of regression models using CAR as a dependent variable with the Traditional Daily Model data

Independent Variables	Dependent Variable: CAR				
	Model 1a	Model 1b	Model 1c	Model 1d	Model 1e
International vs Domestic		0,200*			0,215*
Marketing vs Technology			0,066		0,072
Stock vs Press				0,135	0,152
Firm size	0,001	-0,036	0,025	0,021	0,011
Partner size	-0,096	-0,106	-0,099	-0,081	-0,093
Relative size	0,317***	0,294***	0,330***	0,271**	0,255**
Age of firm	-0,224**	-0,218**	-0,224**	-0,224**	-0,218**
Sales growth rate	-0,123	-0,13	-0,119	-0,125	-0,128
Market sentiment	-0,091	-0,073	-0,087	-0,079	-0,056
High tech vs Low tech	-0,034	-0,035	-0,032	-0,018	-0,014
Country of partner	-0,035	-0,149	-0,048	-0,057	-0,196
Single or Multi-purpose	0,030	0,035	0,051	0,003	0,029
Horizontal vs Vertical	-0,159*	-0,181	-0,156*	-0,15	-0,169*
Equity vs Non-equity	0,067	0,05	0,052	0,034	-0,005
F-Statistic	2,507	2,607	2,325	2,457	2,446
R ²	0,205	0,228	0,208	0,218	0,248
Sig.	0,008	0,004	0,011	0,007	0,005
N	119	119	119	119	119

Table reports standardized beta coefficients.

Significance levels: * p < 0,1, ** p < 0,05, *** p < 0,01.

R² varies from 20.5% to 24.8%, giving the models relatively good predicting power compared to many other partnering event studies (Gao, Iyer 2009, Häussler 2006, Kale, Dyer & Singh 2002, E.g. Boyd, Spekman 2008).

8.1.2 Analysis of the Daily Transaction Data

In the Transaction Daily Model, the cumulative abnormal return for all partnership announcements is 1.50% with a statistical significance of 99.9% (Figure 8.48 and Figure 8.49).

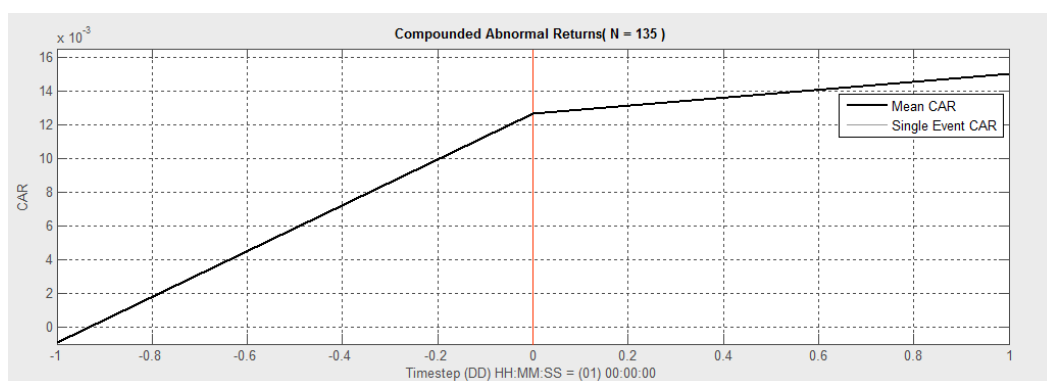


Figure 8.48 CAR for all partnership announcements

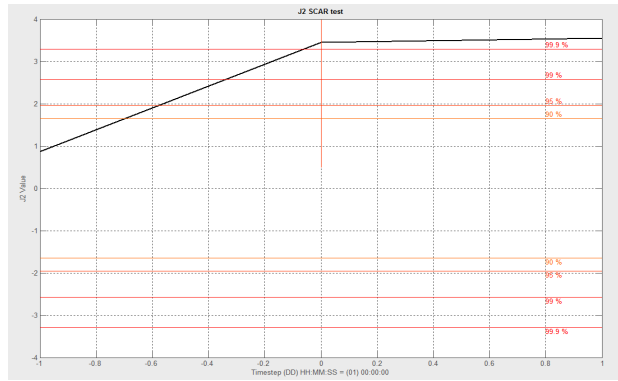


Figure 8.49 Statistical significance for all partnership announcements

All stock partnering announcements have a cumulative abnormal return of 3.87%, and the statistical significance is 99.9% (Figure 8.50 and Figure 8.51).

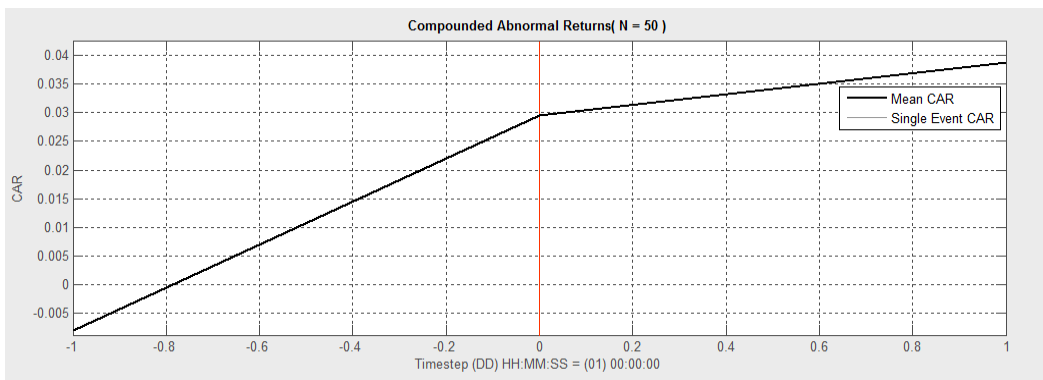


Figure 8.50 CAR for all partnership stock announcements

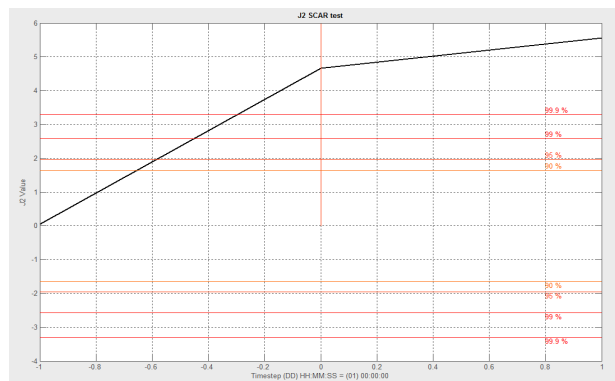


Figure 8.51 Statistical significance for all partnership stock announcements

All the press release partnership announcements have a CAR of 0.11% with no statistical significance over the three-day period (Figure 8.52 and Figure 8.53).

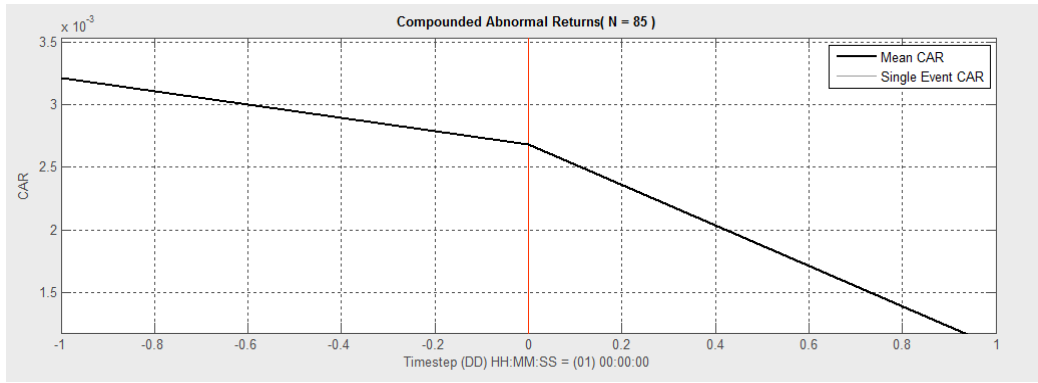


Figure 8.52 CAR for all partnership press announcements

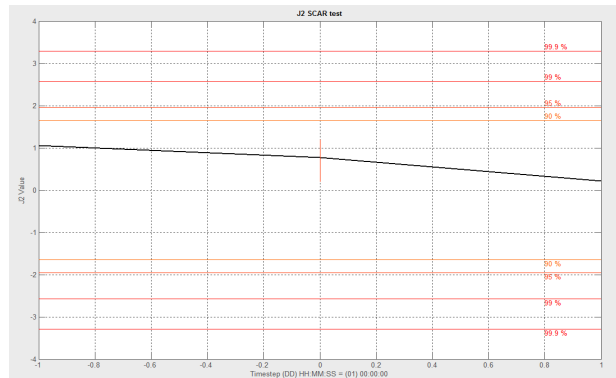


Figure 8.53 Statistical significance for all partnership press announcements

The cumulative abnormal return over the three-day period for all international partnership announcements is 1.88% with a statistical significance of 99.0%. For international partnership announcements done by stock exchange release the return is 4.92% and statistical significance 99.9%. The same type of announcements made by press releases have a CAR of -0.22% with no statistical significance. See Figure 8.54 to Figure 8.58.

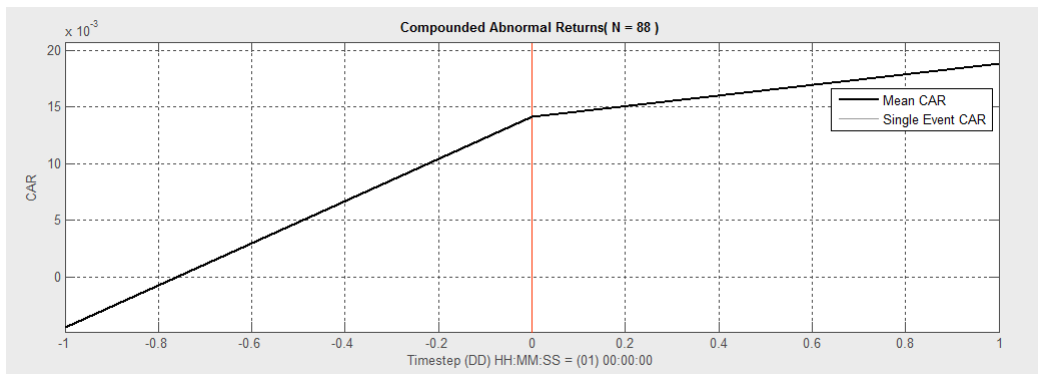


Figure 8.54 CAR for all international partnership announcements

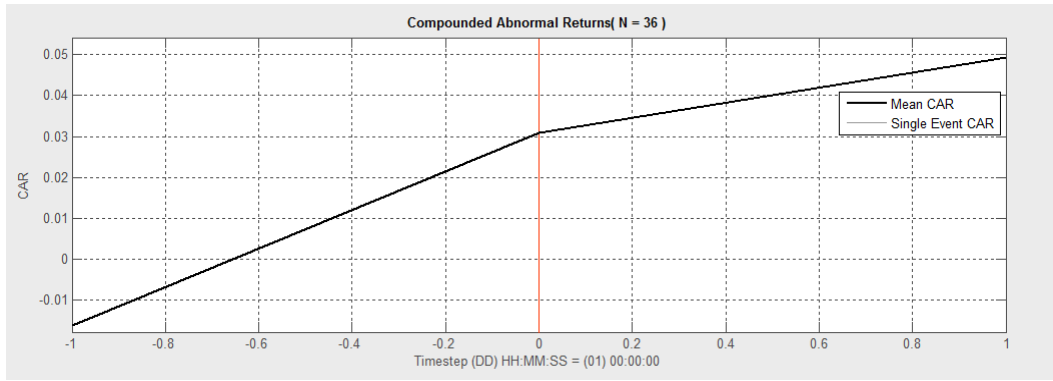


Figure 8.55 CAR for international partnership stock announcements

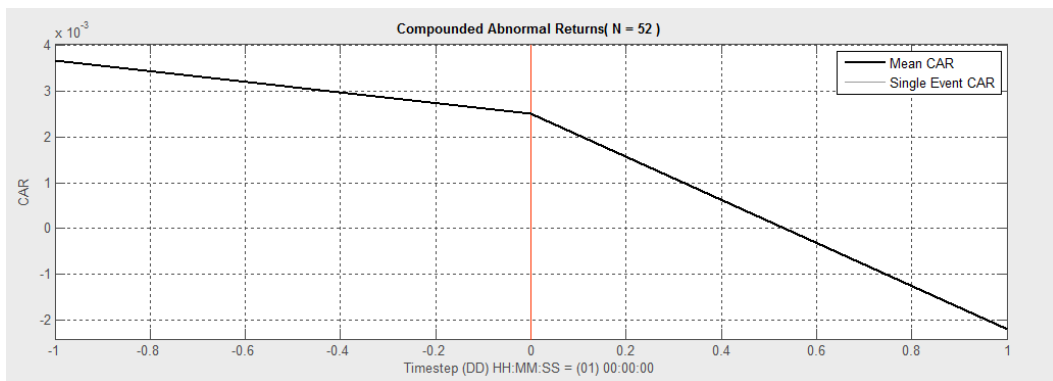


Figure 8.56 CAR for international partnership press announcements

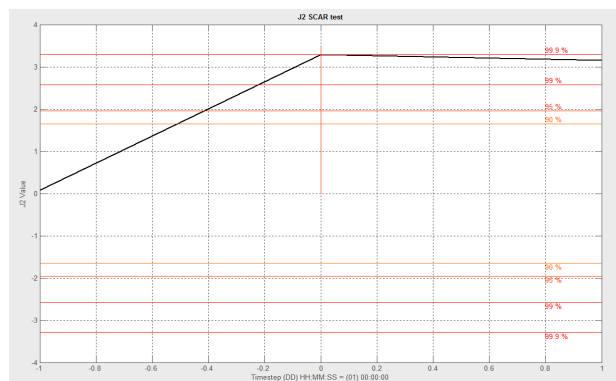


Figure 8.57 Statistical significance for all international partnership announcements

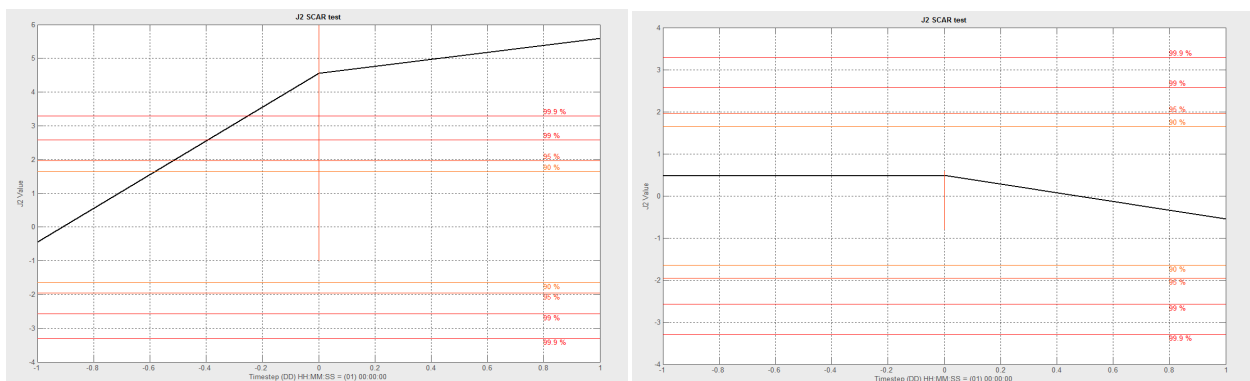


Figure 8.58 Statistical significance for international partnership stock (left) and press (right) announcements

The CAR for all domestic partnership announcements is 0.79% with a statistical significance of 90.0%, with the same announcement type made through stock exchange releases having a CAR of 1.18% with no statistical significance. The domestic partnership announcements through press releases have a CAR of 0.62% with no statistical significance (Figure 8.59 to Figure 8.63).

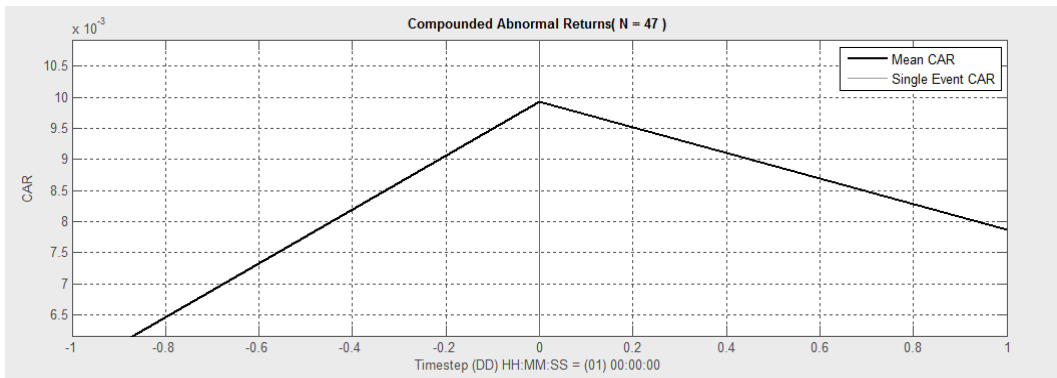


Figure 8.59 CAR for all domestic partnership announcements

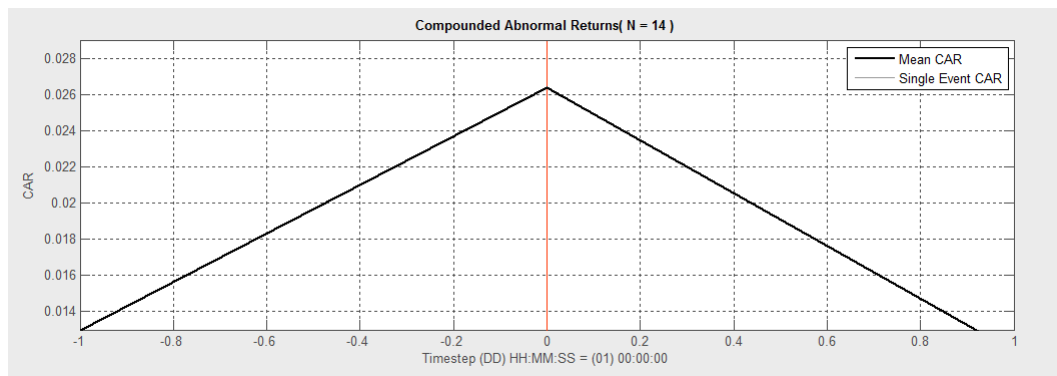


Figure 8.60 CAR for domestic partnership stock announcements

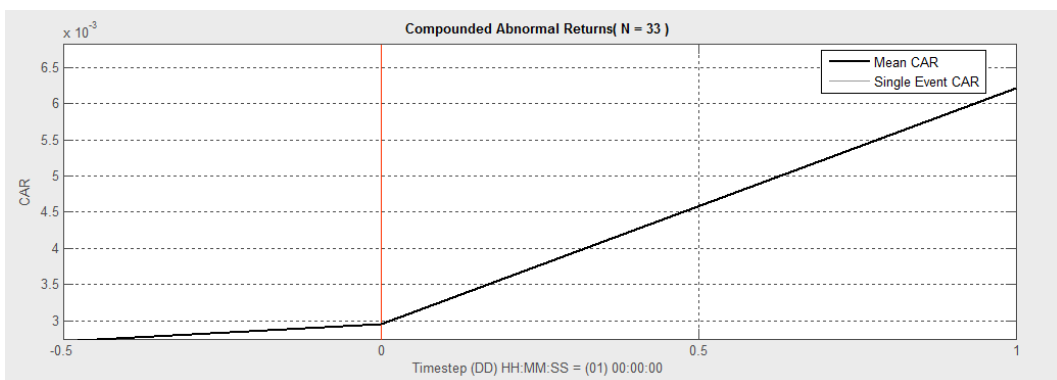


Figure 8.61 CAR for domestic partnership press announcements

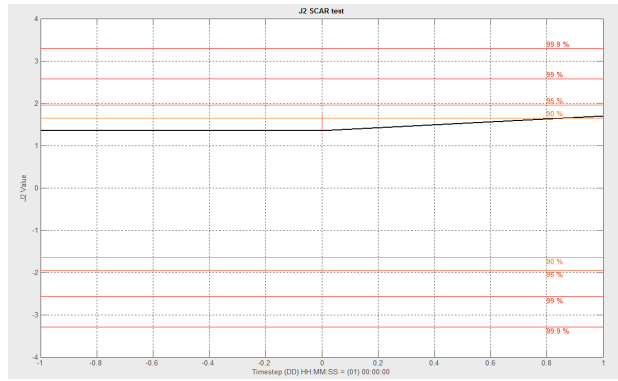


Figure 8.62 Statistical significance for all domestic partnership announcements

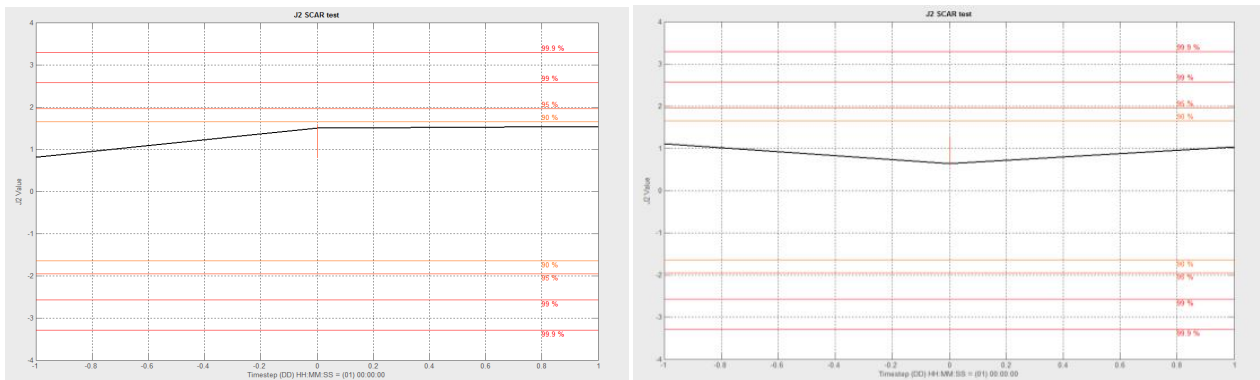


Figure 8.63 Statistical significance for domestic partnership stock (left) and press (right) announcements

The cumulative abnormal return for all marketing partnership announcements is 1.72% and the statistical significance is 99.9%. The same type of announcements made through stock exchange releases has a CAR of 4.30% and statistical significance of 99.9%, whereas the marketing partnerships announced through press releases have a CAR of 0.15% with no statistical significance (Figure 8.64 to Figure 8.68).

