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Master of Science in Finance

The Profitability of Swedish M&A Deals:
Does Acquisition Yield Abnormal Returns to Shareholders?

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Abstract

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The Profitability of Swedish M&A Deals: Does Acquisitions Yield Abnormal Returns to Shareholders?

by Louise Dufwa and Jesper Edman

Adapting a modern perspective, this study investigates whether M&A activity in Sweden is value creating or value destroying for shareholders. We study the effect of Swedish M&A announcements from an acquirer perspective. Using data covering three years on Swedish firms performing national acquisitions, we find positive market reactions to firms announcing a takeover. Our results are important contributions since we conclude that M&A deals with a focus on the financial and real estate sector yield lower returns to its shareholders compared to other industries. Instead of explaining lower returns due to tax rules and non-hostile takeovers, we argue results depend more on lack of synergies and lower asymmetric information.

Keywords: *Mergers and Acquisitions, Corporate Control, Value Creation, Shareholder Wealth, Financial Mergers, Real Estate, Payment Method, Market Timing, Abnormal Return*

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Two roads diverged in a wood, and I— I took the one less traveled by, And that has made all the difference.[1]

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[1] Frost, R. (1916). *The Road Not Taken.* Mountain Interval.

1. Introduction

Mergers and acquisitions (M&A) is one of the most sought after and researched areas within Corporate Finance and billions of dollars are spent every year world wide on M&A deals. Prior studies find positive effects to shareholders of the target that is being acquired in a deal, but the evidence on M&A's ability to create value from an acquirer perspective is, however, far from conclusive. From this aspect there are findings both for and against M&A, which has been summarized in several meta-studies (see Bruner 2002; Campa and Hernando, 2004; Martynova and Renneboog, 2008; Meckl and Röhrle, 2016). Furthermore, we find no research in recent years that investigates Swedish firms specifically, why it is unclear whether previous, mainly American results, are applicable to a Swedish context in recent years.

Bruner (2002) analyze 44 studies that focus mainly on US M&As between 1971-2001 and concludes that about two thirds of the deals are either value creating or value conserving for acquiring shareholders. Meckl & Röhrle (2016) discover that a majority of M&A deals are value destroying for acquirers after examining 33 studies. Campa and Hernando (2004) focus on shareholder value creation in the EU, and find that the average abnormal return is zero for acquiring shareholders within the EU, and that more than half of the announcements are even negative. They also conclude that industries that had previously been more regulated and under government control suffer from lower returns in M&A announcements. Doukas et al. (2002) study Swedish M&A deals and discover that focused transactions, meaning deals where the target and acquiring firm are in the same field of business, are profitable, while deals that are across different industries are not.

Our study is important because it aims to clarify whether Swedish M&A is profitable or not to acquiring shareholders. We use evidence from Swedish firms in the years 2 2014-2017 in order to understand market reactions to Swedish M&A announcements of acquiring firms. We find that M&A activity yield abnormal returns of 2.28 % for its stockholders on average.

We also try to explain which types of transactions are profitable with support from our findings and previous research: whether the financial or real estate industry is less favorable for M&A than other industries, if type of payment makes a difference to market reactions, and whether focused or diversified transactions provide shareholder value. We discover that M&A deals that are conducted within the financial sector with a focus on real estate yield significantly lower abnormal returns for shareholders, compared to mergers in other industries, which yields a significantly positive

abnormal return of 2.28 %, and 1.68 % when adjusting for outliers. The results are important since prior studies partly blame the absence of non-hostile takeovers and special tax rules for the lower returns, but since our sample is subject to other circumstances we reach different conclusions. Instead, we argue that the lack of synergies and lower asymmetric information due to higher transparency plays a more important role in explaining the lower returns. We find that cash as a means of payment is associated with a higher value creation post-announcement. We conclude that relative size has a small positive effect, but we find no support for focused M&A transactions to be more profitable than diversified ones.