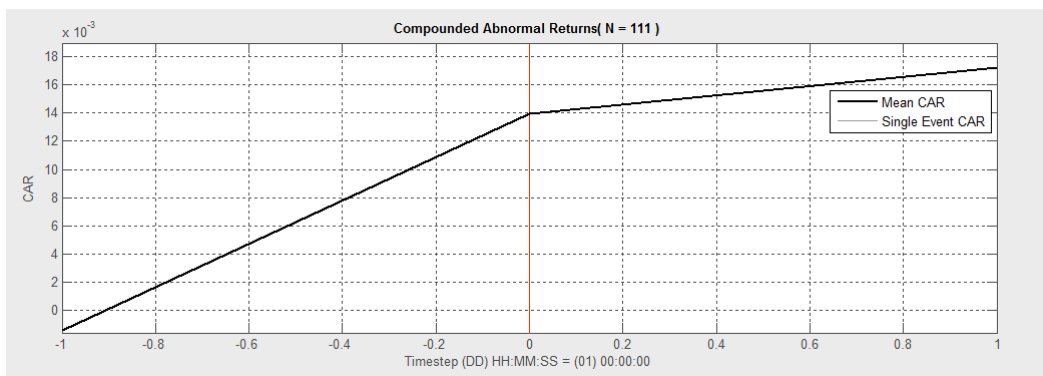


Figure 8.64 CAR for all marketing partnership announcements

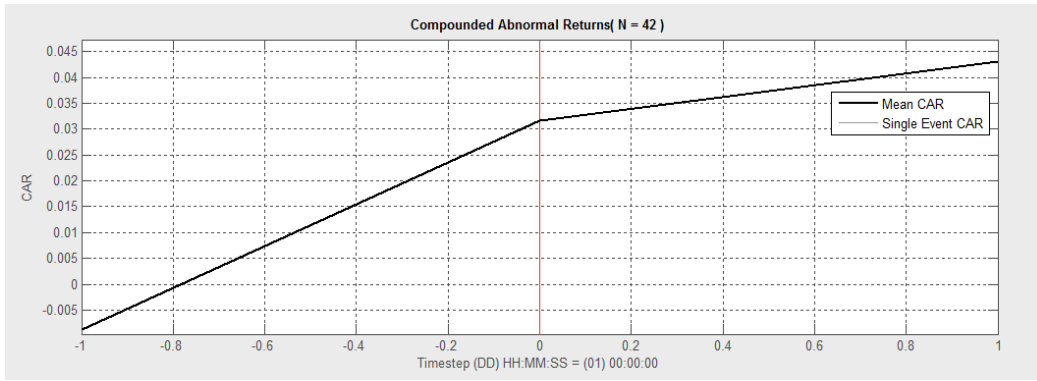


Figure 8.65 CAR for marketing partnership stock announcements

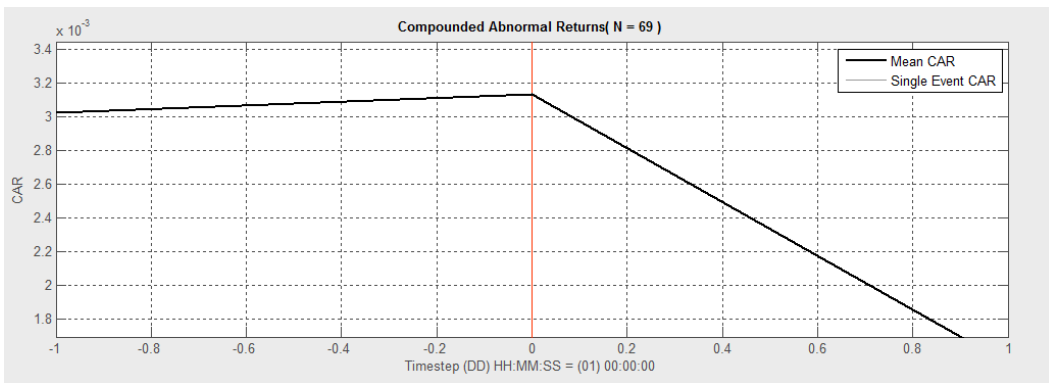


Figure 8.66 CAR for marketing partnership press announcements

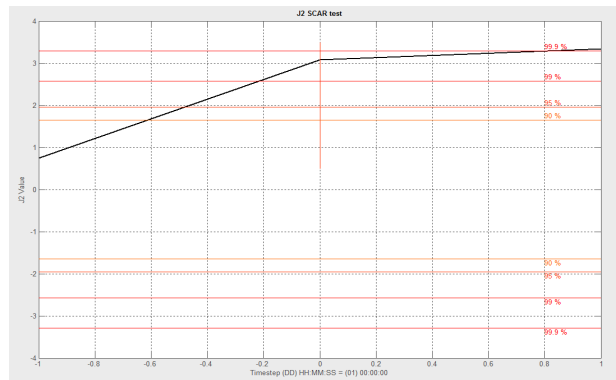


Figure 8.67 Statistical significance for all marketing partnership announcements

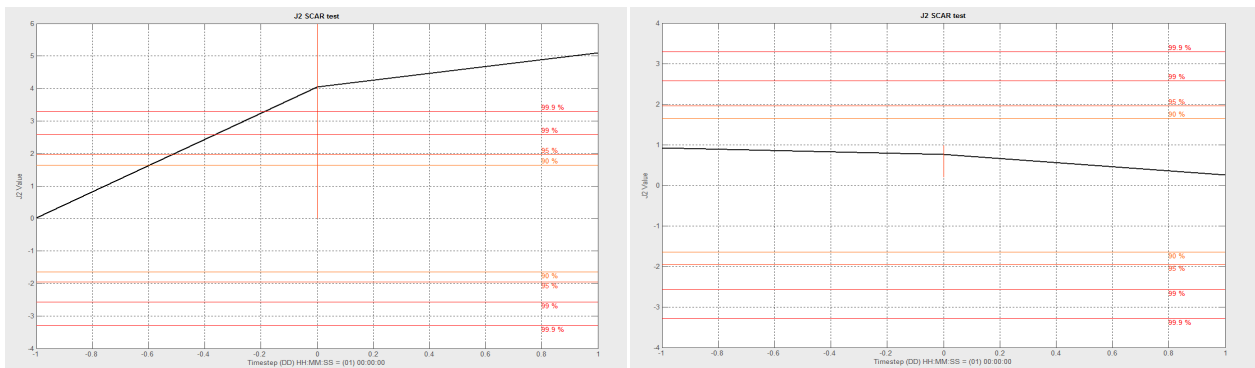


Figure 8.68 Statistical significance for marketing partnership stock (left) and press (right) announcements

All technology partnership announcements have a mean CAR of 1.64% over the three-day period with a 95.0% statistical significance. The same type of announcements through stock exchange releases gain a CAR of 3.99% with 99.0% statistical significance, and technology partnership announcements through press releases have a CAR of -0.01% with no statistical significance (Figure 8.69 to Figure 8.73).

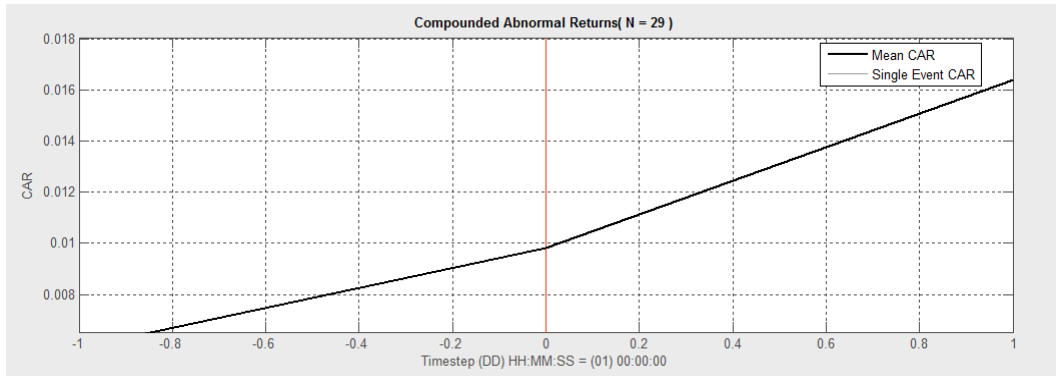


Figure 8.69 CAR for all technology partnership announcements

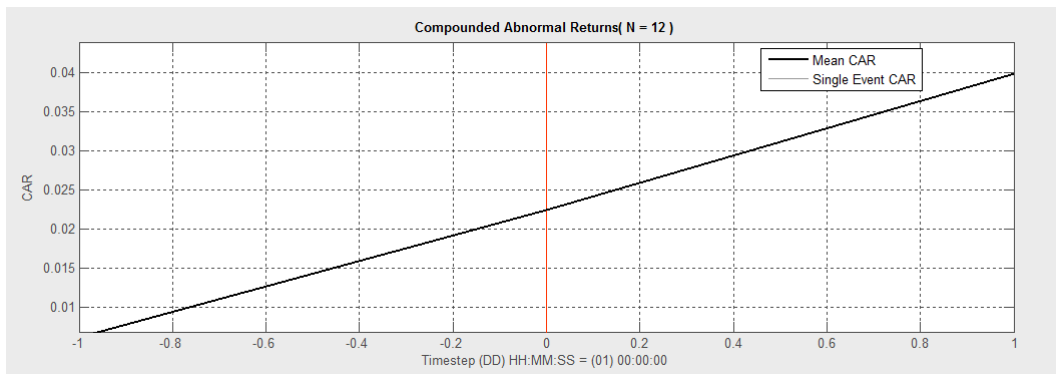


Figure 8.70 CAR for technology partnership stock announcements

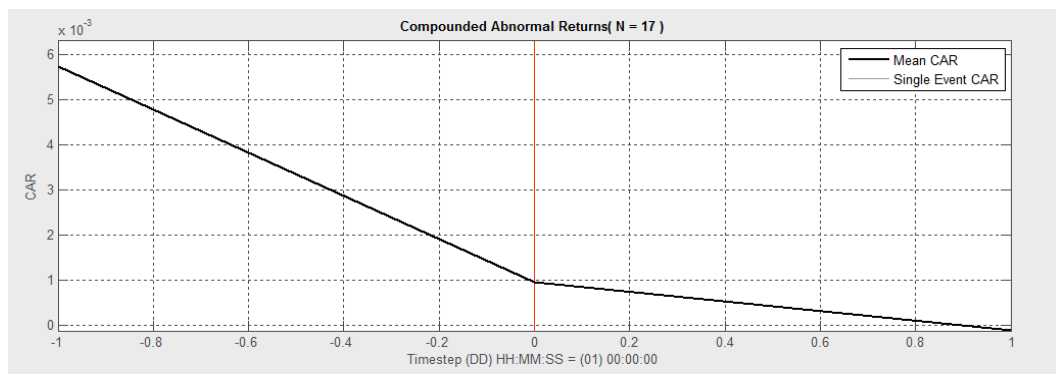


Figure 8.71 CAR for technology partnership press announcements

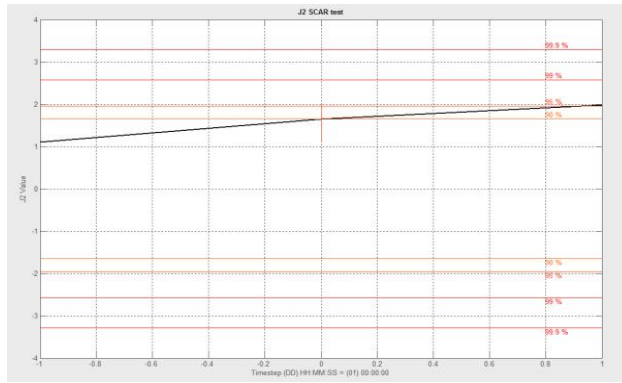


Figure 8.72 Statistical significance for all technology partnership announcements

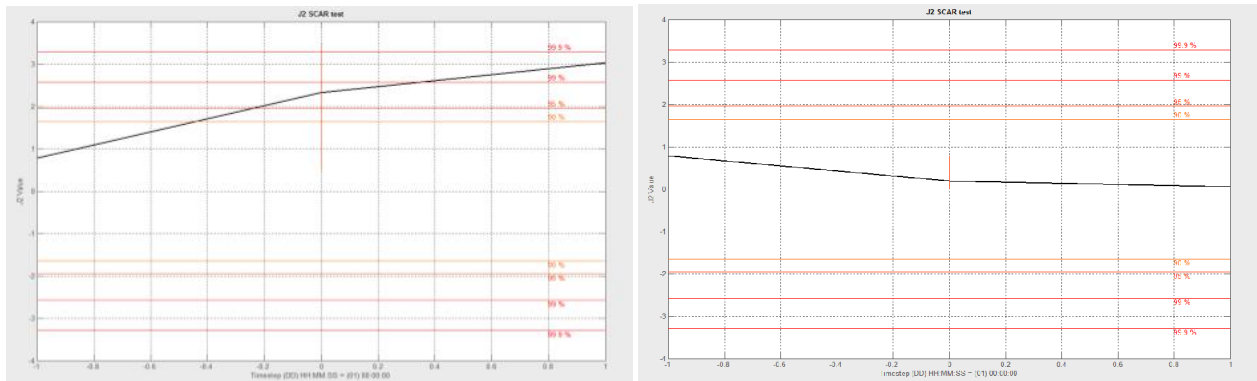


Figure 8.73 Statistical significance for technology partnership stock (left) and press (right) announcements

All international partnership announcements have a CAR of 2.09% with 99.0% statistical significance, while the same type of announcements have a CAR of 4.92% and a statistical significance of 99.9% when the stock exchange releases are used. The press releases have a -0.22% CAR and no statistical significance with the same type of announcements (Figure 8.74 to Figure 8.78).

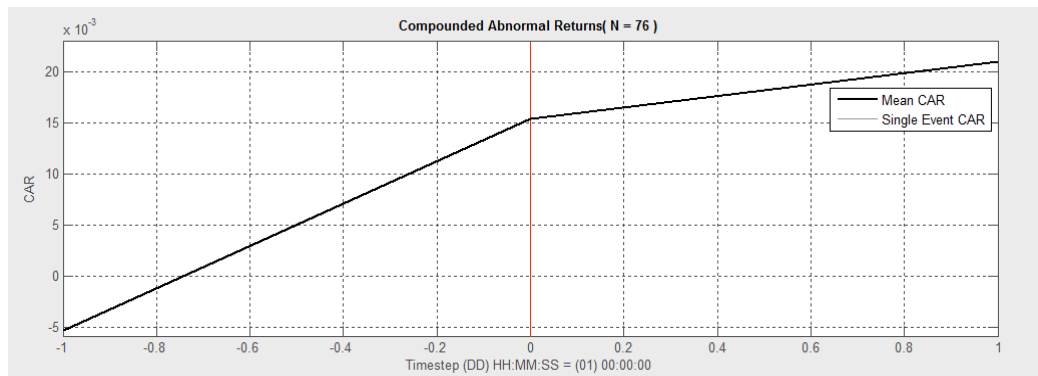


Figure 8.74 CAR for all international partnership announcements

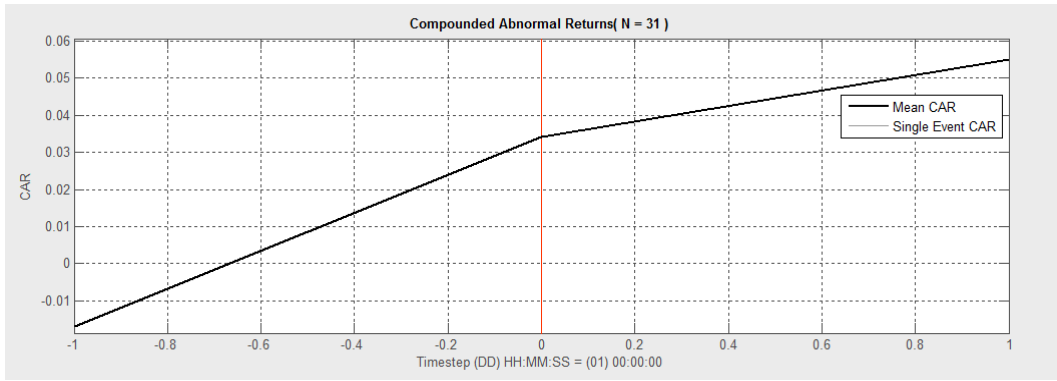


Figure 8.75 CAR for international partnership stock announcements

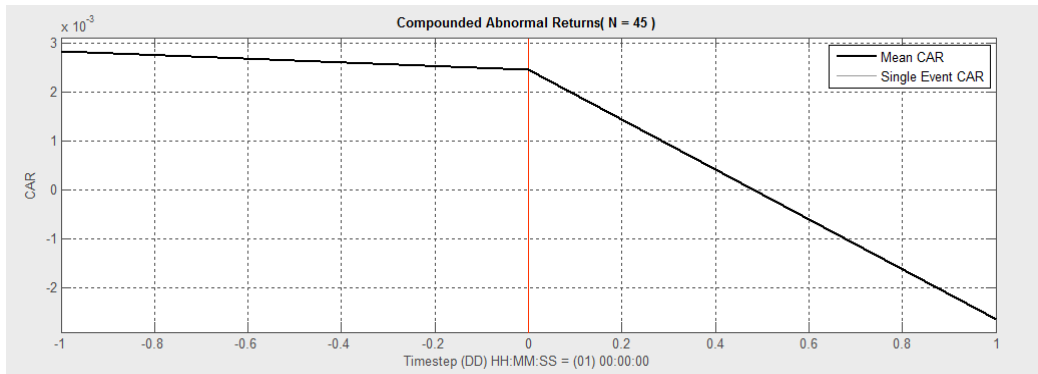


Figure 8.76 CAR for international partnership press announcements

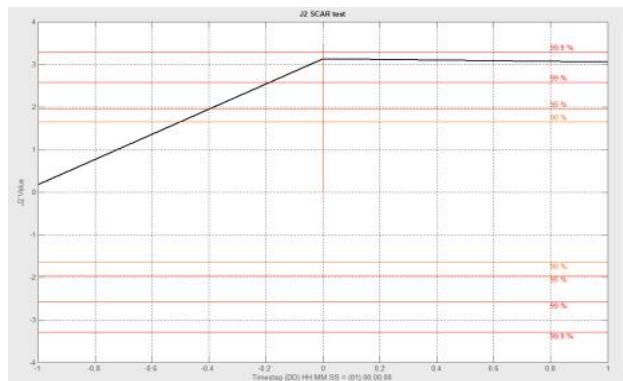


Figure 8.77 Statistical significance for all international partnership announcements

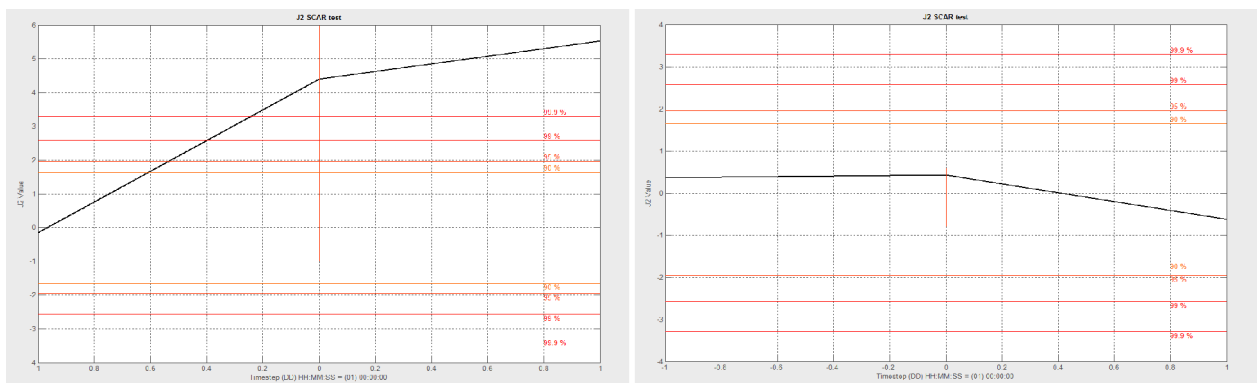


Figure 8.78 Statistical significance for international partnership stock (left) and press (right) announcements

The domestic marketing partnerships have a cumulative abnormal return over the three-day period of 0.92% with no statistical significance in the case of all announcements, and the same type of partnerships have a CAR of 0.87%, again with no statistical significance, in the case of stock exchange releases. The domestic partnership announcements have a CAR of 0.94% and no statistical significance with press releases (Figure 8.79 through Figure 8.83).

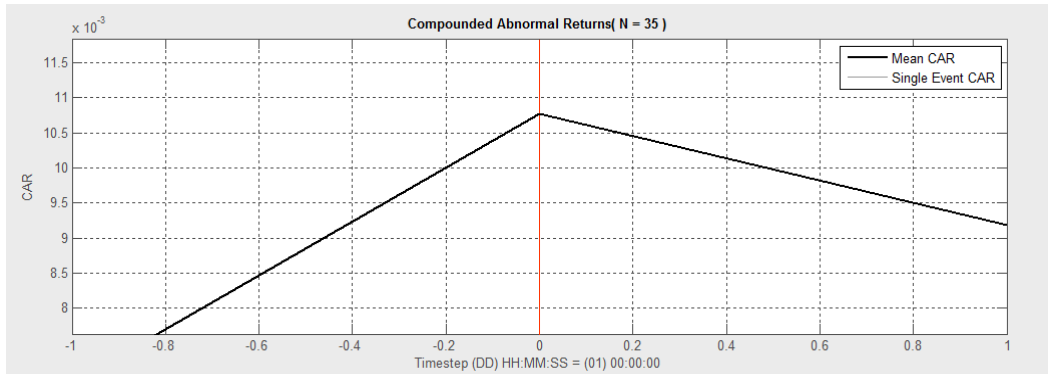


Figure 8.79 CAR for all domestic marketing partnership announcements

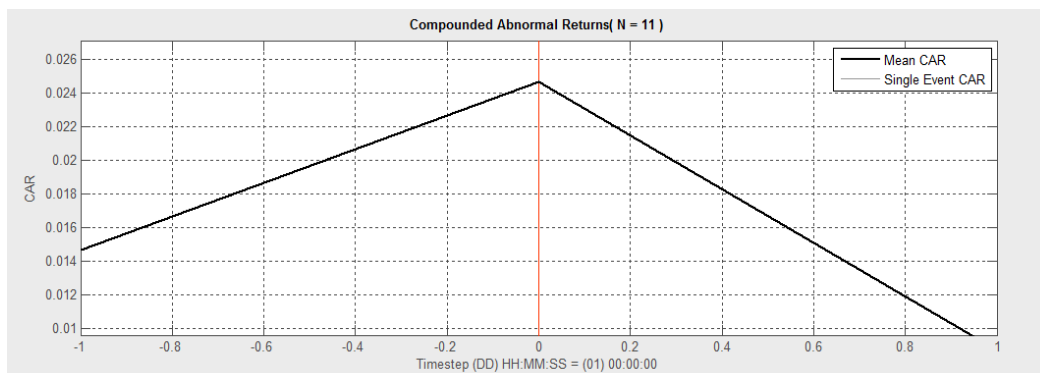


Figure 8.80 CAR for domestic marketing partnership stock announcements

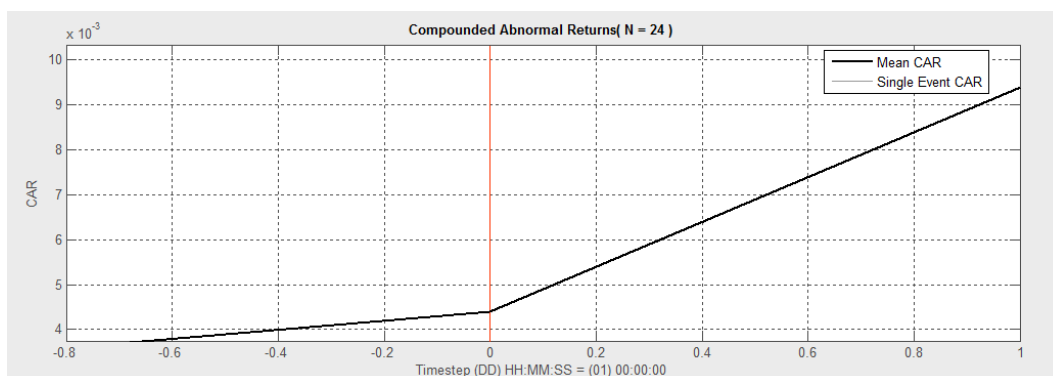


Figure 8.81 CAR for domestic marketing partnership press announcements

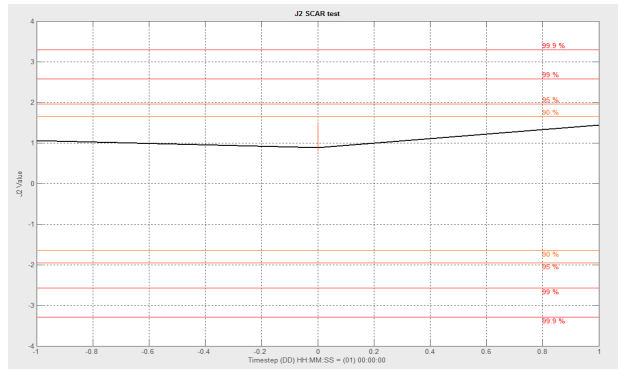


Figure 8.82 Statistical significance for all domestic marketing partnership announcements

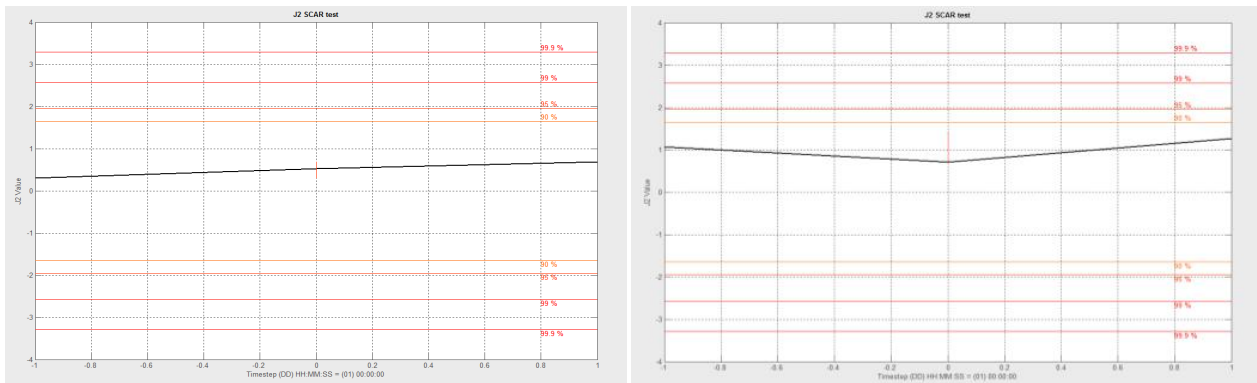


Figure 8.83 Statistical significance for domestic marketing partnership stock (left) and press (right) announcements

The domestic technology announcements have a CAR of 1.33% with no statistical significance when all releases are taken into account, a 3.73% CAR with a statistical significance of 95.0% in the case of stock exchange releases, and a CAR of 0.24% again with no statistical significance in case of press releases (Figure 8.84 to Figure 8.88).

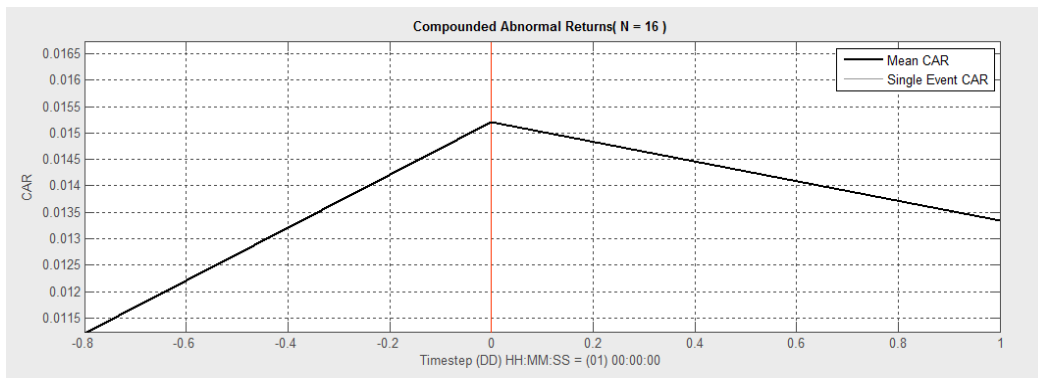


Figure 8.84 CAR for all domestic technology partnership announcements

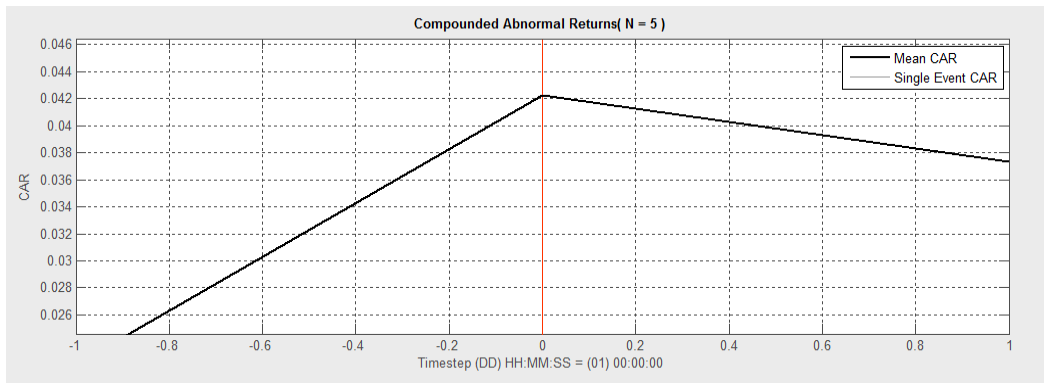


Figure 8.85 CAR for domestic technology partnership stock announcements

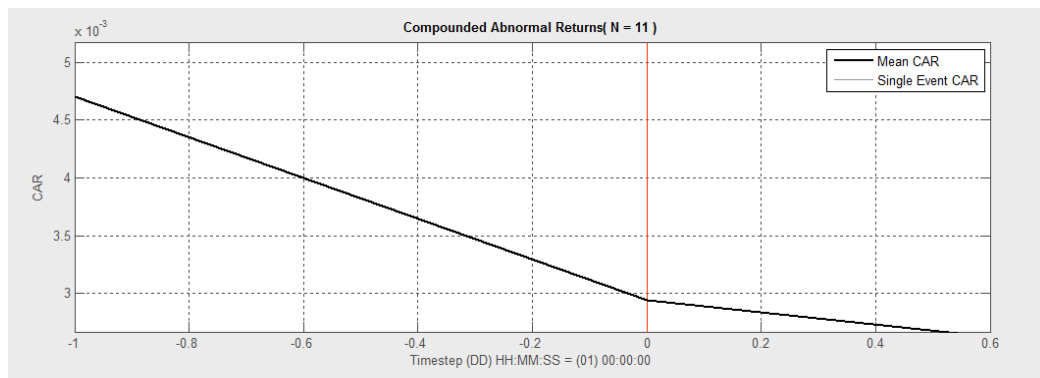


Figure 8.86 CAR for domestic technology partnership press announcements

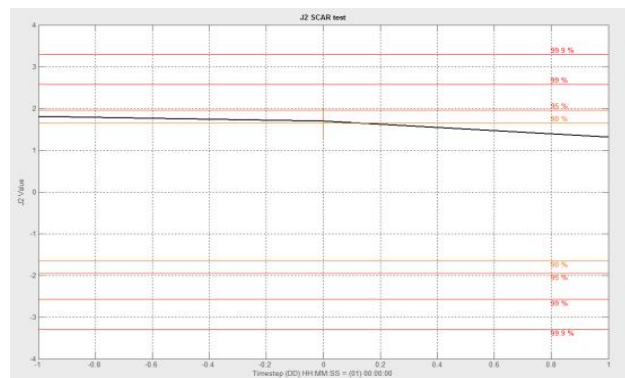


Figure 8.87 Statistical significance for all domestic technology partnership announcements

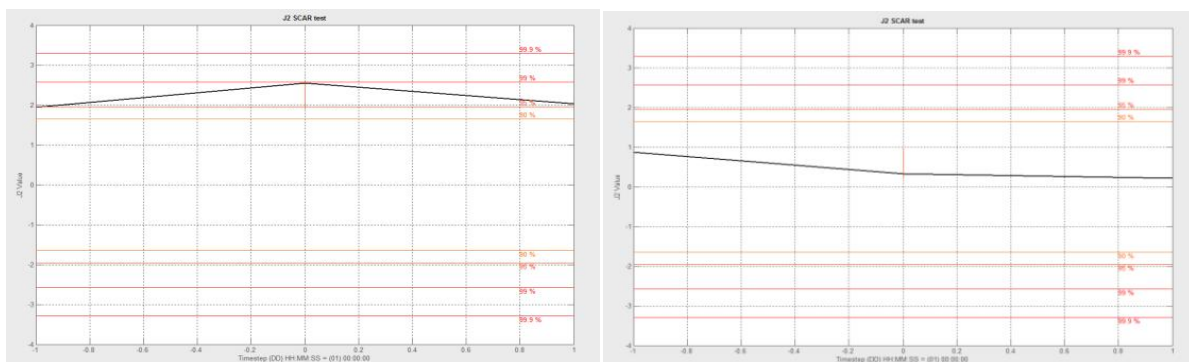


Figure 8.88 Statistical significance for domestic technology partnership stock (left) and press (right) announcements

The CAR for all international technology partnerships is 2.02% with no statistical significance. The same type of partnerships announced through stock exchange releases have CAR of 4.17% with 95.0% statistical significance and announced through press releases CAR of -0.48% with no statistical significance (Figure 8.89 to Figure 8.93).

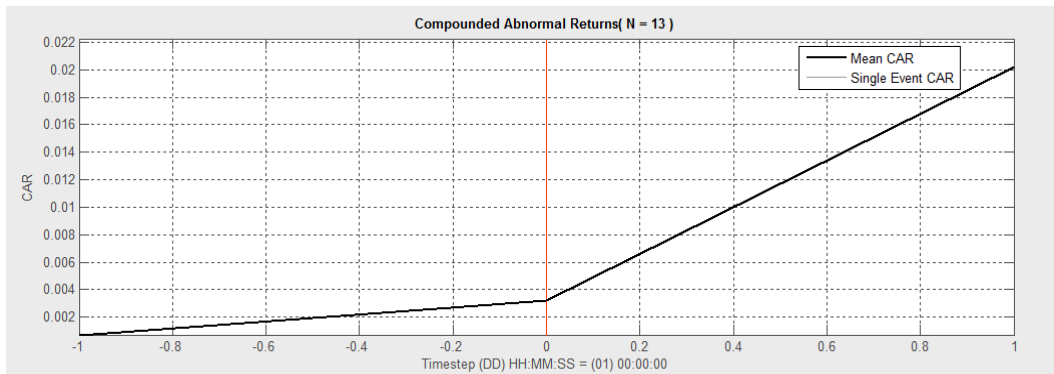


Figure 8.89 CAR for all international technology partnership announcements

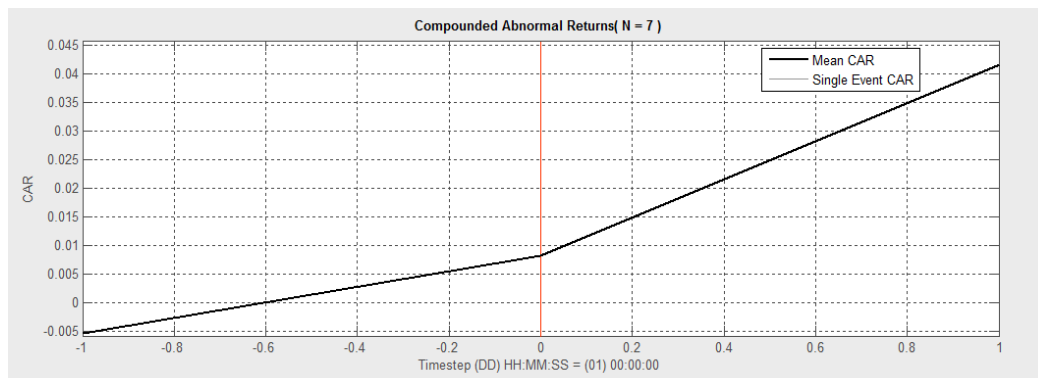


Figure 8.90 CAR for international technology partnership stock announcements

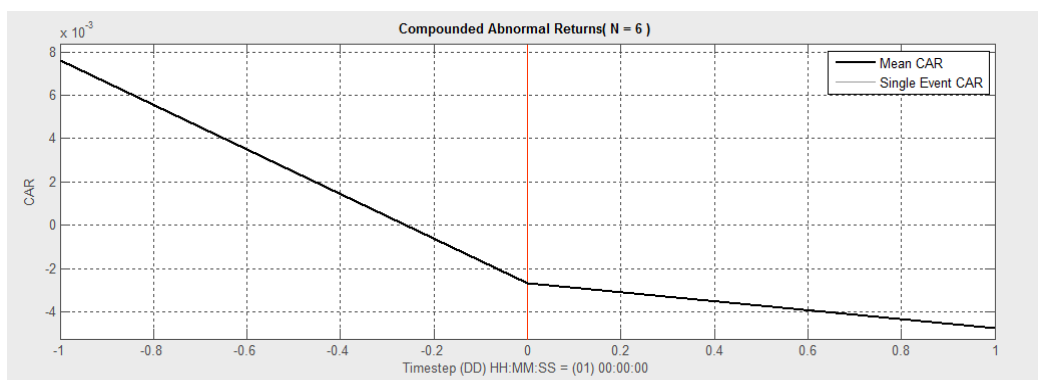


Figure 8.91 CAR for international technology partnership press announcements

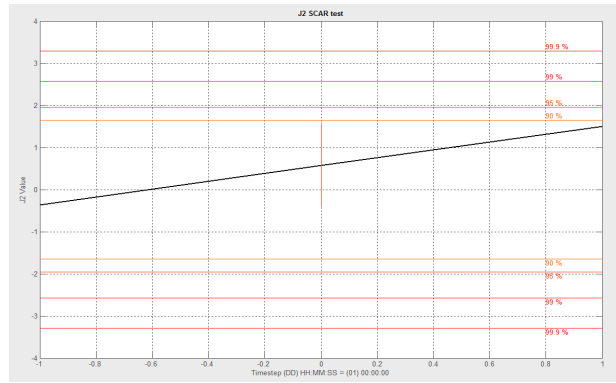


Figure 8.92 Statistical significance for all international technology partnership announcements

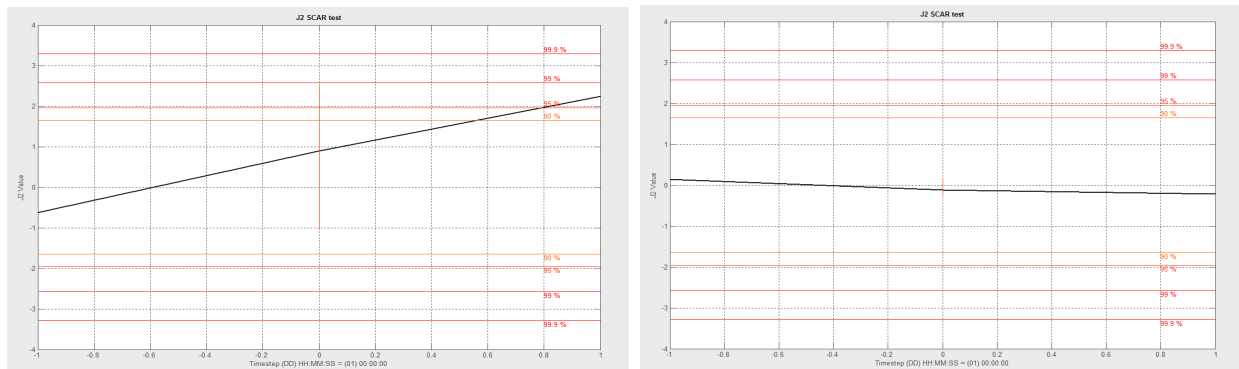


Figure 8.93 Statistical significance for international technology partnership stock (left) and press (right) announcements

The Transaction Daily Model data, cumulative abnormal return over the three-day period, statistical significance, number of events, and number of positive events in each type of partnerships, are collected in Table 8.5 in the descending order of CAR.

After the Transaction Daily Model's cumulative abnormal returns and its significance J_2 were calculated, the correlations between the variables were checked. The descriptive statistics and inter-correlations between the variables of the day level Transaction Daily Model are shown in Table 8.7.

It can be seen in Table 8.7 that also in Transaction Daily Model there is a significant correlation between CAR and the stock release versus press release variable, as well as with the relative size of the partnering firms. The international versus domestic partnering variable has a very significant correlation with country of origin of the partnering firm, as well as with partner's size. Also the direction of the partnership, horizontal versus vertical, has a significant correlation with the internationalization aspect of the firm.

The marketing partnership versus technology partnership variable has significant correlation with single or multi-purpose partnership and with the focus firm's size. The stock release versus press release variable has a significant correlation with the equity versus non-equity partnership variable, with single or multi-purpose partnership, with relative size of the partnering firms, and with focus firm's size. The focus firm's size in turn has a significant correlation with relative size of the partnering firms and age of the focus firm, as well as with the high-technology versus low-technology variable of the focus firm.

The partnering firm's size has a significant correlation with the relative size of the partnering firms and age of the focus firm, as well as the high-technology versus low-technology aspect variable of focus firm.

Table 8.5 CAR, statistical significance, N, and percentage of positive events by partnership type calculated by Transaction Daily Model

Type of Partnership	Day level Model 2			
	CAR	Significance	N	% of Positive
International Marketing Stock Announcements	5,52 %	99,9 %	31	65 %
International Stock Announcements	4,92 %	99,9 %	36	61 %
Marketing Stock Announcements	4,30 %	99,9 %	42	64 %
International Technology Stock Announcements	4,17 %	95,0 %	7	57 %
Technology Stock Announcements	3,99 %	99,0 %	12	67 %
All Stock Announcements	3,87 %	99,9 %	50	62 %
Domestic Technology Stock Announcements	3,73 %	95 %	5	80 %
International Marketing Announcements	2,09 %	99,0 %	76	51 %
International Technology Announcements	2,02 %	NS	13	54 %
All International Announcements	1,88 %	99,0 %	88	51 %
All Marketing Announcements	1,72 %	99,9 %	111	56 %
All Technology Announcements	1,64 %	95,0 %	29	59 %
All Announcements	1,50 %	99,9 %	135	55 %
Domestic Technology Announcements	1,33 %	NS	16	63 %
Domestic Stock Announcements	1,18 %	NS	14	64 %
Domestic Marketing Press Announcements	0,94 %	NS	24	67 %
Domestic Marketing Announcements	0,92 %	NS	35	66 %
Domestic Marketing Stock Announcements	0,87 %	NS	11	64 %
All Domestic Announcements	0,79 %	90,0 %	47	62 %
Domestic Press Announcements	0,62 %	NS	33	61 %
Domestic Technology Press Announcements	0,24 %	NS	11	55 %
Marketing Press Announcements	0,15 %	NS	69	51 %
All Press Announcements	0,11 %	NS	85	51 %
Technology Press Announcements	-0,01 %	NS	17	53 %
International Press Announcements	-0,22 %	NS	52	44 %
International Marketing Press Announcements	-0,26 %	NS	45	42 %
International Technology Press Announcements	-0,48 %	NS	6	50 %

Table 8.6 Transaction Daily Model: Kruskal-Wallis test results of significance of the difference between groups' mean values

Category	Asympt. Sig.	Test Statistic
International vs Domestic	0,698	0,263
Marketing vs Technology	0,461	0,543
Stock vs Press	0,097	2,751
High tech vs Low tech	0,491	0,475
Country of partner	0,285	9,726
Single vs multi-purpose	0,015	5,930
Horizontal vs vertical	0,409	0,682
Equity vs non-equity	0,102	2,671
Int.nat. Marketing vs other	0,818	0,053
Domestic Tech. vs other	0,728	0,121

Listwise N=135

Table 8.7 Descriptive statistics and inter-correlations of Transaction Daily Model

	Mean	Std. Deviation	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. CAR	0,02	0,10	1													
2. International vs Domestic	0,56	0,50	,076	1												
3. Marketing vs Technology	0,82	0,39	,040	,112	1											
4. Stock vs Press	0,34	0,48	,233 [†]	,064	,003	1										
5. Firm size	2,77	1,10	-,190	,098	-,205 [*]	-,282 ^{**}	1									
6. Partner size	21163,0	82975,0	-,085	,203 [†]	,057	-,081	,076	1								
7. Relative size	214,4	680,2	,324 ^{**}	,101	-,021	,345 ^{**}	-,471 ^{**}	,122	1							
8. Age of firm	3,60	0,30	-,255 [†]	,100	,022	-,047	,302 ^{**}	,175	-,088	1						
9. Sales growth rate	0,07	0,18	-,155	,010	-,037	,034	-,120	-,025	-,263 ^{**}	-,081	1					
10. Market sentiment	0,01	0,03	-,082	-,059	-,119	-,071	,012	-,085	,080	-,088	,093	1				
11. High tech vs Low tech	0,42	0,50	,131	,041	,082	,096	-,331 ^{**}	-,087	,221 [*]	-,333 ^{**}	-,104	,164	1			
12. Country of partner	1,67	2,14	-,086	,617 ^{**}	,162	,129	-,012	,211 [*]	,101	,085	,020	,054	,256 [†]	1		
13. Single or Multi-purpose	0,29	0,45	,074	-,124	-,225 [*]	,362 ^{**}	,068	-,114	-,095	-,073	,201 [*]	,027	-,033	-,073	1	
14. Horizontal vs Vertical	0,21	0,41	-,135	,211 [*]	-,009	-,004	-,084	-,057	,080	,099	-,079	-,002	-,040	,232 [†]	,000	1
15. Equity vs Non-equity	0,14	0,35	,049	,067	,118	,264 ^{**}	,192	-,092	-,129	-,040	,115	,009	-,110	-,047	,452 ^{**}	,000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Listwise N=98

Table 8.8 Results of regression models using CAR as a dependent variable with Transaction Daily Model data

Independent Variables	Dependent Variable: CAR				
	Model 2a	Model 2b	Model 2c	Model 2d	Model 2e
International vs Domestic		0,245			0,246*
Marketing vs Technology			0,068		0,072
Stock vs Press				0,093	0,096
Firm size	-0,012	-0,052	0,015	0,008	-0,003
Partner size	-0,089	-0,099	-0,092	-0,078	-0,091
Relative size	0,321***	0,285**	0,337***	0,291**	0,270**
Age of firm	-0,201*	-0,194*	-0,207*	-0,208*	-0,207**
Sales growth rate	-0,112	-0,131	-0,104	-0,112	-0,124
Market sentiment	-0,124	-0,099	-0,118	-0,113	-0,083
High tech vs Low tech	0,001	0,015	0,000	0,004	0,017
Country of partner	-0,032	-0,177	-0,044	-0,049	-0,208
Single or Multi-purpose	0,080	0,118	0,102	0,050	0,110
Horizontal vs Vertical	-0,149	-0,170*	-0,143	-0,139	-0,154
Equity vs Non-equity	0,053	0,019	0,03	0,034	-0,025
F-Statistic	2,257	2,450	2,085	2,109	2,152
R ²	0,224	0,257	0,227	0,229	0,266
Sig.	0,018	0,009	0,026	0,024	0,017
N	98	98	98	98	98

Table reports standardized beta coefficients.

Significance levels: * p < 0,1, ** p < 0,05, *** p < 0,01.

Partner size correlates significantly with country of origin of the partner, and the relative size of the partnering firms has a significant correlation with focus firm's sales growth rate and with the high-technology versus low-technology variable of the focus firm. Also, the age of the focus firm has a significant correlation with the high-technology versus low-technology variable. The focus firm's sales growth rate has a significant correlation with the single of multi-purpose variable. The high-technology versus low-technology variable correlates significantly with partner's country of origin, and the country of origin then has a significant correlation with the direction of the partnership.

Finally, the single or multi-purpose variable correlates significantly with the equity versus non-equity aspect variable of the partnerships.

The next step was to check if there are significant differences between the cumulative abnormal returns of different groups. Again, the distribution of the CAR data was checked first and the test gave 5.106 for skewness and 42.136 for kurtosis. Because of this, the testing was done with Kruskal-Wallis non-parametric tests.