2. Theories and Empirical Literature

2.1 Theories

Renneboog & Martynova (2008) summarize the research on M&A activity over the past century. The article aims to explain the major M&A waves that we have seen historically. They conclude that there are four theories, which explain M&A activity, founded in the empirical research results that exists on M&A. These theories in combination with neoclassical economic theory will work as our theoretical framework. The M&A universe of course consists of countless ideas, arguments and attempts to explain the motives and outcomes of transactions, but we think the following theories are the most relevant for our framework.

2.1.1 Synergies

According to neoclassical economic theory, managers act to maximize shareholder value and markets are efficient, why M&A activity should create positive impacts to shareholders. With this view, Berk and DeMarzo (2007) explain that the purpose of conducting M&A in the first place is that the value of the combined firm should be worth more than when the entities are separated. They state that even though acquirers pay a premium when purchasing a target, the synergies of the combined entity will leave the acquirer better of, even net of a premium paid. This can happen because of for example efficiency gains, monopoly gains, economies of scope and scale, gained expertise from new employees and more control over the supply chain. It is also possible for firms to reduce tax costs by acquiring targets that have operating losses and use these to offset the tax costs on its profits.

2.1.2 Business Environment Shocks

There are several empirical studies relating M&A activities with macroeconomic factors and business cycles. The intensity in takeover activity increases with changes in the economic growth prospects and market capital conditions (Martynova and Renneboog, 2008). According to Mitchell and Mulherin (1996) specific shocks such as deregulation, oil price shocks, financial innovation and foreign competition can explain a significant part of the takeover activity in the 1980s. They argue that this takeover wave was different from previously, since takeovers were less about restructuring efficient conglomerate business structures, and rather a response to changing business environment by industry restructuring. Mitchell and Mulherin (1996) reason that takeover activity is profitable, if takeovers are indeed driven by industry shocks. This is because the post-merger performance should not be higher than the performance of a pre-shock benchmark or of an industry control group. According to Martynova and Renneboog (2008) this could explain cases when there is no post-merger increase in corporate profitability. This view is also shared by Bruner (2002) who argues that M&A activity is due to managers anticipating industry shocks and take action in the form of acquisitions in order to mitigate the effects and face up to the challenges of a changing industry. The following poor performance of M&A from a bidders perspective could then stem more from changing industries than with M&A being unprofitable (Mitchell and Mulherin, 1996). However, the Martynova and Renneboog (2008) also argue that according to previous studies, industry shocks and stock performance should show a positive relation according.

2.1.3 Poor Corporate Governance and Agency Problems

According to theories of poor governance and agency problems M&A can be a value destroying activity. Shleifer and Vishny (1991) argue that the merger wave during the 1980s was driven by the personal objectives by corporate managers, and enabled by weaker governance mechanisms in this time period. Diversifying takeovers driven by manager's self-interest reduce earnings volatility and hence enhance the survivability prospect of management. Thus, managers can get away with performing M&A activity even though it clearly was not value creating to begin with (ibid.).

Jensen (1968) makes a similar argument that the shocks to an industry or booming financial markets results in excess cash. When managers only have their self-interest at first hand they use the excess cash for empire building or other value destroying activities, instead of giving the money back to shareholders. According to Martynova and Renneboog (2008) acquiring firms with excess cash tend to destroy value by

overbidding, and Harford (1999) also argues that the abnormal stock returns decrease with the amount of free cash flow held by the bidder.

2.1.4 Managerial Hubris

Roll (1986) proposes another theoretical explanation as to why M&A may not be profitable. In his model called "managerial hubris", the key factor that could lead value destroying M&As is overconfident managers who overestimate the value creation they can achieve with the acquisition. Further, Malmendier et al. (2005) conclude that diversifying and unprofitable takeovers are frequently done for optimistic reasons by managers, and argue that managers are overconfident as they voluntarily retain in the money stock option in their own firms. Goergen and Renneboog (2004) also argue that one third of all large European takeovers during the 1990s suffered from managerial hubris.