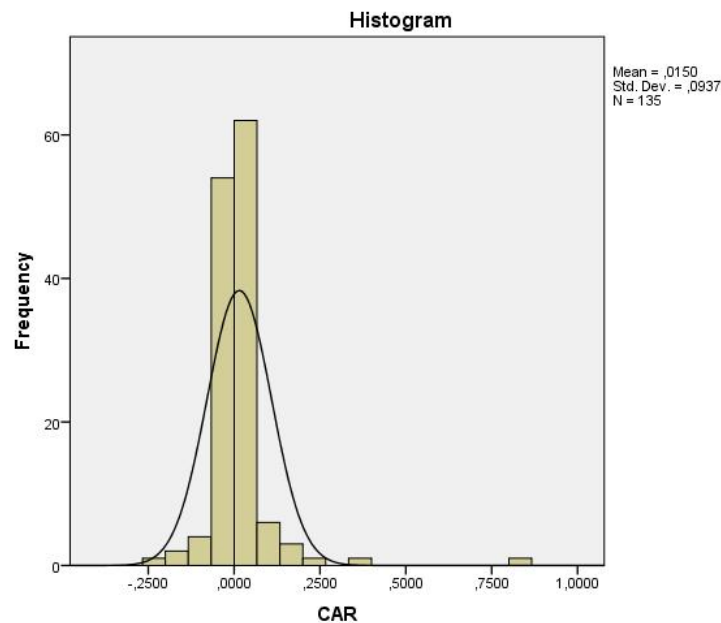


Figure 8.94 Histogram of Transaction Daily Model CAR

The international partnerships versus domestic partnerships groups, the marketing partnerships versus technology partnerships groups, high-technology partnerships versus low-technology partnership groups, countries of origin of the partnering firms groups, horizontal versus vertical partnership groups, and equity partnerships versus non-equity partnership groups all had no significant differences in the mean values of the cumulative abnormal returns.

There was a significant difference in the mean values of CAR between the partnerships announced through stock release and press release announcement, as well as between the groups of single-purpose and multi-purpose partnerships.

The two final tests were made to check if there is significant difference in the means of international marketing partnerships compared to the rest of the partnerships and domestic technology partnerships compared to the rest of the partnerships. The test gave no significant difference in the mean values in both cases.

The last tests were regression tests where cumulative abnormal return was tested with different models. The results of different regression models are shown in Table 8.8. Variance inflation factors (VIF) are not reported, but they vary between 1 and 2.1, staying well below the critical value of 10 (Gulati, Lavie & Singh 2009), thus alleviating concerns of multicollinearity. Some independent variables with missing values were treated with listwise deletion giving unbiased estimates for regression analysis.

The models from a to e are the same as in the case of the Traditional Daily Model: Model 2a is a baseline model that included all the control variables. Model 2b has all the control variables and international versus domestic variable added. Model 2c includes also all control variables together with the marketing versus technology variable. Model 2d also has all controls, with stock versus press variable added. Model 2e includes all control and independent variables.

The relative size of the partnering firms and age of the focus firm are significant control variables in all models and the direction of the partnership is additionally significant in Model 2b. The F-Statistic is lowest in Model 2c having a value of 2.085. All models have an F-statistic between that and 2.450 which is the value of Model 2b. Also, the statistical significance, or p-value, is less than 0.05 in all models, and in Model 2f it is less than 0.000.

In the Transaction Daily Model, R^2 varies from 22.4% to 26.6%, giving the models relatively good predicting power compared to other partnering event studies (Gao, Iyer 2009, Häussler 2006, Kale, Dyer & Singh 2002, E.g. Boyd, Spekman 2008).

8.1.3 Analysis of the Transaction Level Data

The third model employed for the analysis of the abnormal return is that of the transaction level, which means that the analysis is done based on the transactions right after the announcement has been received by the markets and the reaction can be followed at minute level. In this study the reaction is followed in three minute steps over a thirty minute period, a period that will show the initial main reaction by markets even though the reaction will continue over a longer period.

The cumulative abnormal return for all announcements was 0.77% with a statistical significance of 99.9%, as shown in Figure 8.95 and Figure 8.96.

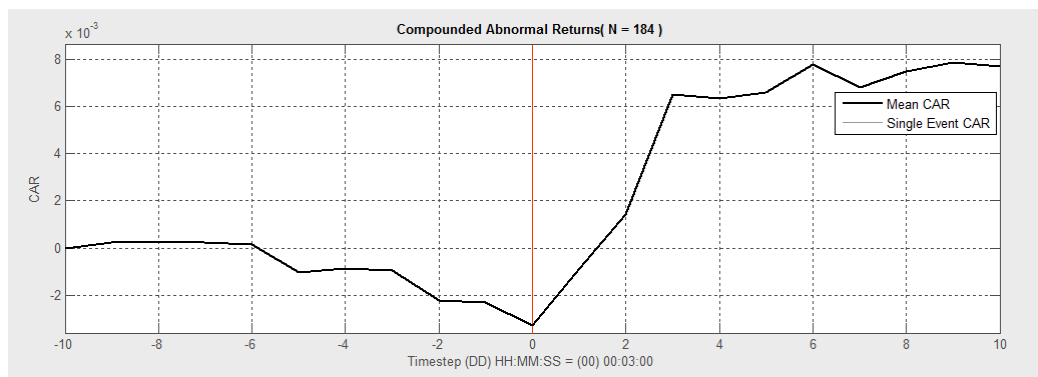


Figure 8.95 CAR for all partnership announcements

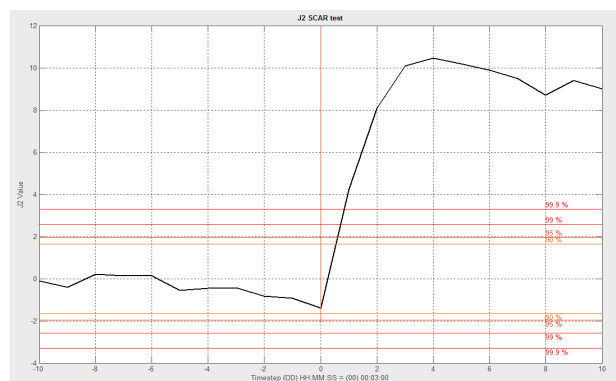


Figure 8.96 Statistical significance for all partnership announcements

For all stock partnership announcements, the CAR is 1.89% and the statistical significance 99.9% (Figure 8.97 and Figure 8.98).

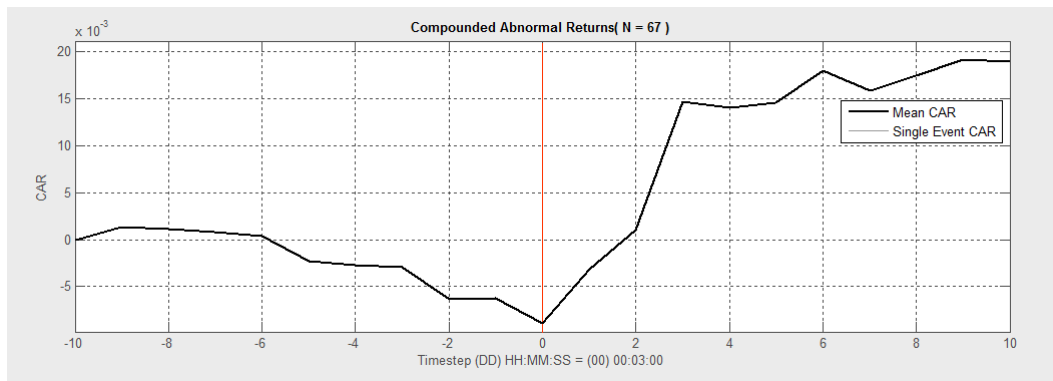


Figure 8.97 CAR for all partnership stock announcements

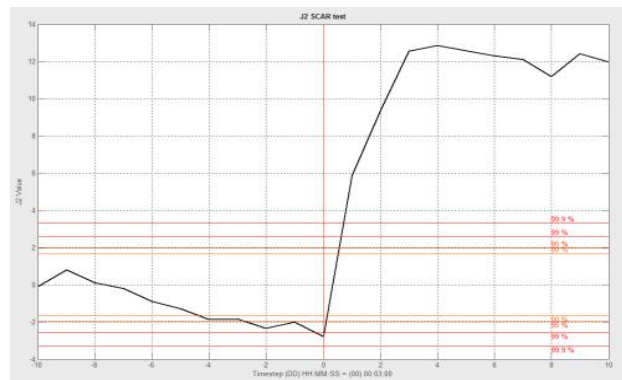


Figure 8.98 Statistical significance for all partnership stock announcements

In partnership announcements made through press releases, the CAR is 0.12% and the statistical significance 95.0% (Figure 8.99 and Figure 8.100).

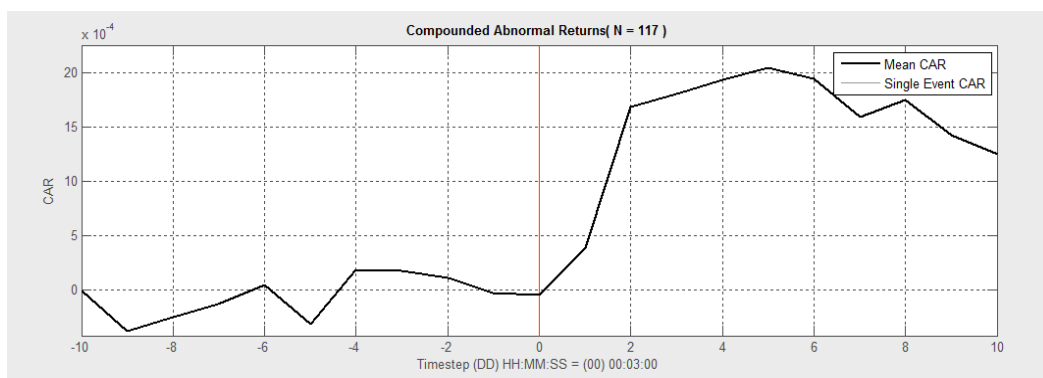


Figure 8.99 CAR for all partnership stock announcements

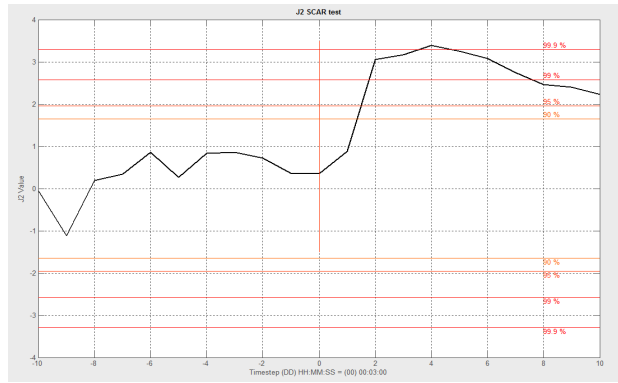


Figure 8.100 Statistical significance for all partnership stock announcements

All international partnerships have a cumulative abnormal return of 0.83% with a statistical significance of 99.9%, and international partnerships through stock announcements have a 1.96% CAR, as compared to press release announcements with a 0.06% CAR. The respective statistical significances are 99.9% and not significant (Figure 8.101 to Figure 8.105).

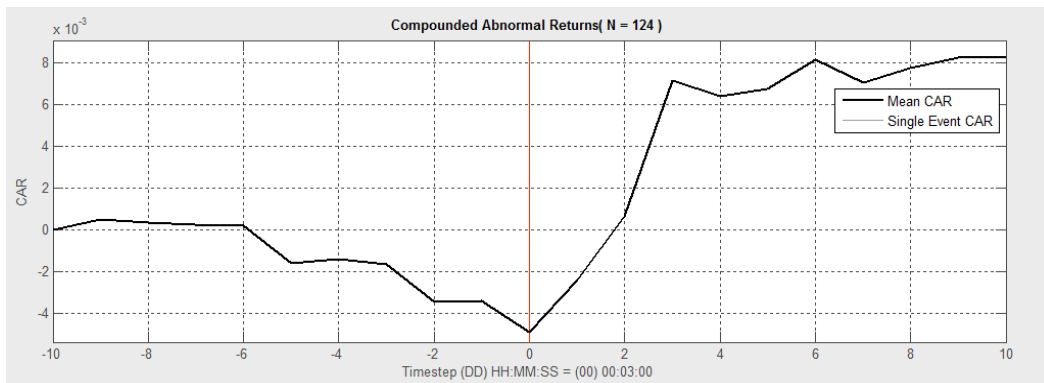


Figure 8.101 CAR for all international partnership announcements

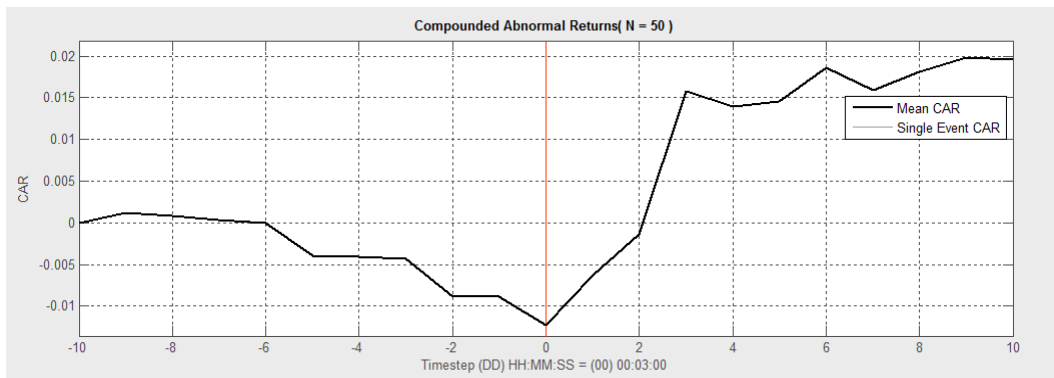


Figure 8.102 CAR for international partnership stock announcements

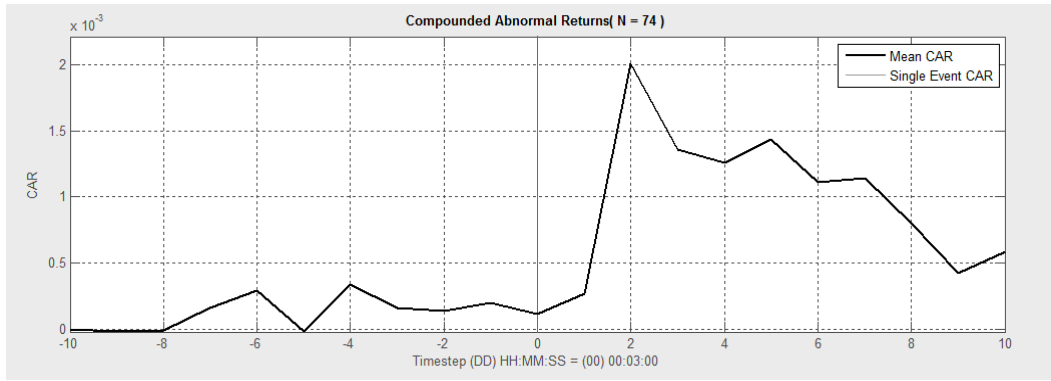


Figure 8.103 CAR for international partnership press announcements

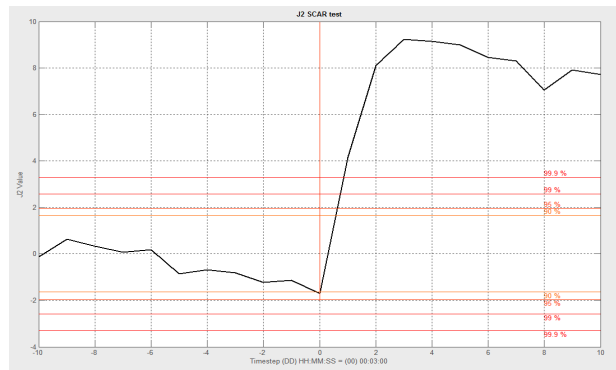


Figure 8.104 Statistical significance for all international partnership announcements

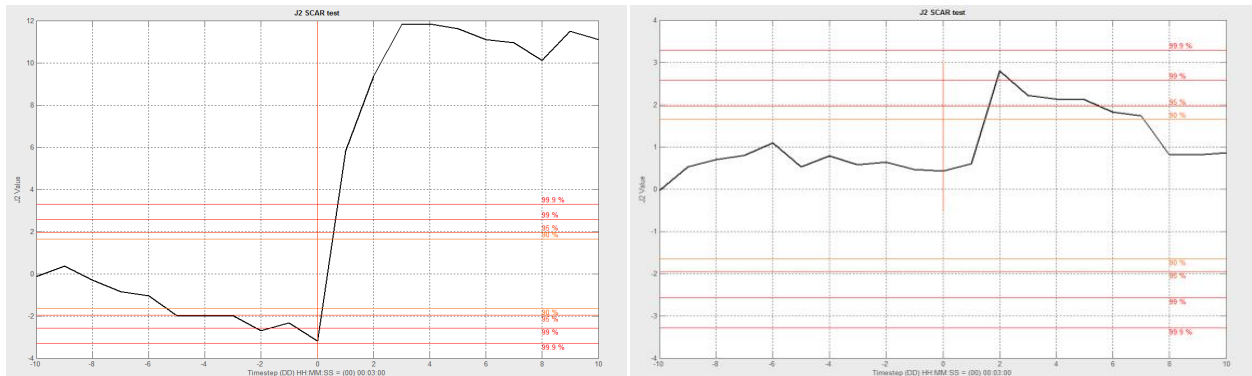


Figure 8.105 Statistical significance for international partnership stock (left) and press (right) announcements

The cumulative abnormal return for all domestic partnerships is 0.65% having a statistical significance of 99.9%. In case of domestic partnership announcements through stock exchange releases, the CAR is 1.70% and statistical significance 99.9%, as compared to respective figures of 0.24% and 95.0% for domestic partnerships announced through press releases (Figure 8.106 to Figure 8.110).

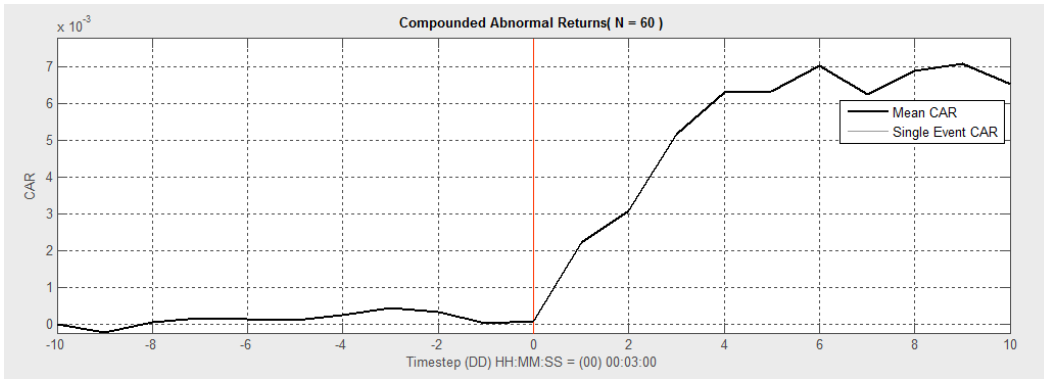


Figure 8.106 CAR for all domestic partnership announcements

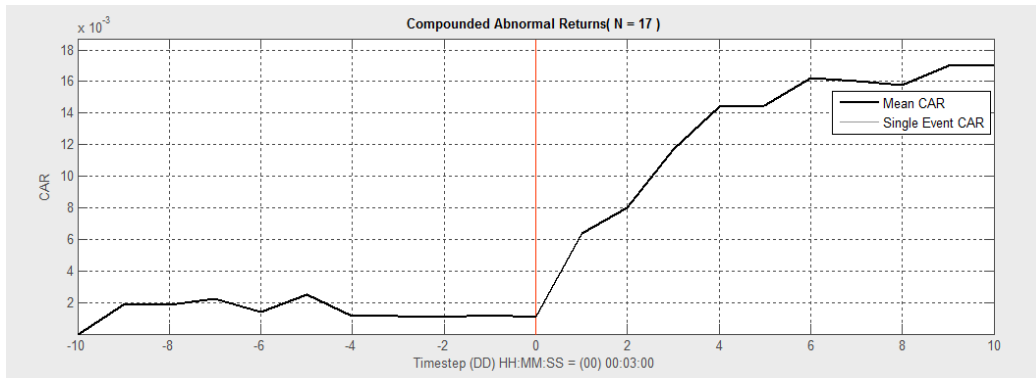


Figure 8.107 CAR for all domestic partnership stock announcements

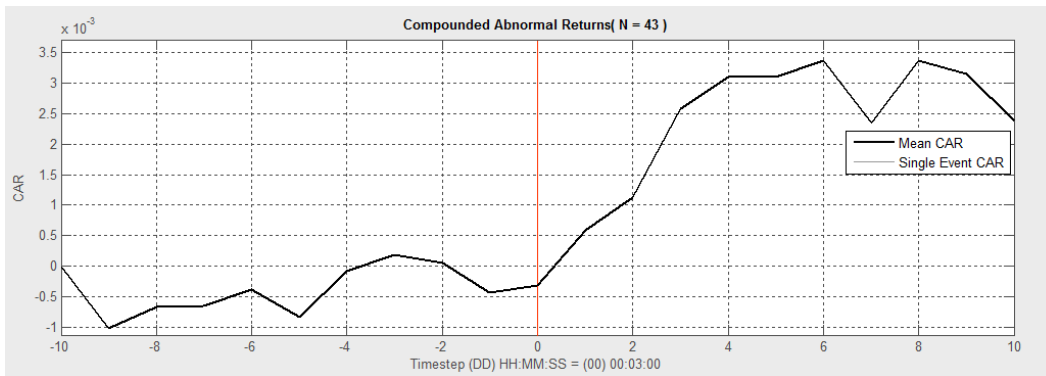


Figure 8.108 CAR for domestic partnership press announcements

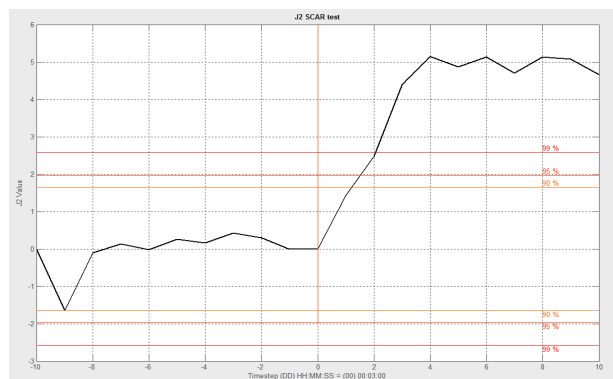


Figure 8.109 Statistical significance for all domestic partnership announcements

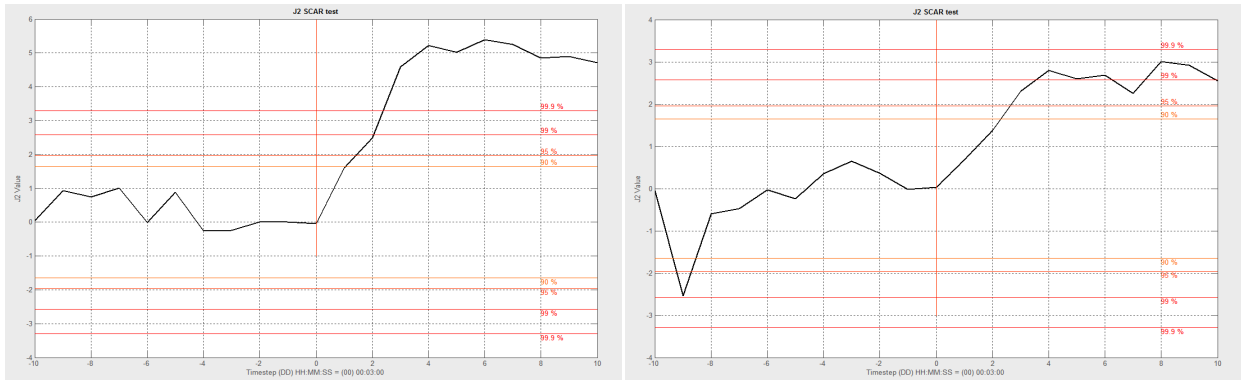


Figure 8.110 Statistical significance for domestic partnership stock (left) and press (right) announcements

All marketing partnership announcements have a CAR of 0.81% over the 30-minute window, and when the announcements are made through stock exchange releases the CAR is 2.11%, while in the case of press releases the CAR is 0.09%. The respective statistical significance for these is 99.9%, 99.9% and 90.0% (Figure 8.111 to Figure 8.115).

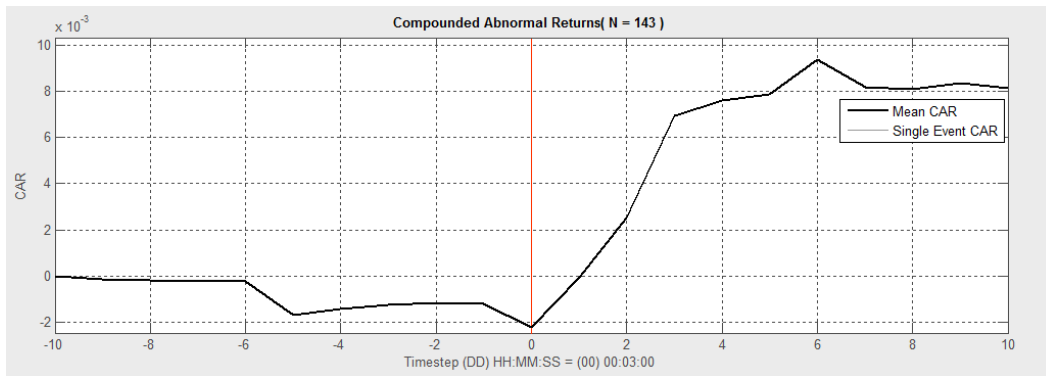


Figure 8.111 CAR for all marketing partnership announcements

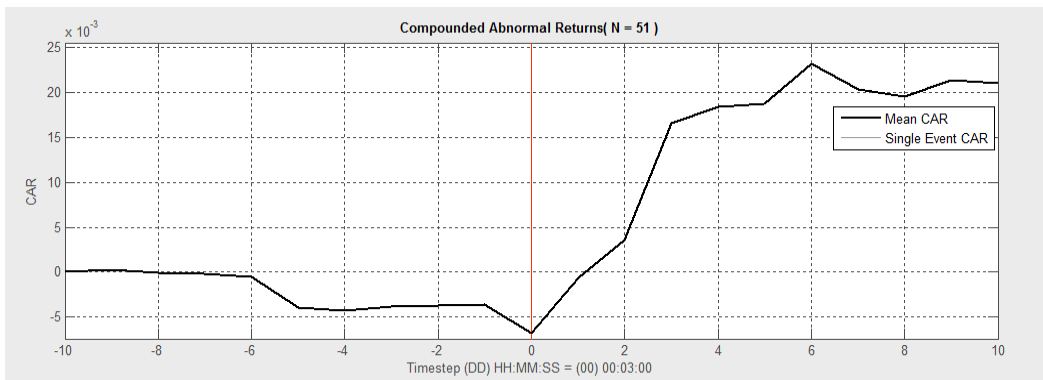


Figure 8.112 CAR for all marketing partnership stock announcements

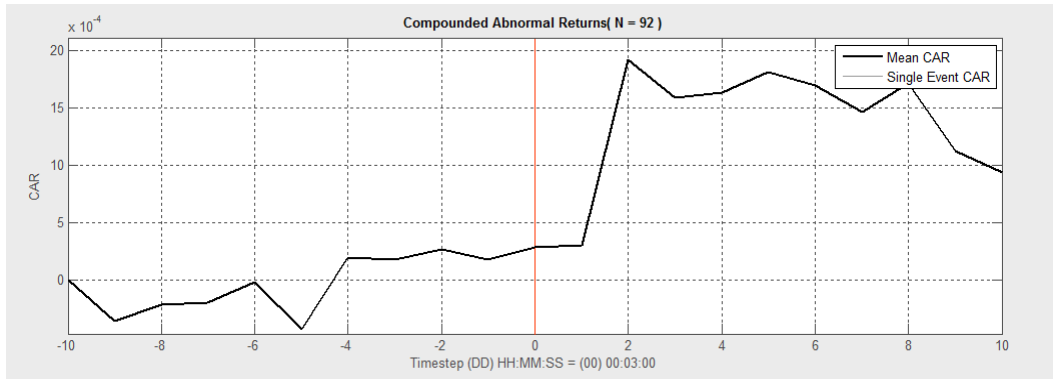


Figure 8.113 CAR for marketing partnership press announcements

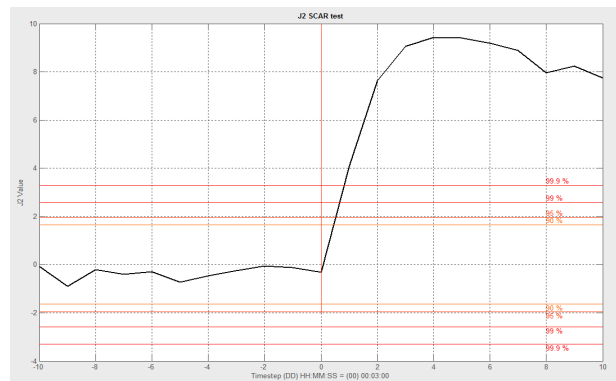


Figure 8.114 Statistical significance for all marketing partnership announcements

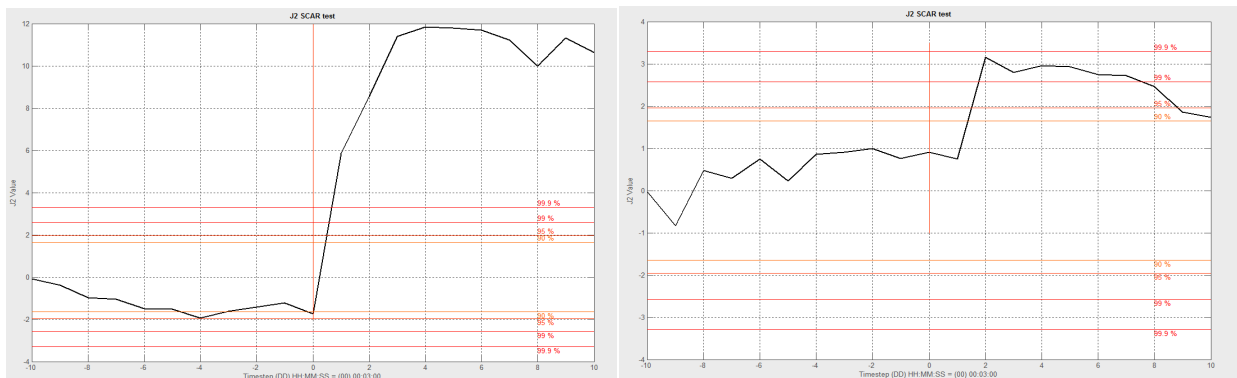


Figure 8.115 Statistical significance for marketing partnership stock (left) and press (right) announcements

The CAR for all technology partnership announcements is 0.70% with a statistical significance of 99.9%, and the same partnership announcements made through stock exchange releases give a CAR of 1.29% with statistical significance of 99.9%. The technology partnership announcements through press release have a CAR of 0.29% with statistical significance of 90.0% (Figure 8.116 to Figure 8.120).

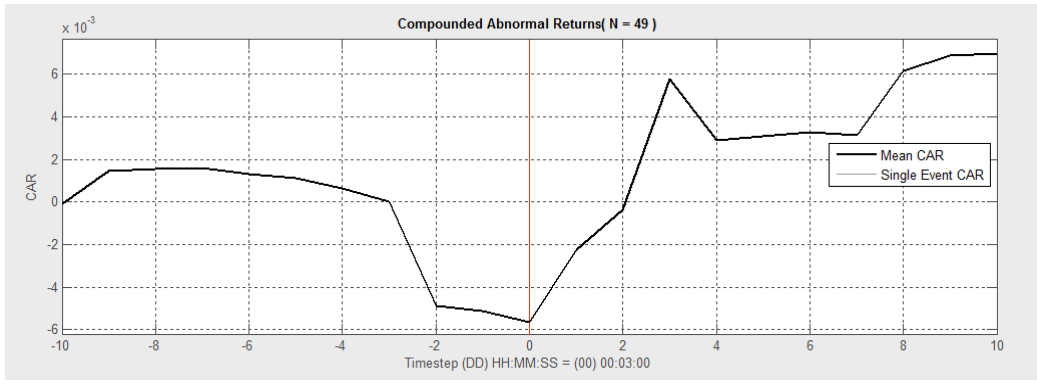


Figure 8.116 CAR for all technology partnership announcements

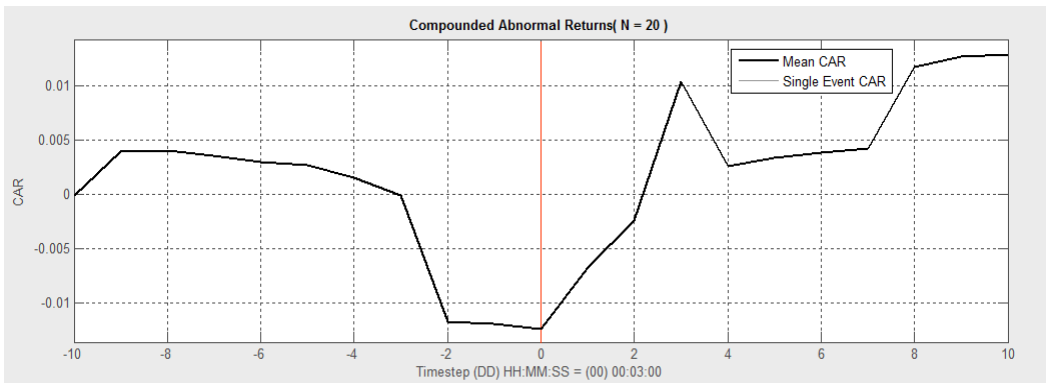


Figure 8.117 CAR for all technology partnership stock announcements

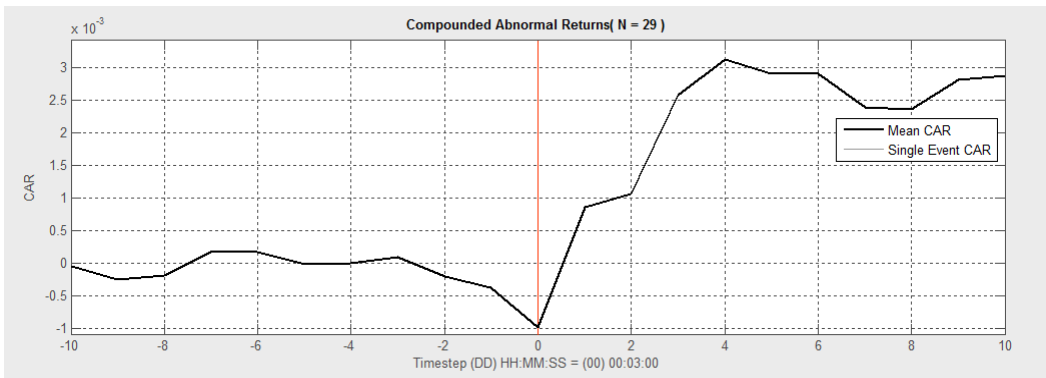


Figure 8.118 CAR for technology partnership press announcements

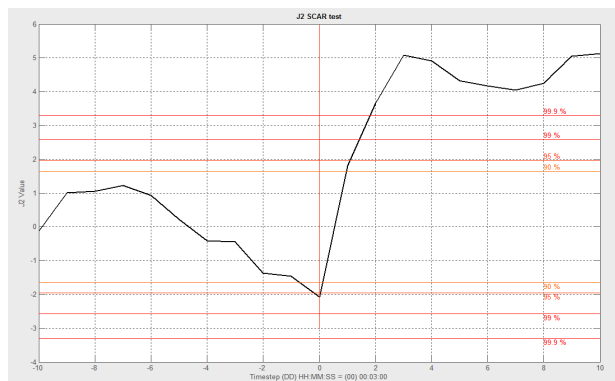


Figure 8.119 Statistical significance for all technology partnership announcements

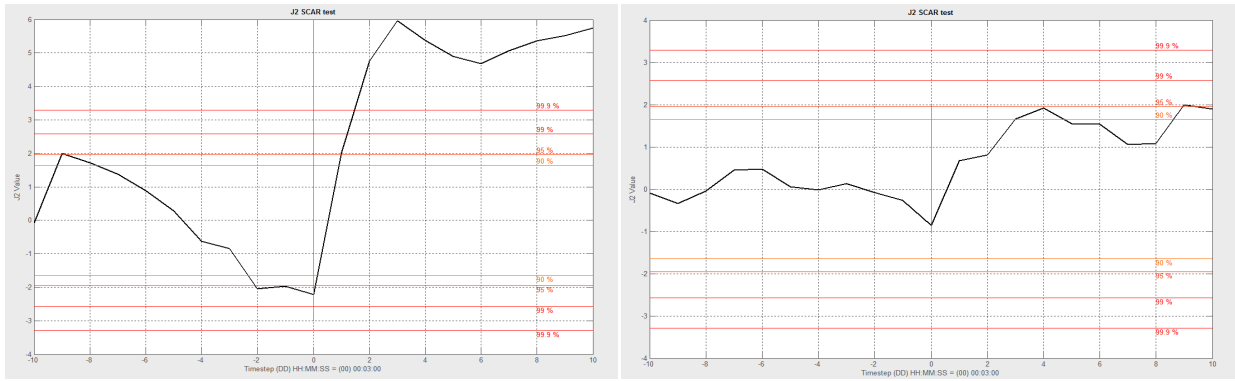


Figure 8.120 Statistical significance for technology partnership stock (left) and press (right) announcements

The cumulative abnormal return in the case of all international marketing announcements is 0.91% with 99.9% statistical significance. When the announcements are made through stock exchange release, the CAR is 2.13% with a statistical significance of 99.9%, and when through press releases, the CAR is 0.12% with no statistical significance (Figure 8.121 to Figure 8.125).

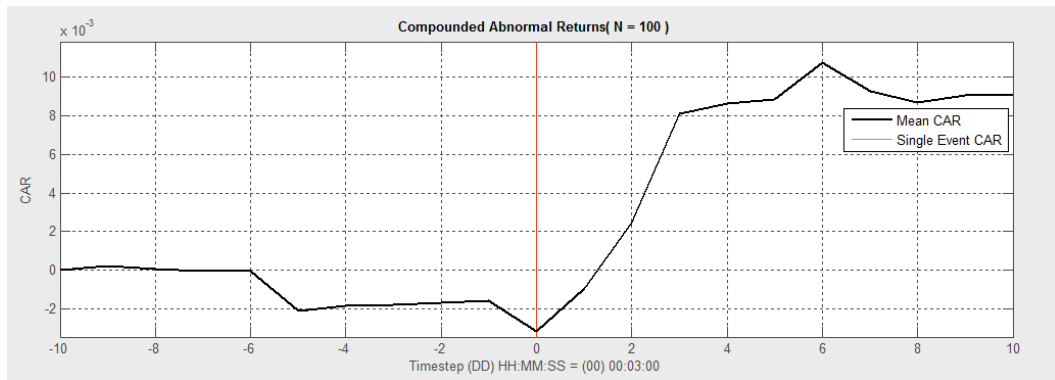


Figure 8.121 CAR for all international marketing partnership announcements

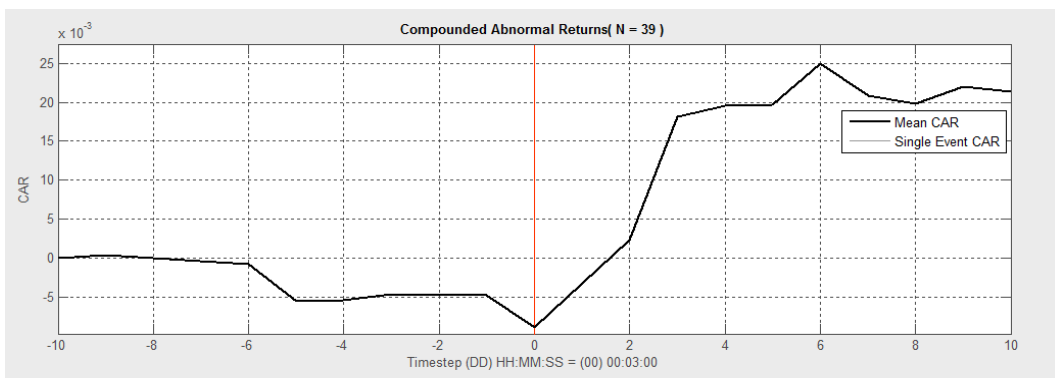


Figure 8.122 CAR for all international marketing partnership stock announcements

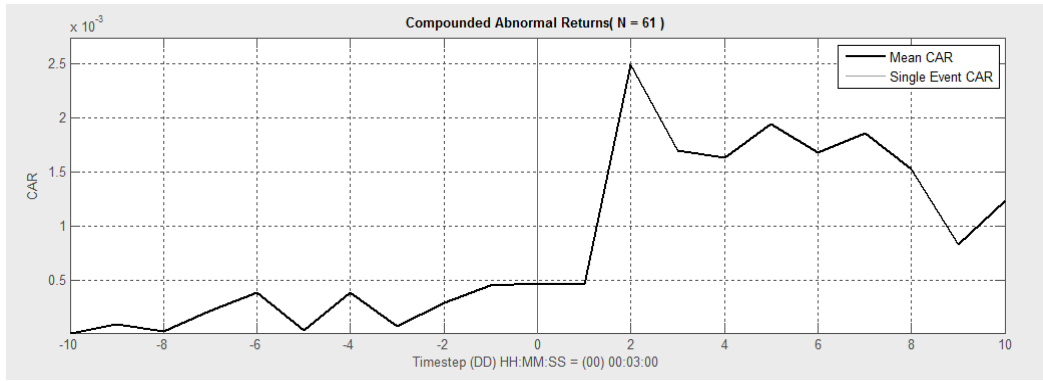


Figure 8.123 CAR for international marketing partnership press announcements

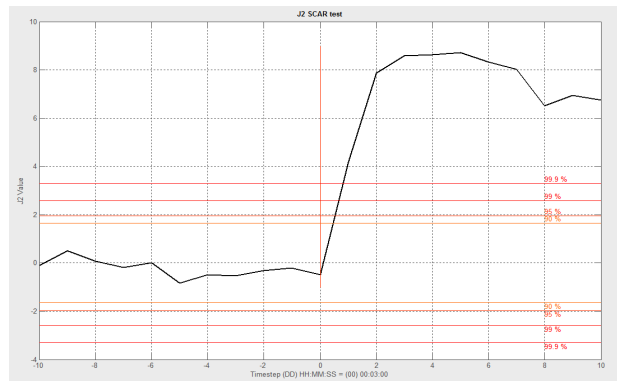


Figure 8.124 Statistical significance for all international marketing partnership announcements

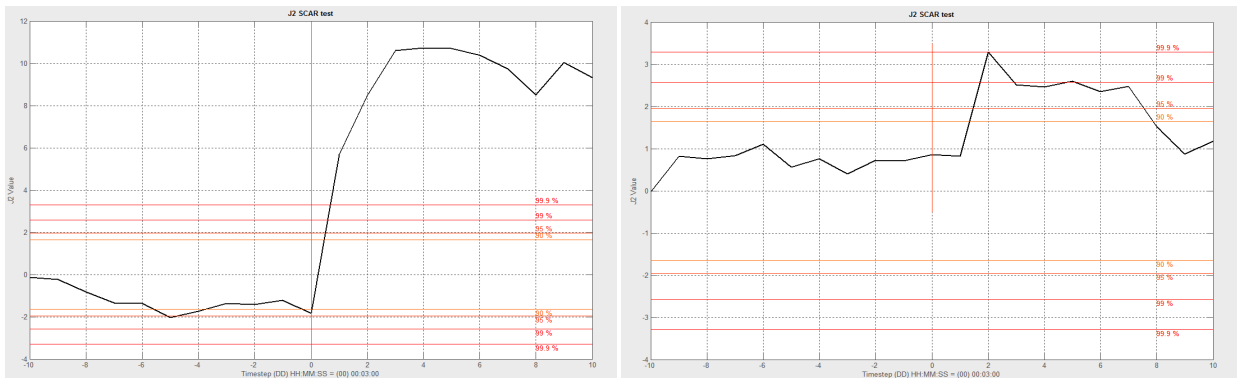


Figure 8.125 Statistical significance for international marketing partnership stock (left) and press (right) announcements

All domestic marketing partnership announcements have a cumulative abnormal return of 0.59% with a statistical significance of 99.9%. When the announcements are made through stock exchange releases, the CAR is 2.02% and the statistical significance is 99.9%. In case of press releases, this type of announcement has a cumulative abnormal return of 0.03% with no statistical significance (Figure 8.126 to Figure 8.130).

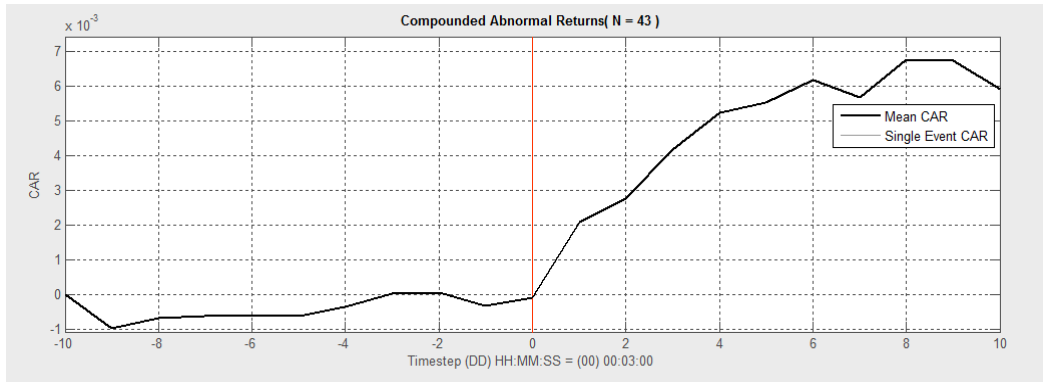


Figure 8.126 CAR for all domestic marketing partnership announcements

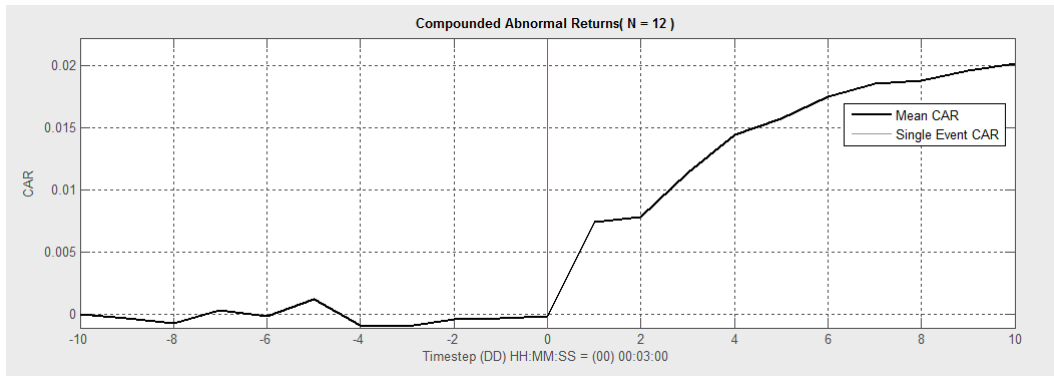


Figure 8.127 CAR for all domestic marketing partnership stock exchange announcements

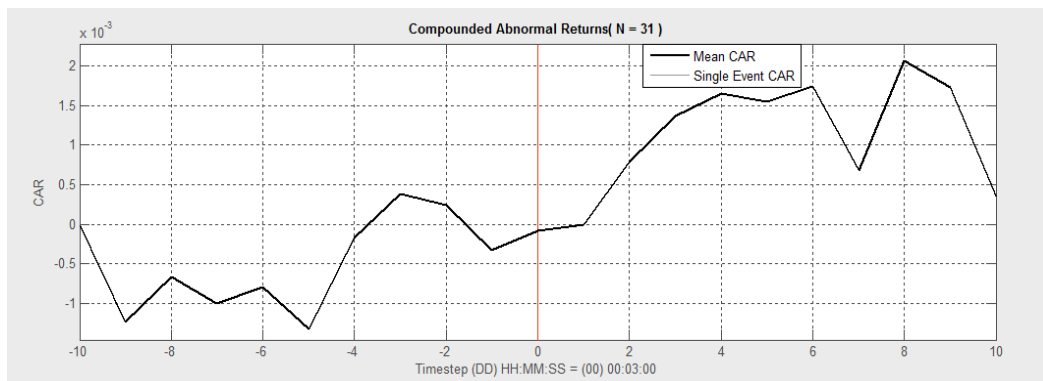


Figure 8.128 CAR for domestic marketing partnership press announcements

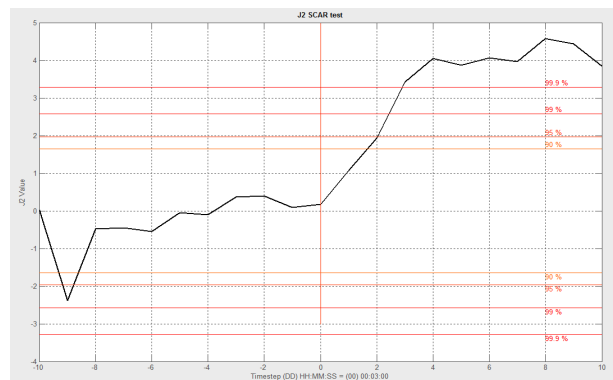


Figure 8.129 Statistical significance for all domestic marketing partnership announcements

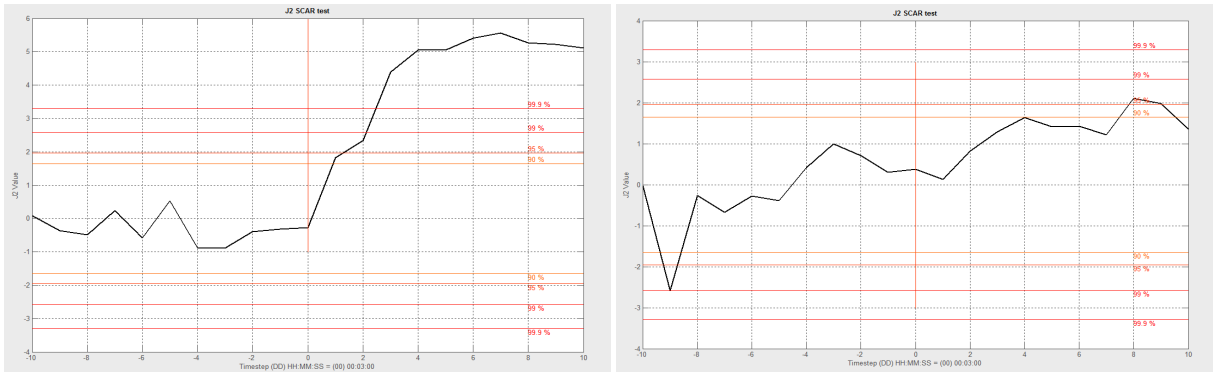


Figure 8.130 Statistical significance for domestic marketing partnership stock exchange (left) and press (right) announcements

All domestic technology partnership announcements have a CAR of 0.79% with statistical significance of 99.0%. The same partnerships announced through stock exchange releases have a CAR of 1.04% with no statistical significance, while the partnership announcements through press releases have cumulative abnormal return of 0,69% with 99,0% statistical significance. See Figure 8.131 to Figure 8.135.

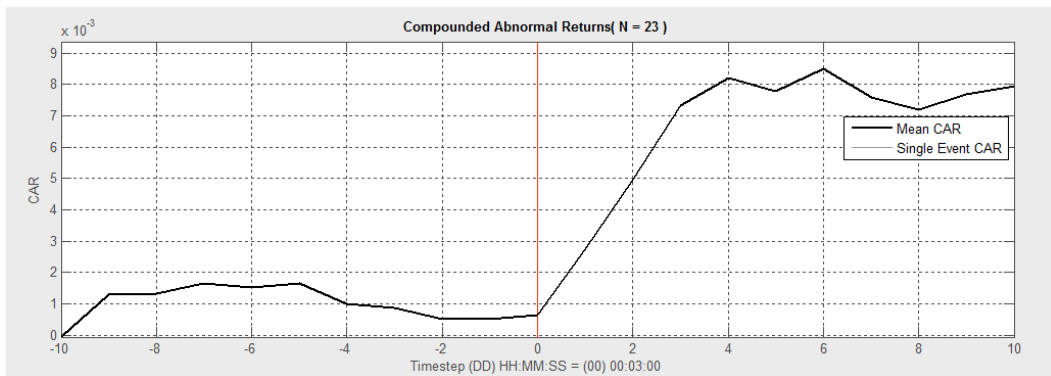


Figure 8.131 CAR for all domestic technology partnership announcements.

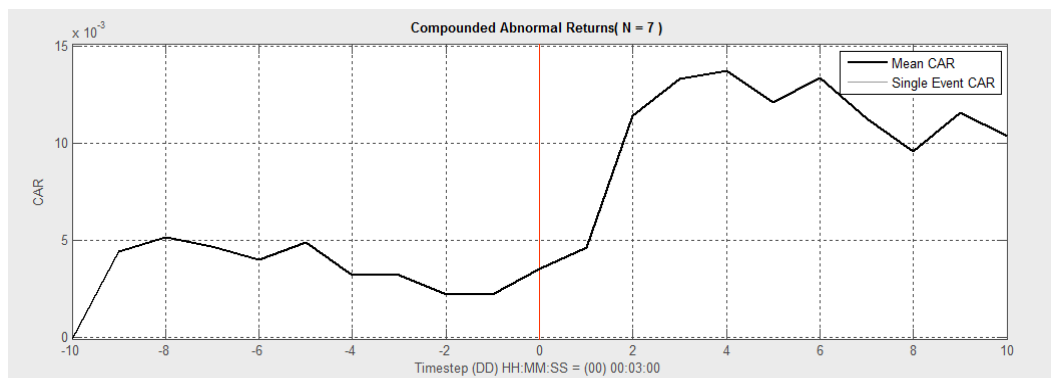


Figure 8.132 CAR for all domestic technology partnership stock exchange announcements

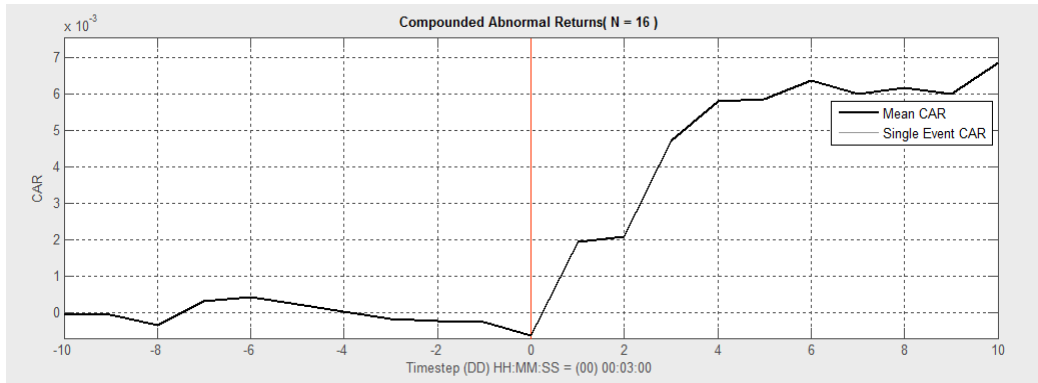


Figure 8.133 CAR for domestic technology partnership press announcements

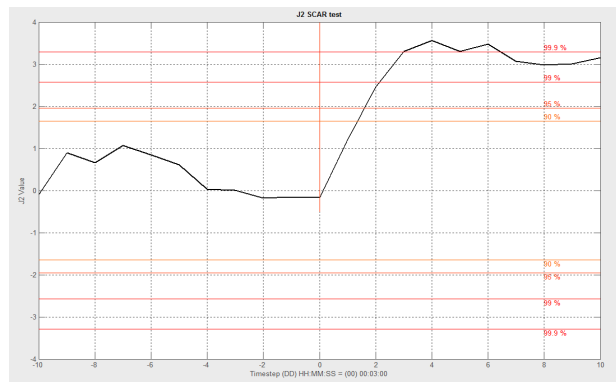


Figure 8.134 Statistical significance for all domestic technology partnership announcements

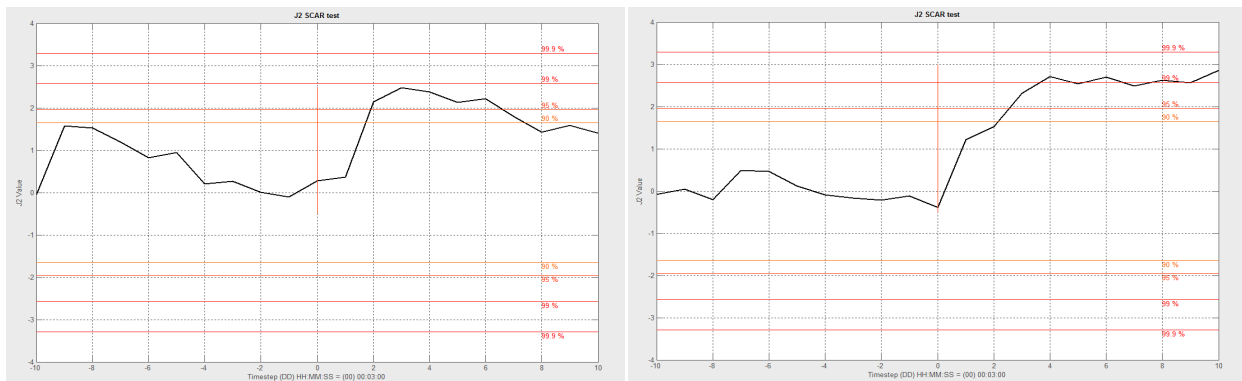


Figure 8.135 Statistical significance for domestic technology partnership stock exchange (left) and press (right) announcements

All international technology partnership announcements have a CAR of 0.61% with 99.9% statistical significance, and when the announcements are made through stock exchange releases the CAR is 1.43% with 99.9% statistical significance, whereas when they are made through press releases the CAR is -0.21% with no statistical significance (Figure 8.136 to Figure 8.140).

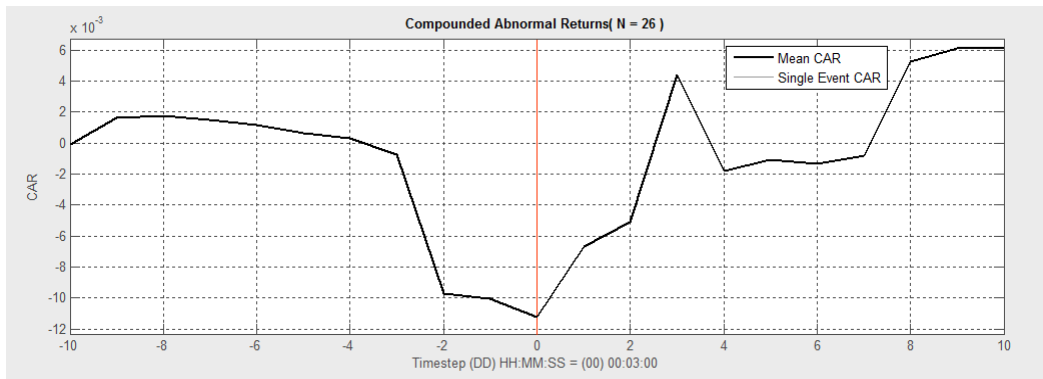


Figure 8.136 CAR for all international technology partnership announcements

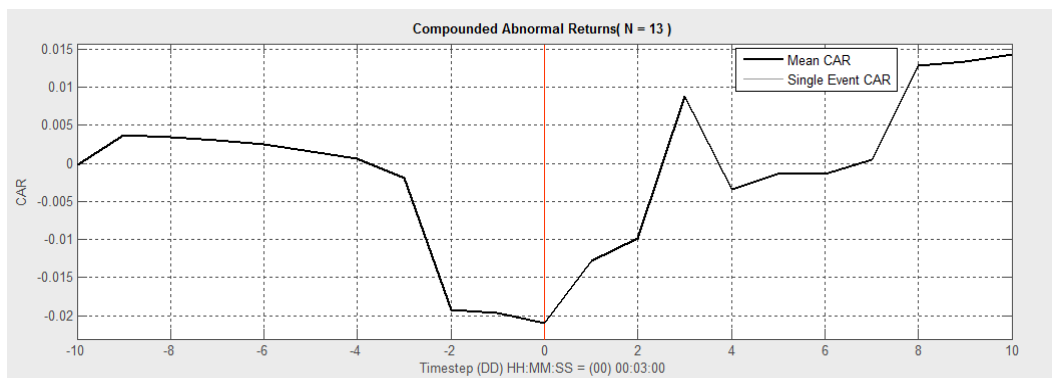


Figure 8.137 CAR for all international technology partnership stock exchange announcements

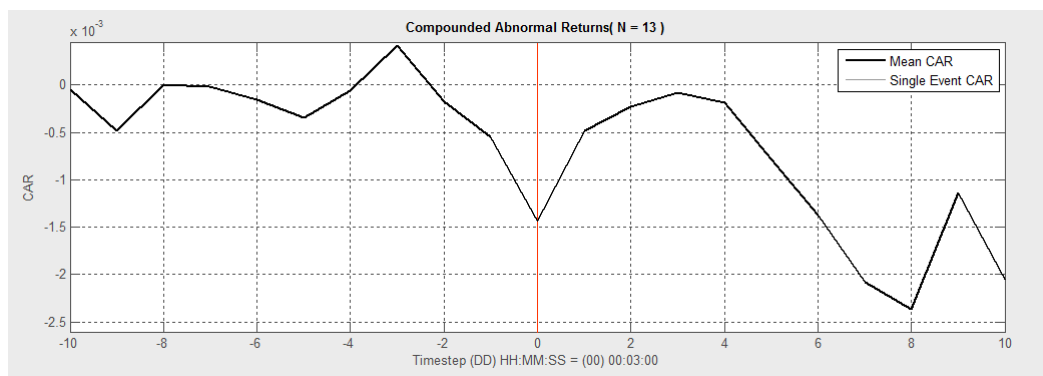


Figure 8.138 CAR for international technology partnership press announcements

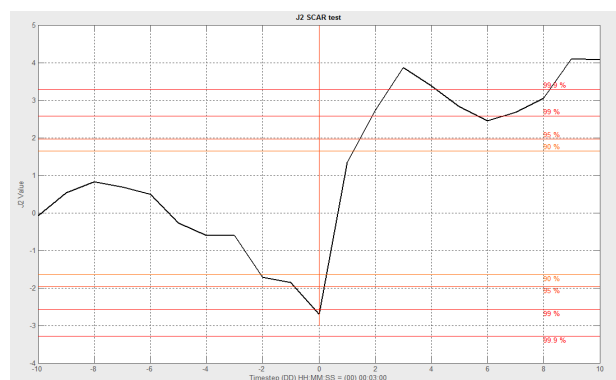


Figure 8.139 Statistical significance for all international technology partnership announcements

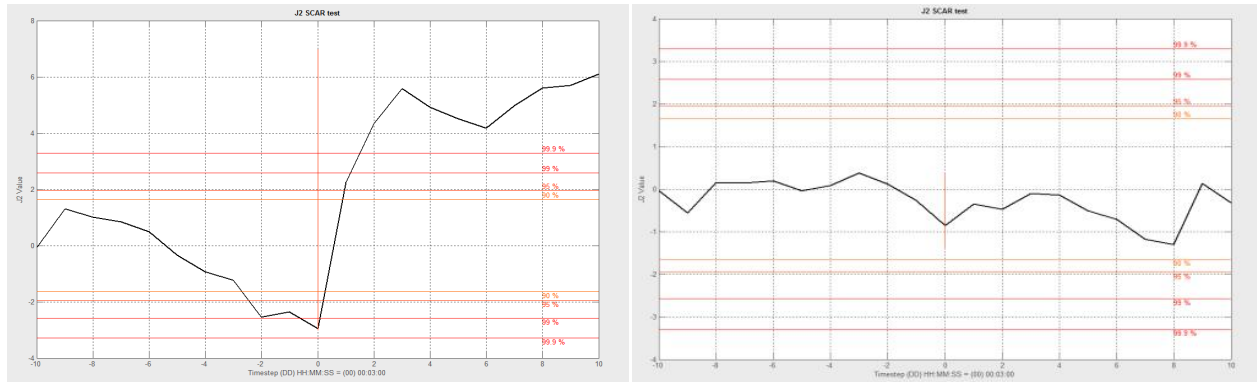


Figure 8.140 Statistical significance for international technology partnership stock exchange (left) and press (right) announcements

Transaction Level Model data, the cumulative abnormal return over the three-day period, statistical significance, number of events, and number of positive events in each type of partnership are collected in Table 8.9 in the descending order of CAR.

Table 8.9 CAR, statistical significance, N, and percentage of positive events by partnership type calculated for Transaction Level Model data.

Type of Partnership	Transaction level			
	CAR	Significance	N	% of Positive
International Marketing Stock Announcements	2,13 %	99,9 %	39	64 %
Marketing Stock Announcements	2,11 %	99,9 %	51	65 %
Domestic Marketing Stock Announcements	2,02 %	99,9 %	12	67 %
International Stock Announcements	1,96 %	99,9 %	50	68 %
All Stock Announcements	1,89 %	99,9 %	67	66 %
Domestic Stock Announcements	1,70 %	99,9 %	17	59 %
International Technology Stock Announcements	1,43 %	99,9 %	13	77 %
Technology Stock Announcements	1,29 %	99,9 %	20	70 %
Domestic Technology Stock Announcements	1,04 %	NS	7	57 %
International Marketing Announcements	0,91 %	99,9 %	100	60 %
All International Announcements	0,83 %	99,9 %	124	57 %
All Marketing Announcements	0,81 %	99,9 %	143	59 %
Domestic Technology Announcements	0,79 %	99,0 %	23	65 %
All Announcements	0,77 %	99,9 %	184	58 %
All Technology Announcements	0,70 %	99,9 %	49	57 %
Domestic Technology Press Announcements	0,69 %	99,0 %	16	69 %
All Domestic Announcements	0,65 %	99,9 %	60	58 %
International Technology Announcements	0,61 %	99,9 %	26	50 %
Domestic Marketing Announcements	0,59 %	99,9 %	43	58 %
Technology Press Announcements	0,29 %	90,0 %	29	48 %
Domestic Press Announcements	0,24 %	95,0 %	43	58 %
All Press Announcements	0,12 %	95,0 %	117	53 %
International Marketing Press Announcements	0,12 %	NS	61	57 %
Marketing Press Announcements	0,09 %	90,0 %	92	57 %
International Press Announcements	0,06 %	NS	74	50 %
Domestic Marketing Press Announcements	0,03 %	NS	31	55 %
International Technology Press Announcements	-0,21 %	NS	13	23 %

After the Transaction Level Model cumulative abnormal returns and its significance J_2 were calculated, the correlations between the variables were checked. The descriptive statistics and inter-correlations between the variables of the Transaction Level Model are shown in Table 8.11.

It can be seen in Table 8.11 that at the transaction level, there is a significant correlation between CAR and the stock release versus press release variable, focus firm size, and the high-technology versus low-technology variable, as well as with the relative size of the partnering firms. The international versus domestic partnering variable has a significant correlation with country of origin of the partnering firm as well as with partner's size. Also, the direction of the partnership, horizontal versus vertical, has a significant correlation with the internationalization aspect of the firm.

Table 8.10 Transaction Level Model: Kruskal-Wallis test results of significance of the difference between groups' mean values

Category	Asympt. Sig.	Test Statistic
International vs Domestic	0,972	0,001
Marketing vs Technology	0,833	0,045
Stock vs Press	0,001	10,168
High tech vs Low tech	0,001	10,799
Country of partner	0,524	7,118
Single vs multi-purpose	0,037	4,338
Horizontal vs vertical	0,090	2,872
Equity vs non-equity	0,290	1,122
Int.nat. Marketing vs other	0,844	0,039
Domestic Tech. vs other	0,404	0,697

Listwise N=184

Table 8.11 Descriptive statistics and inter-correlations of Transaction Level Model

	Mean	Std. Deviation															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1. CAR	0,01	0,05	1														
2. International vs Domestic	0,61	0,49	,040	1													
3. Marketing vs Technology	0,77	0,42	,065	,102	1												
4. Stock vs Press	0,35	0,48	,245**	,120	-,071	1											
5. Firm size	2,93	0,99	-,239**	,003	-,097	-,330**	1										
6. Partner size	22316,1	82971,0	-,025	,191*	,054	-,090	,084	1									
7. Relative size	112,3	418,6	,311**	,167	-,132	,241**	-,410**	,131	1								
8. Age of firm	3,62	0,32	-,097	,129	,053	-,169	,188*	,138	-,062	1							
9. Sales growth rate	0,07	0,19	,004	-,050	-,013	,118	-,049	-,030	-,038	-,276**	1						
10. Market sentiment	0,00	0,01	-,017	-,014	,061	-,089	-,027	-,064	-,062	,107	-,115	1					
11. High tech vs Low tech	0,41	0,49	,198*	,141	,030	,091	-,316**	-,083	0,127	-,224*	-,106	,083	1				
12. Country of partner	1,80	2,16	-,010	,601**	,174*	,168	-,049	,185*	,090	,175*	-,137	,125	,270**	1			
13. Single or Multi-purpose	0,30	0,46	,021	-,041	-,179*	,309**	-,023	,000	-,024	-,096	0,166	-,063	,020	-,010	1		
14. Horizontal vs Vertical	0,19	0,39	,016	,262**	,021	-,102	-,010	-,049	,102	,159	-,072	,016	-,071	,194*	-,005	1	
15. Equity vs Non-equity	0,14	0,35	,020	,001	,112	0,173	,150	-,099	-,108	-,096	,084	-,207*	-,152	-,035	,377**	-,022	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Listwise N=128

The marketing partnership versus technology partnership variable has a significant correlation with single or multi-purpose partnership and with the partner's country of origin. The stock release versus press release variable has a significant correlation with single or multi-purpose partnership, with relative size of the partnering firms, and with focus firm's size. The focus firm's size has a significant correlation with relative size of the partnering firms and age of the focus firm, as well as

with the high-technology versus low-technology variable of the focus firm. Partnering firm's size has a significant correlation with its country of origin.

Table 8.12 Results of regression models using CAR as a dependent variable with Transaction Level Model data

Independent Variables	Dependent Variable: CAR				
	Model 3a	Model 3b	Model 3c	Model 3d	Model 3e
International vs Domestic		0,031			0,014
Marketing vs Technology			0,107		0,122
Stock vs Press				0,200*	0,210**
Firm size	-0,089	-0,092	-0,063	-0,037	-0,006
Partner size	-0,012	-0,014	-0,023	0,016	0,004
Relative size	0,270***	0,266***	0,295***	0,237**	0,262**
Age of firm	-0,001	-0,002	-0,006	0,015	0,011
Sales growth rate	0,014	0,012	0,010	0,006	0,001
Market sentiment	0,012	0,014	0,005	0,026	0,020
High tech vs Low tech	0,173*	0,171*	0,172*	0,195*	0,195*
Country of partner	-0,083	-0,100	-0,099	-0,135	-0,164
Single or Multi-purpose	-0,015	-0,013	0,016	-0,067	-0,034
Horizontal vs Vertical	0,019	0,014	0,017	0,052	0,050
Equity vs Non-equity	0,091	0,090	0,064	0,075	0,042
F-Statistic	1,75	1,598	1,716	1,962	1,800
R ²	0,142	0,143	0,152	0,170	0,182
Sig.	0,071	0,102	0,072	0,034	0,047
N	129	129	129	129	129

Table reports standardized beta coefficients.

Significance levels: * p < 0,1, ** p < 0,05, *** p < 0,01.

The age of the focus firm has a significant correlation with focus firm's sales growth rate, with the high-technology versus low-technology variable and with the partner's country of origin. Market sentiment has a significant correlation with the equity versus non-equity variable. The high-technology versus low-technology variable correlates significantly with partner's country of origin. Partner's country of origin correlates significantly with the direction of the partnership. Last, the single or multi-purpose variable correlates significantly with the equity versus non-equity variable of the partnerships.

Then, it was checked whether there are significant differences between the cumulative abnormal returns of different groups. First the distribution of the data was checked, with the test giving 2.166 for skewness and 32.141 for kurtosis. For this reason, the testing was done with Kruskal-Wallis non-parametric tests.

The international partnerships versus domestic partnerships groups, the marketing partnerships versus technology partnerships groups, countries of origin of the partnering firms groups, and equity partnerships versus non-equity partnership groups all had no significant differences in the mean values of the cumulative abnormal returns.

There was a significant difference in the mean values of CAR between the partnerships announced through stock release announcement and press release announcement groups, high-technology partnerships versus low-technology partnership groups, the single-purpose partnership and multi-purpose partnership groups and horizontal versus vertical partnership groups.

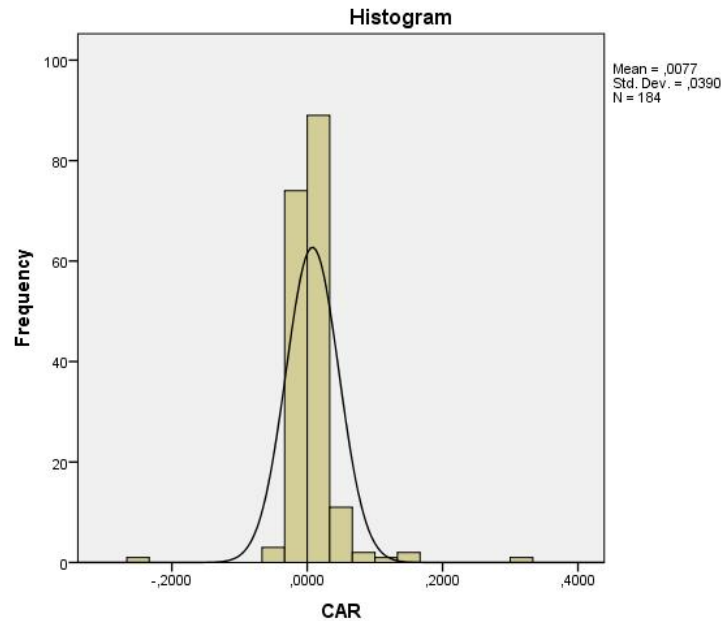


Figure 8.141 Histogram of Transaction Daily Model CAR

The two final tests were undertaken to check if there is significant difference in the means of international marketing partnerships as compared to the rest of the partnerships, and domestic technology partnerships also as compared to the rest of the partnerships. The test gave no significant difference in the mean values in both cases.

The final tests were regression where cumulative abnormal return was tested with different models. The results of different regression models can be seen in Table 8.12. Variance inflation factors (VIF) are not reported, but they vary between 1 and 1.7, staying well below the critical value of 10 (Gulati, Lavie & Singh 2009) and alleviating concerns of multicollinearity. Some independent variables with missing values were treated with listwise deletion, giving unbiased estimates for regression analysis.

The models from a to e are the same as for the Traditional and Transaction Daily Models: Model 3a is a baseline model that includes all the control variables. Model 3b has all the control variables, with international versus domestic variable added. Model 3c also includes all control variables, plus marketing versus technology variable, while Model 3d has all controls with stock versus press variable added. Model 3e includes all control and independent variables.

The relative size of the partnering firms is significant in all models and the high-technology versus low technology variable and high versus low technology variable are significant in all models except 3f, while the stock exchange release versus press release is additionally significant in models 3d and 3e. The F-Statistic is lowest in Model 3b, with a value of 1.598. All models have an F-statistic between that and 1.800 which is the value of Model 3e. Also, the statistical significance, or p-value, is less than 0.1 in all models except 3b, and in the Model 3f the p-value is less than 0,000.

In the Transaction Level Model, R^2 varies from 14.2% to 18.2%, which gives the models still relatively good predicting power compared to some other partnering event studies (e.g. Gao, Iyer 2009, Häussler 2006, Kale, Dyer & Singh 2002, Boyd, Spekman 2008).

8.2 Result Comparison of Different Methods

As the previous sections shows, there are differences in the results of each model. In this section, those differences are discussed, as well as their possible significance.

Each of the models considered different groups of events. The Traditional Daily Model had all qualified partnerships with confounding events cleaned from the three-day event window. This model also had all qualifying events that had no time stamp but of which the date of announcement was known. The Transaction Daily Model also had all qualifying events with confounding events cleaned from the three-day event window period but with the events with no time stamps removed from the data set. The Transaction Level Model had also all qualifying events, but the confounding events were cleaned from the one-hour event window and did not have events without time stamp.

Models 1 and 2 were calculated on a day level analysis, which means that only the last value of share price at the end of the day is taken into calculation. The Transaction Level Model had all transactions taken into account in the analysis.

The announcements without time stamps were all press releases, so there is no difference in the results calculated from stock releases. The remaining 18 groups had small differences in the CAR, significance, N, and number of events with a positive CAR. In the Traditional Daily Model, only four of those 18 groups had statistical significance. The Transaction Daily Model had six groups with statistical significance, so the removal of no-time-stamp events increased the accuracy of the results, at least in some cases. Apart from two groups, the number of events with a positive CAR increased by between one and seven percentage points, being on average 3.50 percentage points. This can be understood as indicating either that releases with known time are also seen at the same time and thus investor reactions are also at the same time, or else that the relative number of stock releases increases. The higher relative number of stock releases might also mean that the announcements are seen at the same time by all investors and the reaction is simultaneous and fast.

Naturally, when the number of events with a positive CAR is higher, the average CAR is also higher, in fact by an average of 0.11 percentage points, ranging from -0.52 to $+0.57$ percentage points.

The order of the different types of partnerships is the same in groups with statistically significant results, and the groups with no statistical significant results tend to have small, one- or two-step changes in the order in which they are ranked.

When comparing the Traditional Daily and Transaction Level Models, the most striking difference is that of the number of statistically significant results in the Transaction Level Model. There are 27 groups in total, and only five have no statistically significant results. Two of those can be due to the very small number of events that are in both cases equal to or less than 13. The other three groups have Ns of between 31 and 74 with very small CARs of between 0.03% and 0.12%, which might be the reason why the reaction is not statistically significant.

The number of events with a positive CAR is lower in the Traditional Daily Model compared to the Transaction Level Model by an average of 3.09 percentage points, varying between -22.60 and $+22.86$ percentage points. The reason for this may be that in the Traditional Daily Model there are a lot of events without a time stamp and which are additionally all press releases, both of which factors are likely to have lower CARs than events announced through stock exchange release with a time stamp.

Table 8.13 CAR, statistical significance, N, and percentage of positive events by partnership type calculated by different models arranged by transaction level CAR.

Type of Partnership	Day level Model 1			Day level Model 2			Transaction level					
	CAR	Significance	N	% of Positive	CAR	Significance	N	% of Positive	CAR	Significance	N	% of Positive
International Marketing Stock Announcements	5,52 %	99,9 %	31	65 %	5,52 %	99,9 %	31	65 %	2,13 %	99,9 %	39	64 %
Marketing Stock Announcements	4,30 %	99,9 %	42	64 %	4,30 %	99,9 %	42	64 %	2,11 %	99,9 %	51	65 %
Domestic Marketing Stock Announcements	0,87 %	NS	11	64 %	0,87 %	NS	11	64 %	2,02 %	99,9 %	12	67 %
International Stock Announcements	4,92 %	99,9 %	36	61 %	4,92 %	99,9 %	36	61 %	1,96 %	99,9 %	50	68 %
All Stock Announcements	3,87 %	99,9 %	50	62 %	3,87 %	99,9 %	50	62 %	1,89 %	99,9 %	67	66 %
Domestic Stock Announcements	1,18 %	NS	14	64 %	1,18 %	NS	14	64 %	1,70 %	99,9 %	17	59 %
International Technology Stock Announcements	4,17 %	95,0 %	7	57 %	4,17 %	95,0 %	7	57 %	1,43 %	99,9 %	13	77 %
Technology Stock Announcements	3,99 %	99,0 %	12	67 %	3,99 %	99,0 %	12	67 %	1,29 %	99,9 %	20	70 %
Domestic Technology Stock Announcements	3,73 %	95,0 %	5	80 %	3,73 %	95 %	5	80 %	1,04 %	NS	7	57 %
International Marketing Announcements	1,86 %	99,0 %	103	50 %	2,09 %	99,0 %	76	51 %	0,91 %	99,9 %	100	60 %
All International Announcements	1,65 %	99,0 %	118	50 %	1,88 %	99,0 %	88	51 %	0,83 %	99,9 %	124	57 %
All Marketing Announcements	1,53 %	99,9 %	144	53 %	1,72 %	99,9 %	111	56 %	0,81 %	99,9 %	143	59 %
Domestic Technology Announcements	1,07 %	NS	18	56 %	1,33 %	NS	16	63 %	0,79 %	99,0 %	23	65 %
All Announcements	1,31 %	99,9 %	173	52 %	1,50 %	99,9 %	135	55 %	0,77 %	99,9 %	184	58 %
All Technology Announcements	1,25 %	NS	34	53 %	1,64 %	95,0 %	29	59 %	0,70 %	99,9 %	49	57 %
Domestic Technology Press Announcements	0,05 %	NS	13	46 %	0,24 %	NS	11	55 %	0,69 %	99,0 %	16	69 %
All Domestic Announcements	0,58 %	NS	55	56 %	0,79 %	90,0 %	47	62 %	0,65 %	99,9 %	60	58 %
International Technology Announcements	1,45 %	NS	16	50 %	2,02 %	NS	13	54 %	0,61 %	99,9 %	26	50 %
Domestic Marketing Announcements	0,71 %	NS	41	61 %	0,92 %	NS	35	66 %	0,59 %	99,9 %	43	58 %
Technology Press Announcements	-0,24 %	NS	22	45 %	-0,01 %	NS	17	53 %	0,29 %	90,0 %	29	48 %
Domestic Press Announcements	0,38 %	NS	41	54 %	0,62 %	NS	33	61 %	0,24 %	95,0 %	43	58 %
All Press Announcements	0,27 %	NS	123	48 %	0,11 %	NS	85	51 %	0,12 %	95,0 %	117	53 %
International Marketing Press Announcements	0,26 %	NS	72	44 %	-0,26 %	NS	45	42 %	0,12 %	NS	61	57 %
Marketing Press Announcements	0,39 %	NS	102	49 %	0,15 %	NS	69	51 %	0,09 %	90,0 %	92	57 %
International Press Announcements	0,22 %	NS	82	45 %	-0,22 %	NS	52	44 %	0,06 %	NS	74	50 %
Domestic Marketing Press Announcements	0,65 %	NS	30	60 %	0,94 %	NS	24	67 %	0,03 %	NS	31	55 %
International Technology Press Announcements	-0,67 %	NS	9	44 %	-0,48 %	NS	6	50 %	-0,21 %	NS	13	23 %

The cumulative abnormal returns cannot be directly compared as the Traditional Daily Model has accumulated its CAR over a three-day period and the Transaction Level Model only over a one-hour period. Indirectly, these can be compared by looking at the order of groups when sorted by CARs. The first, International Marketing Stock announcements and the last, International Technology Press announcements, are in the same places in both models. Interestingly, Domestic Press Announcements, All Press Announcements, and International Marketing Press Announcements are also in exactly the same places, at 21st, 22nd, and 23rd, respectively.

Even though the exact order is somewhat different, the general order is very similar. When comparing the Traditional Daily Model to the Transaction Level Model, the first ten groups are the same except for Domestic Stock announcements, which has dropped from 6th to 14th, and Domestic Marketing Stock Announcements, which has dropped from 3rd to 16th. These two have been replaced in the Traditional Daily Model by groups from places 11 and 12 from the Transaction Level Model (respectively, All International Announcements and All Marketing Announcements). Also, the last ten groups are roughly the same, even though in different order. The only striking difference is that Domestic Technology Press Announcements has dropped from 16th to 25th.

Overall, the changes in places were quite small, except for Domestic Marketing Press Announcements (up eight places in the Transaction Level Model compared to the Traditional Daily Model), International Technology Announcements (up seven places), Technology Press Announcements (down six places), Domestic Press Announcements (down eight places), Domestic Technology Press Announcements (down nine places), and Domestic Marketing Stock Announcements (down 13 places).

On average, the CAR increases 111% from the one-hour to three-day event window models in groups where both results are statistically significant. All the changes are positive except one, that of Domestic Marketing Stock Announcements (-57% change). If the negative group is not taken into account, the change from the Transaction Level Model to the Traditional Daily Model averages +128%. This means that that if the CAR increases within half an hour after the announcement, it will be on average 111% higher on the evening of the following day.

The Transaction Daily Model results are very similar to those of the Traditional Daily Model, so there is no need to compare Transaction Daily Model to Transaction Level Model and repeat the discussion.

Table 8.14 contains the regression results of the three models including all independent variables from all analyses types. The significant variables are mostly different, apart from relative size of partnering firms, which is significant in all models. In day level analyses (Models 1e and 2e), the internationality of the partnership has a significant effect on the results, and age of the partnering firm is also significant. The direction of the partnership has a significant effect only in the Traditional Daily Model, whereas in the Transaction Daily Model it was just under the limit of being significant. In the transaction level analysis (Transaction Level Model), the significant variables were different from the day level analyses apart from that of relative size. The other significant variables in the transaction level analysis were stock release and high technology.

The significance of all models is high, but the order is interesting. The highest level of significance is found in the Traditional Daily Model, which uses data that includes the no-time-stamp events. The Transaction Daily Model, which only includes events with a time stamp, has a slightly lower level of significance, and the Transaction Level Model, with analysis done at the transaction level

with all events having time stamps, has the lowest significance, even though it is still clearly in good level.

Table 8.14 Regression result comparison of models with all variables

Independent Variables	Dependent Variable: CAR		
	Model 1e	Model 2e	Model 3e
International vs Domestic	0,215*	0,246*	0,014
Marketing vs Technology	0,072	0,072	0,122
Stock vs Press	0,152	0,096	0,210**
Firm size	0,011	-0,003	-0,006
Partner size	-0,093	-0,091	0,004
Relative size	0,255**	0,270**	0,262**
Age of firm	-0,218**	-0,207**	0,011
Sales growth rate	-0,128	-0,124	0,001
Market sentiment	-0,056	-0,083	0,020
High tech vs Low tech	-0,014	0,017	0,195*
Country of partner	-0,196	-0,208	-0,164
Single or Multi-purpose	0,029	0,110	-0,034
Horizontal vs Vertical	-0,169*	-0,154	0,050
Equity vs Non-equity	-0,005	-0,025	0,042
F-Statistic	2,446	2,152	1,800
R ²	0,248	0,266	0,182
Sig.	0,005	0,017	0,047
N	119	98	129

Table reports standardized beta coefficients.

Significance levels: * $p < 0,1$, ** $p < 0,05$, *** $p < 0,01$.

The explanatory power of the models is also interesting. The Transaction Level Model has the lowest explanatory power with 18.2% with that of the Traditional Daily Model's being in the middle, at 24.8%. The Transaction Daily Model had highest explanatory power at 26.6%, which is quite good even when compared to previous studies (e.g. Häussler 2006, Sleuwaegen et al. 2003, Das, Sen & Sengupta 1998).

PART V: CONCLUSIONS AND DISCUSSION

9 Conclusions

9.1 Answering the Research Questions

There has been several studies on whether partnership announcements create shareholder value. Even though some of the results have been inconclusive, and sometimes even contradictory, the evidence seems to support that the announcements create shareholder value.

There have been some gaps in the research this far and hence this study set off to peruse whether different types of partnership announcements create different reaction in the stock market. Moreover, the research used a new transaction level method to examine whether the more rigorous method would expose some additional information on stock market behavior immediately after the partnership announcements have been done.

Based on those research question and theoretical discussion on several areas relating to among others firms, their actions in the market environment and different factors affecting share prices and their changes, six hypotheses were developed. The answers to the hypotheses questions are collated as Table 9.1.

Table 9.1 Findings related to research hypotheses

Hypothesis	Traditional Daily Model	Transaction Daily Model	Transaction Level Model
<i>Hypothesis 1: Announcing a partnership causes a positive and significant abnormal return in the share price of the announcing firm.</i>	Supported 1,31%***	Supported 1,50%***	Supported 0,77%***
<i>Hypothesis 2: Partnerships announced through stock releases have a higher abnormal return than partnerships announced through press releases.</i>	Supported Stock: 3,87%*** Press: 0,27%	Supported Stock: 3,87%*** Press: 0,11%	Supported Stock: 1,89%*** Press: 0,12%**
<i>Hypothesis 3: Marketing partnerships have a higher abnormal return than the Technology partnerships.</i>	Not Supported	Not Supported	Not Supported
<i>Hypothesis 4: International partnerships have a higher abnormal return than the domestic partnerships.</i>	Not Supported	Not Supported	Not Supported
<i>Hypothesis 5: International marketing partnerships have a higher abnormal return than the other partnerships.</i>	Not Supported	Not Supported	Not Supported
<i>Hypothesis 6: Domestic technology partnerships have a lower abnormal return than the other partnerships.</i>	Not Supported	Not Supported	Not Supported

Hypothesis 1 is clearly supported by the data in all models used showing on average of 1.31%, 1.50% and 0.77% CAR after a partnership announcement for all the three models used. Hypothesis 2 is also clearly supported, the results showing partnerships announced through stock exchange release to have gained, within half an hour, an average of 1.77 percentage points higher CAR more than the respective announcement made by press release. The difference is highlighted in the two day level models, where the difference has grown to 3.6 and 3.76 percentage points, showing that there is clear difference in the announcement channels.

Hypothesis 3 is not supported by the data. Even though there is small difference in the average CAR gained within the half-hour period, the difference is not statistically significant and thus not supported. The same applies to Hypothesis 4, where there is small difference between the groups but again, not one that is statistically significant.

Both Hypotheses 5 and 6 are also not supported by the data. In both cases, there is a small difference in the statistically significant CARs gained, but the difference itself is not significant according to the Kruskal-Wallis test.

The different models give consistent results, which can also be seen as a confirmation of the better results provided by the transaction level model. The main difference is that the abnormal return is higher in the day level models as there is more time for the markets to estimate the right level. The Transaction Daily Model also gives a slightly higher abnormal return, most likely because the lower number of press releases and remaining ones all have time stamps, allowing for identification of the exact announcement time.

Resting upon the findings related to the hypotheses, also the research questions can be answered. The first research question asked whether different types of partnership announcements result in differing stock market reactions. The data used in this research shows that there is no difference in market reaction depending on what function of the firm is partnering nor does the nationality of the partner, when comparing only domestic partnerships to international ones.

What does shows a clear difference is the channel used in announcing the partnerships. While this is not depending on the type of partnership, it is a difference in the announcement type which the second variable in the research question.

The second research question was whether the transaction level measurement of the stock market reaction differs from the day level measurement. As was expected, the data used in this research shows that both methods give the same type of reaction but the transaction method reveals more elaborate demeanor of the firms' share price reaction.

9.2 Contribution of the Research

The research conducted for any dissertation aims to make contributions in the area of the research focus. The contributions made can be divided into theoretical and practical implications. The subsections below present the new information this dissertation brings to the research area.

9.2.1 Theoretical Implications

This dissertation contributes to the event study method by taking it from day level analysis to transaction level analysis. Over the past decades, the event studies have been performed at day level data analysis, resulting in an equally rugged outcome. Day level analysis does not allow observation of the nuances in the immediate reactions or short term changes in reactions of the market, for

example to new partnership information. The transaction level inspection of market reaction gives new information about how the markets really react to new information and how this changes over both short time and long time.

The results of the analysis using the Transaction Level Model show clearly that the market reaction is immediate, which in Transaction Level Model used here meant 3 minutes, and that a large part of the reaction occurs within three to eighteen minutes of the announcement. In general, the reaction is faster with stock exchange release announcements than press release announcements. Also the reaction is more unified with the stock exchange than press release announcements, where the reaction has more volatility in size and direction. Also, 18 groups out of the total 27 groups have reactions with statistical significance ($p < 0.01$), a rate of two-thirds which is very rare even in studies with a two- or three-day event window (e.g. Sleuwaegen et al. 2003).

The transaction level event study method is optimal for researching very short term market reactions both before and after an unanticipated event and also when comparing different types of events.

This dissertation also contributes to the body of research conducted in partnering event studies and the related area, the signaling of firms, revealing the difference in reactions of the markets to similar kinds of news communicated through different types of media. The research on signaling has long shown the importance of signal characteristics to the interpretation of the message (Heil, Robertson 2006), but the event studies done previously have used databases (e.g. Swaminathan, Moorman 2009) or daily newspapers (e.g. Boyd, Spekman 2008) with only approximate information on when the markets had the information available. This research shows the clear benefits of studying market reactions based on the exact timing and release of announcement through a particular channel.

If the results of this research are compared to those of previous studies, there is also difference in the found reaction. Table 9.2 lists some event studies carried out in the area of international, marketing or technology partnerships and the size of cumulative abnormal return found in them. Even though all the CARs of the selected results listed in Table 9.2 are significant, their sizes are mostly of the order of one to two percent, with some exceptions like Sleuwaegen's (2003) high percentage gained with an eight-day event window and Häussler's (2006) very good results on her one-day event window study.

The Transaction Daily Model would be the best of the three used here to compare to event studies because this is day level analysis with three-day event window and only includes events with exact time stamp. The market reactions measured in CAR are between 3.7% and 5.5% for all groups announced through stock exchange release and with statistically significant results, indicating a strong reaction to unanticipated partnering actions.

The results show that knowledge of the exact moment of announcement has a clear effect on the research results. Different types of databases or newspaper archives cannot guarantee that the news has actually been received by the markets simultaneously and thus may not be the best source for obtaining news and related dates to be used in event studies.

Table 9.2 Results of some previous partnering event studies

Research	Alliances From Years	Focus Country	Sample Size (Alliances: N Firms: F)	Average CAR Found in the Research
Crutchley, Hansen (1991)	1979–1987	USA & Japan	F=146	1.08%* for Japanese partners (announcement week) 1.05%*** for U.S. partners (announcements week)
Das, Sen, Sengupta (1998)	1987–1991	USA	N=119	0.5%** for all partnerships (days 0,+1) 1.1%*** for Technology partnerships (days 0,+1) 0.2% for marketing alliances (days 0, +1)
Neill, Pfeiffer, Young-Ybarra (2001)	1987–1994	USA	F=89	0.6%** for IT R&D strategic partnerships (days -1,0)
Merchant (2002)	1986–1990	USA	N=351	0.3%** for international JV announcements (2 day window)
Sleuwaegen, Schep, den Hartog, Commandeur (2003)	1985–1992	Netherland	N=105	2%* for Dutch with European partners (days -8,0) 2.70%* for Dutch with European technology partners (same) -3.7%* for Dutch with all Japanese partners (same) -6.9%* for Dutch with Japanese technology partners (same) -2%* for Dutch with all non-Triad partners (same) -2.2%* for Dutch with non-Triad Marketing partners (same)
Haeussler (2006)	1997–2002	Germany	N=1037	3.9%*** for all partnerships (event day) 4.7%*** for high-technology firms (event day) 2.2%*** for non-high-technology firms (event day)
Swaminathan, Moorman (2009)	1988–2005	USA	N=230, F=103	2.3%** for marketing partnerships (days -1, 0)

Significance levels: * p < 0,1, ** p < 0,05, *** p < 0,01.

This research also contributes to the study of different types of partnering on a more fine-grained level. Previous studies have bundled item like all marketing partnerships in one group without trying to see if there are any differences among the marketing partnerships themselves. This dissertation adds value to the analysis of partnerships on a finer level, enabling more specific discussion on the types of partnerships.

9.2.2 Practical Implications

On a practical level, the contributions of this dissertation may be of benefit to managers responsible for partnering and public relations, or generally, in senior management.

One practical contribution in this respect is the clear immediate reaction of the markets when new information is made available. Firms often have several issues to announce during the same week or even the same day, so understanding the reaction markets are likely to have can aid in planning the announcements in advance. Firms should be aware that the evidence of this study suggest that to maximize the immediate market reaction, announcements should be given to the markets through channels where the simultaneous acknowledgement of the news by the markets can be assured.

When firms plan the channel for announcement keeping reaction maximization in mind, it is good to know the difference between the announcements made through press release and those through stock exchange release. As this research shows, markets make a clear distinction between the information received through different channels.

One more practical contribution this research is the finding that there is not much difference between different types of partnerships. Some of the characteristics of firms have an effect on the reaction to partnership announcements, but that is something a firm cannot change in the short term. The main way to gain the best possible wealth effect on a partnering effect is to make sure the partnership is announced properly to the markets.

9.3 Validity and Reliability

Validity is an indicator of whether a measure actually measures the concept that it is used to represent. In other words, to what extent does a measuring instrument measure what it is purporting

to measure, rather than reflecting some other phenomenon (Carmines, Woods 2005)? Validity, through measurement, involves both theoretical and empirical deliberations. Thus, if the relationship between the concept intended to be measured and the indicator doing the measuring is not valid, the conclusions drawn from this indicator for the relationship will not be correct. This point is made with McDonald's (2005) rider that the validity is more a matter of degree than an absolute, as no variable captures an abstract concept perfectly.

There are several types of validity, some of them overlapping or even exactly the same with just a different name. In this section, five types of validity relating to this dissertation are discussed. The discussion starts with *content validity*, *criterion-related validity* and then *construct validity* (Carmines, Woods 2005), and then, from a slightly different perspective, *internal* and *external validity* (McDonald 2005).

Content validity focuses on whether a particular empirical measure reflects a specific domain of content (Carmines, Woods 2005). There are two steps in obtaining content validity. The first is to specify the domain of content that is relevant to a particular measurement situation, and the second step is selecting the specific indicators that are used to measure content. In the context of this dissertation these steps can be understood to question whether the share price change represents the change in the expectations of the investors.

In the whole domain of content at measurement situation, which is the moments after the new information has been released to markets, investors have all the knowledge they had before the new information was added in addition to that new information. If the information known earlier would have influenced the share price, it would have already done so, and all influence after the new information therefore comes from the combination of the new information with the old. Thus, in this content, the relevant domain is the additional news and its reflection in the share price, which is the specific indicator from step two of the content validity.

The next type of validity is *criterion-related validity*, which is concerned with the correlation between a measure and some criterion variable of interest. McWilliams and Siegel (1997), as well as Madhavan and Prescott (1995), have discussed on the validity of event study method and the correlation between CAR and AR with unanticipated news released to markets. Both papers agree that event study methodology is valid in this type of research, but McWilliams and Siegel (1997) highlight some empirical implementation issues, which are discussed next.

Construct validity is concerned with whether the constructed operationalized model actually measures what it is expected to measure. This comprises three steps. First, the theoretical relationships between the concepts must be specified; second, the empirical relationship between the measures of the concepts must be examined; and third, the empirical evidence must be interpreted in terms of how it clarifies the construct validity of the particular measure (Carmines, Woods 2005).

The theoretical relationships between the concepts required in step one have already been considered (Section 4.1). Let it suffice here to note that an investor discounts a firm's future dividends to current price and adjusts the price according to this expectation of the future dividends. Thus, additional information suggesting higher or lower dividends in the future is reflected in the share price of the firm. Due to the efficiency of markets, this change in expectations can be seen in the share price behavior differing from long term average compared to a market index, the differing adjustment termed "abnormal returns." Step two continues the same relationship examination and requires further clarification. There are event studies (e.g. Gulati, Lavie & Singh 2009), as well as

market reactionary studies (Busse, Clifton Green 2002), in which the connection between additional news about a firm and that firm's share price reaction has been established. This research uses the same methodology of tested relationship.

Even though the relationships between the concepts are tested, McWilliams and Siegel (1997) remind us that there are several empirical implementation issues which need to be taken care of. The first of these issues is sample size, including both aggregated and disaggregated samples. In this research also, some of the samples are small and treated accordingly, to avoid non-valid results. The second issue is outliers, which need to be checked with nonparametric tests for possible effect in the end-results. This has also been done. The third issue is a justified event window length, which tends to be too long in many studies. In this research, the event window is at longest three days, one day before and after as well as the day of the event itself, which is short enough for an event study. Also, on the transaction level, the one-hour window is short enough for the present research purposes. The fourth issue is that of confounding events, which in this research are checked except in the day level Transaction Daily Model, where they are included for comparison purposes. The last of the issues is that of explaining where the excess returns are coming from, which is also included in this research as a main focus.

With all the above mentioned empirical issues implemented properly, the third step, interpreting the empirical evidence in the light of how it clarifies the construct validity of the particular measure, is easy. The chain of construct with proper empirical implementation clarifies the validity of abnormal return validity in this research.

Internal validity focuses on the extent to which the relationship between one concept and another concept is warranted in the research question under study (McDonald 2005). This can also be seen as causality steps from assumptions to the results throughout the research. It includes questions like whether the events happen in the order explained (i.e. whether abnormal returns in share price follow the announcement or the share prices react before the announcement). The research construct shows that the share price reaction occurs after the announcement, so the causality is clear.

Internal validity also concerns possible bias in the data samples (i.e. whether only the positively reacting events are selected in the study). As all the available events are included, there is no bias in the event selection here. The next issue for internal validity is that of whether there are other factors explaining the observed reaction (i.e. are there, for example. confounding events that explain the abnormal returns). Taking into account the proper implementation of this event study as well as the number of events included, the likelihood of another explaining factor is very small. Taking into account the other validity types listed above and the internal validity concern areas, it can be said that this dissertation is high in internal validity.

Finally, *external validity* refers to the generalizability of the relationships between the concepts studied (McDonald 2005). This can be understood at least in two different ways. One is whether the partnering announcement chain of concepts to abnormal returns can be used in other stock exchanges. The answer is clearly positive here as the same methodology for partnering has already been used in other stock exchanges. The second generalizability possibility concerns whether the methodology and chain of concepts can be used in other types of events apart from partnering. Again, the answer is positive here, as this methodology has been used with other types of events as well.

Another concept important in research is that of *measurement reliability*. Measurement is considered reliable if it is consistent from one measurement to another (Alwin 2005), that is, the

measurement produces similar results under similar conditions between different measurements. Reliability is often divided into two concepts: random errors of measurements and systematic errors of measurements. Systematic errors are those which are always similar, such as a measure that always produces results that are three units too high in value, while random errors are those which, as the name suggests, are random.

The probability of systematic error in the data is very low as the data was received directly from Nasdaq OMX and is the same data produced by stock market transactions. If the data were wrong, either systematically or randomly, the effects would be quite large in the markets in general. Other data, which are manually collected, have been triangulated to reveal any possible systematic or random error. The software programs used in this research are either commercial programs, which are in general believed to be reliable, or the self-made program, which was rigorously tested before use in the research. Taking into account the data sources and data collection process, the research can be evaluated as high in reliability.

9.4 Limitations

This dissertation focuses on wealth creation caused by partnering announcements during certain years by the firms listed in the Helsinki Stock Exchange, and thus the limitations arise from the data and method used in the research.

One limitation of this research is that it has taken announcements from the years 2006 to 2010, and the reaction to partnering announcements may have changed over the years before, during or after the time specified. This research does not study reaction trends over time. Additionally, even though the best possible effort has been made in order to include all partnering announcements in the study, there is no way of knowing if all have, in fact, been included. One reason for this is that the web sites of the firms keep changing. It was noticed during the study that some press announcements found early in the research could not be found any more in a later phase. Stock exchange releases were easier to track as they need to be available by law, and also there are several places where all the stock exchange releases are collected.

Even though the best possible effort has been done to include all relevant partnership announcements to this study, the amount of 292 announcements, or less than one announcement per firm per two years, in the transaction level analysis, can be seen a low number of partnership announcements. The conclusions, nonetheless, are drawn from the results gained with these raw data and hence may be affected from the low number of announcements.

An additional limitation with the press releases was that if a company had press releases both in Finnish and English, only the Finnish ones were collected. If there were only English press releases, then they were collected. There is a possibility that there may have been English press releases which included information which was not included in the Finnish press releases. The starting point for this research was the study of Finnish companies in the Finnish stock exchange where mainly Finnish investors operate and this omission was thus seen as justifiable.

The “Finnishness” of this research leads to another limitation. Finland as a country is relatively small market for global companies. Further, the Helsinki Stock Exchange is also seen as “small and peripheral” from the institutional investors’ point of view. All these things together may limit the generalizability of the results of this study. Many issues touching the partnership announcements may have differing effects on stock exchanges where firms with larger (or smaller) domestic markets are traded. Those issues include, among others, channel used in the announcements and market preferences about international versus domestic partnerships.

There is also large discrepancy in the number of press releases versus the number of stock exchange releases. The ratio is one to one in 2006, but grows gradually and the discrepancy is largest in 2010 where the ratio is almost nine to one. Whether this discrepancy has an effect on the results is not known. This possible limitation needs to be remembered when looking into the results.

Another limitation lies in the Traditional Daily Model. This model uses large numbers of announcements with no time stamp, which gives a larger margin of error in the CAR and also in the significance. The model as employed replicated the traditional way of doing event studies, so the no-time-stamp events are justifiable. Announcements with no time-stamp could not be analyzed in the other two models and thus had no effect on them.

Further, there were 35 firms which did not make a single partnering announcement during the five-year time span. This is roughly 28% of the firms listed in the Helsinki Stock Exchange. The number of firms in the final selection is 70, which is 56% of all firms listed. This means that an additional 20 firms were disqualified because of a “wrong” type of partnership, no time stamp on the announcement, or for another reason. Firms not making the type of partnership announcements that were the focus of this research during the specified time period included both large and small firms, so there was no clear bias towards certain kind of firms. Nevertheless, the large number of firms not included in the study may have had an impact on the results.

Also, among the firms in the study, some small firms were included. There were only few transactions with these firms’ shares related to some of their events in the event window studied and this may have had an effect on results. The possible effect is likely to be small because the calculation program used in the analyses automatically discarded an event if there were too few transactions during the event window.

Additionally, as the study focused on the announcements made by the firms listed in the Helsinki stock exchange, the results may differ in other countries, for example, if their home markets are larger and more attractive than Finland’s home markets. Despite this, the results should be generalizable at least to most other European stock exchanges.

One more limitation is the type of partnerships. Only certain types of partnerships were studied and the reaction to other types cannot be known. It may be that the reactions to other partnership types are similar to the ones studied, but this needs further research.

Finally, this research used realized transactions as an agent to reveal the market valuation of partnerships. Using only the data from realized transactions generates additional noise in the market reactions when the realized transaction is made sometimes on the bid-side and sometimes on the ask-side of the offers. One way to bypass this would be to use a weighted average price of bid and ask prices.

10 Discussion and Recommendations for Further Research

This section contains a discussion of the results and methodology, as well as some suggestions as to what could be further researched in this area. Also included are some opinions and comments by the author.

10.1 Discussion

Despite three different models used in this research, there are only two *methods* used. One is day level event study, where the market reaction is checked by a day's last share price of each firm and these compared to the market index. The other method is a transaction level event study, where basically each transaction can be taken into account, and in this research the transactions were taken into account with three minute steps and then the share prices of these transactions compared to the market index.

The results from both methods are in principle the same, but the day level shows the abnormal return with longer steps and for a longer period whereas the transaction level shows very short term changes in the market reaction with steps only minutes apart.

The day level method thus shows more of the permanency of the abnormal return in the share prices. It means that if there are intra-day, fast changes in the share price for some reason, these are not necessarily reflected to the last share value of the day and thus in the day level examination. In exchange, the constancy of the abnormal return over a longer period of time can easily be followed at the day level with a lower level of computation power. In fact, the day level and transaction level methods are the same if the step length is set to 24 hours in the transaction level method.

Table 9.2 shows results of some previous partnering event studies done with the Traditional Daily Model. The results show considerably lower CARs than the results in this research. Depending on what is the "typical" time for announcing partnerships in those cases, amount and size of firms announcing partnerships, and other factors affecting CAR, one possible reason for the lower CAR may be that sudden share price increase in one major firm inflicts increase in other same industry firms' shares and also maybe in other firms as well, causing the market index itself to have small "cumulative abnormal return" by the end of the day. This in turn would lower the CAR of an individual firm that made the announcement.

The transaction level examination of the abnormal return of share prices is very useful in following the short term changes in share prices after an event, or even without any event. The minute-by-minute follow-up of the market reaction is very useful to understand how the market really works and what may be the underlying reasons. For example, after a certain type of announcement the share prices might fluctuate rapidly, which may indicate that the markets are not sure how to react to that kind of announcement. Respectively, after another type of announcement the reaction might be very strong with no hesitation, showing, perhaps, strong confidence in the new information and its benefit to the firm announcing it. Another benefit from a transaction level follow-up is that it can also be used to see what is happening to the share prices *before* an announcement is made. If the announcement is expected, the market expectation can be seen, and if the announcement was not supposed to be known by the markets, this also can be verified using transaction level calculation.

As mentioned, the day level method is actually the same as the transaction level when the step is set to 24 hours. During the research, several different steps from one minute to two hours were tested to see what the results show and how the markets react in different time spans. Even though the transaction level event study clearly shows benefits and reveals new information about market

reactions, also the longer time step methods may be useful in the future as different intervals are useful for different analysis purposes.

The next discussion concentrates on the different *models* used in this research. Apart from using the two different time step values, the models also differed in the data set used in the analysis. Looking into the data sets, the Traditional Daily Model was the only one that contained events with no time stamp. There were 49 of these in the group of 206 making this almost 24% of the total. It cannot be confirmed whether these 24% of all events were announced before, during, or after trading time, or whether all investors were actually aware of the news. This increases the uncertainty of the data used and thus suggests that the Traditional Daily Model data is the most unreliable and thus the results also the most uncertain. As the results of Models 1 and 2 are in any case very similar, only the Transaction Daily Model results are further discussed here.

The results supported only two hypotheses of the six which partially supports previous studies. All previous studies took a group, such as marketing partnerships, calculated its CAR, and compared that to another group's CAR, such as that of technology partnerships, without confirming the significance of the difference in the CAR. If this study had not used Kruskal-Wallis to confirm the significances of the differences in the average CARs, all six hypotheses would have been supported (i.e., based only on the size of the observed CAR). This means that on average the CARs are as the hypotheses show, but the differences are not large enough to be statistically significant.

Another difference between this research and previous research is the division of data into more specific groups. In earlier studies there were groups like marketing and technology, but these were not divided into more specific groups, like international and domestic marketing. Again, there were differences between these groups, but they were not statistically significant in all cases. For example, in the Transaction Level Model, there is significant difference between International Marketing Stock announcements (CAR 2.13%) and International Technology Stock announcements (CAR 1.43%), whereas there was no significant difference between International Marketing Stock announcements (CAR 2.13%) and Domestic Marketing Stock announcements (CAR 2,.2%).

In some cases the differences in the market reaction were very strong and in some cases there was practically no reaction at all. It may be that if all, or at least a large enough group of investors notice an announcement and judge it to be positive (or negative) and react to the same direction, then each investor's reaction is magnified by the other investors' reactions. Also, nowadays much used high-frequency-trading (HFT) is further amplifying reactions. HFT is performed with computers that sell and buy shares at very high speeds according to certain algorithms decided by the investors. There may be algorithms that react to sudden increase (or decrease) in price and start buying the share in the expectation of the share price increasing (or decreasing) further. This will strengthen the increase (or decrease) until finally it becomes very strong and can be seen in the CAR or AR figures.

The same issue can be seen in the difference in reactions to announcements made through stock exchange releases as compared to those made through press releases. As the data showed, there is a statistically significant difference in the reaction between these two groups. It may be that all investors in Finland are following stock exchange releases very keenly, having the release listing, which shows all new releases, open in their computer all the time which then enables them to react quickly when an announcement is made. In the case of press releases, a firm sends the information to different media participants which all decide themselves whether and when to publish the news. This may mean that market players are not aware of the announcement at the same time and thus that the reaction is not as strong and fast as in the case of stock exchange releases.

Before returning to list further factors affecting the models and their possible impacts, this discussion on signaling can be taken a bit further. Is there any other characteristics in the partnership announcements, or boundary spanning that could affect the results gained. It could be posited that more important partnerships are signaled through stock exchange releases and low impact, or low importance one through press releases. This research is not looking into the content of the announcements thus making it impossible to say anything certain, but superficial skimming of the announcements seems to be against this assumption.

Further, when studying firms' announcements about boundaries, it must be asked why these actions are signaled, whom they are signaled to and what is affecting the signaling itself. When it can be relatively safely said that the signals are for the environments, it must be remembered that the environments consist of several different participants with conflicting interests. Where it might be beneficial for the management to signal the owners and investors that they are doing acts which are increasing the value of the firm in the long run, the same information may be revealing too much, for example, about the firm's strategies, or even about specific future product releases, to a competitor. It is clear that the management needs to consider different benefits and detriments of the signaling before it is actually done. In addition to the channel used, important issues are whether the boundary spanning is announced at all and how it is worded to the larger public. It may be that it is better not to announce a partnership at all, or leave something important out of the announcement in order not to alert competitors.

When looking how the different theories of the firm are contributing to the discussion of boundary spanning of the firms. In relation to transaction cost theory of the firm, signaling partnering actions displays that the firm cannot "make" something alone, whether it is too costly to do something or it is too costly to acquire the capability to do something, and is thus acting on to stretch boundaries by engaging in a hybrid form of organization to achieve its targets. The principal-agent theory continues from here bringing up the possibility that the manager of the firm is not acting on the best intentions toward the owners of the firms but opportunistically sees a possibility to maximize his or her personal reward in partnering with another firm. This is one of the issues impacting on the credibility of the firm and which must be judged by the investors before evaluating the impact of a partnership to the signaling firm.

Contribution of the evolutionary theory of the firm to the boundary discussion lies in creative destruction area. When firm signals about boundary changes, it can be seen to demonstrate to the environmental participants that it is observing the dynamic changes in the markets and is actively pursuing actions giving it competitive advantage and thus possibly meaning a better performance in the future.

Different aspects and interpretations of the firm boundaries are essential in competing in the present day global environment. *What* is signaled and *how* it is signaled can be sometimes as important as the partnering action itself in interpreting how the act itself and the signaling are affecting the competitive position of the firm and how its position in the future should be evaluated.

One factor relevant in all models is that of whether the partnership is a single purpose or has more than one purpose. This may also be quite clear to rationalize. If, for example, a large company signs a sales partnership agreement with another company, there may be more profit on the way. However, if the partnership agreement includes also logistical and production cooperation, the commitment of the parties may seem higher and the expected profits should also be higher, warranting a higher share price.

The Transaction Level Model shows a statistically significant difference in high technology company and low technology company CARs. The explanation may be that the low technology companies are operating in a more stable environment where the changes are slow and partnerships are mainly established to sell to new geographical areas or, in the case of technology alliances, the benefits may come after quite long time or the innovations are not expected to be disruptive with high revenue expectations. On the other hand, it may be that high technology companies are not able to produce these new disruptive innovations fast enough by themselves, so they need partners to generate the high yielding innovations to market in the time span the competition allows.

Another statistically significant factor is the CAR between the horizontal or intra-industry partnerships and the vertical or inter-industry partnerships. The Transaction Level Model shows that there is a statistically significant positive difference in the CAR produced by intra-industry partnerships as compared to the partnerships between different industries. The reason may be that investors believe that firms in the same industry, like a reseller or technology partner, are able to bring higher benefits than a firm coming from different industry with maybe very different expectations of the partnership and ways of working increasing the risks related to practical operations of the partnership.

10.2 Partnering Announcements in Publicly Traded Finnish Companies

This research shows that there is statistically significant and positive difference in the CAR produced by announcements made through stock exchange release as compared to those made through press releases. This research also clearly shows that both relatively and absolutely more announcements were made through press releases than stock exchange releases. There were also indications that in some cases there was not a constant practice event within one company in making the announcements, allowing same type of announcements to be made through different channels.

It may be believed that the same type of difference in the reactions between the channels can be noticed in other unexpected announcements and also in the practices of the firms. If this is true also in other announcement types, it means that the firms are not using their signaling efficiently to increase the share price. According to this research, there can be a two-percentage point difference in a one-hour window and almost six-percentage point difference in a three-day window between same type of announcement but using different channels. To put it another way, a company's share price may be on average 6% higher the following evening after the announcement if the announcement is made through stock exchange release as compared to same release made through press release.

The reasons for this practice can only be guessed at. It may be that internal company processes are easier for press than stock exchange releases, or that the official requirements of the stock exchange are demanding. These possible reasons combined with the firms not knowing the benefits of the releases through stock exchange release may move the announcement practice towards using mostly press releases resulting in share price losses that may in the long term be significant to the value of the firm.

10.3 Wealth Creation through Partnering Actions in the Future

Many researchers have stated that the number of partnerships have increased over the past years (e.g. Park, Mezias & Song 2004) and continue to do so. Möller (2005) argues that the partnering becomes increasingly important in the future in keeping the present business competitive by operational efficiency, thereby improving competitiveness of the present business by participating

partnerships and finding new business by developing new capabilities (Möller, Rajala & Svahn 2005)

When partnerships are made, most of the effort goes into planning the partnership and to the co-operation between the firms. This is quite right. But, together with partnerships becoming more common it is also important to communicate to investors the reason for partnerships and the value of a partnership to the firm. This requires paying attention to the timing and clarity of the announcements, as well as carefully considering the media through which the announcements are made. This assures that the investors are aware of the true value of the partnership and that the wealth creation through the partnerships is maximized to the full benefit of shareholders.

10.4 Recommendations for Further Research

The wealth effects of partnering and many other competitive actions have been studied earlier, but by no means is the area empty of interesting topics. As this research shows, there has been a change towards announcing partnerships through press releases instead of stock exchange releases. It would be interesting to look into the reasons why this has happened over the years and whether it still continues when the managers of a firm know that there is difference in the market response.

The PR function of a firm is quite interesting and there are many more areas that are worth studying in addition to the announcement channel selection decision-making mentioned. One is any possible difference in market reactions depending on the clarity of the announcement. For example, if the announcement clearly states the expected benefits, is the market response more accurate and fast than that when the announcements are full of technical language and without a clear statement of the expected benefits? Additionally, is there the issue of the relationship between the use of press release and the bluffing purposes of the announcement (Prabhu, Stewart 2001).

Market reactions are also one interesting area of research. Over the past few years there have been large changes in the stock markets with very aggressive bullish and equally aggressive bearish markets in relatively short time periods. It would be interesting to study whether a bullish or bearish market makes any difference to the reaction to partnering or other competitive action and whether there might be any difference in the short term, day-to-day, or even moment-to-moment, level market sentiment and the responses they generate to unexpected news. Further, now when the possibility to transaction level studies has been started, it would be interesting to analyze market reactions in trading volume or in volatility to announcements.

If transaction level studies become more widely used, it would be beneficial to pay more attention to the method. In this research, the response was measured by realized transactions, not by intentions. This means that if one share was sold at a certain price, this was accepted as the market price. In reality, there could have been thousands of buyers willing to pay less or tens of thousands who would only have sold at a higher price. It could be argued that the highest volume of willingness to buy or sell, or its average, would be a better reflection of the “real” market price. This and its impacts on event studies should be studied in the near future to get a better understanding of the workings of the markets and the place where it is reflected, the stock exchanges.

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