Building on Rolls hubris hypothesis, Martynova and Renneboog (2008) argue that the managerial hubris hypothesis in combination with managerial herding around M&A's can explain the cyclical patterns in M&A activity over the last century. Using the hubris hypothesis as the theoretical framework, the authors reason that following the announcement of takeover activity; managers are encouraged to follow in the footsteps of other leaders. When firms see successful takeover activity they want to follow, however some end up just mimicking the leaders without generating value. Opposite to the first acquisitions, the main motive for the M&A transaction that follows is not always economic rationale or business savvy, but is likely to suffer from managerial hubris. The combination of managerial hubris and herding behavior can thus explain why inefficient takeovers can follow efficient ones (Martynova and Renneboog, 2008). Harford (2003, 2005) argue similarly: Takeovers occurring at a later stage of a takeover wave yields lower abnormal returns than those occurring at the beginning of the wave.

2.1.5 Market Timing

Myers and Majluf (1984) hypothesize that the use of stock as payment method signals that the acquiring firm managers believe the stock is overpriced and issue stock as to take advantage of temporarily overvalued stock during bullish times. Shleifer and Vishny (2003) argue that because financial markets may overvalue stock in the short-run, the degree of over-valuation will vary between stocks. When the stock is temporarily overvalued, management can use it as a means of payment on a less overvalued target. The bidder then takes advantage of the mispricing premium over the long run before the over-valuation is corrected. This model depends on the

assumption that management of the target firm maximizes their own short-term benefits. This would explain why they would be inclined to accept overvalued equity as payment, because first and foremost they themselves would gain from it in the short term, and not necessarily the shareholders who own the firm, in the longer term. Rhodes-Kropf and Viswanathan (2004) come up with similar theoretical predictions, but the key assumption that makes up the foundation for the predictions is different. They assume target managers accept overvalued equity as payment because they overvalue the potential synergies from the takeover transaction. This leads them to believe that the equity is more fairly priced than it actually is, and is a viable method of payment. According to Rhodes-Kropf and Viswanathan (2004) the number of overvalued bids is expected to increase with booming financial markets due to a high level of uncertainty surrounding the true value of firms. Consequently, high asymmetric information leads the better-informed bidder to take advantage of less-informed targets at the peril of the target firm.

These are the models of the market timing theory of merger waves, with different underlying mechanisms that allow them to occur. They have in turn been tested several times in empirical studies. For example, Dong et al. (2006) discover evidence in favor of the market-timing hypothesis that the stock market drives acquisitions. Specifically, bidders are more overvalued than their targets and that the probability of an equity offer increase with the degree of overvaluation of the bidder.

Rhodes-Kropf et al. (2005) find evidence of deviations from fundamental value driven takeovers. They also conclude that more acquisitions occur when an industry is overheated. Interestingly, bidders with the highest amount of over-valuation are found to be the ones that are doing the bulk of these acquisitions. Finally, the authors also find that there is less overvaluation among cash acquirers. This last discovery gives additional strength to the view that the mispricing premium is an important factor when choosing equity as a means of payment. Rhodes-Kropf et al. (2005) find support for Rhodes-Kropf and Viswanathan (2004) hypothesis that over-valuation drives the decision of the target managers to accept equity offerings.

2.2 Empirical Literature

Taking the acquirer perspective in a meta-analysis of event studies between 1919 and 1997, Bruner (2002) examines 44 studies that are about equally divided as value generating (17 studies), value destroying (13 studies) and value conserving (16 studies). Thus, two thirds of the results show transactions that are either value conserving, where investors earn their required return, or value creating, where investors earn significant abnormal returns. In 20 of the studies negative returns from

M&A activity is reported, but only 13 of those yield significantly negative returns. In 24 studies positive returns are found, out of which 16 are significantly positive. Results that are significant from the study are summarized in Table 1 below.

Table 1
Summary of prior studies
Summary of previous US event studies on shareholder returns to acquiring firms from a meta study by Bruner (2002) of significant results. The columns summarize the authors; the cumulative abnormal returns (CAR) found in the studies with their significance levels of t-statistics; the sample size, N; the sample period; and the event window in days.

Author	CAR	N	Period	Event window
Dodd (1980)	-1.09% **1	60	1970-77	(-1,0)
	-1.24%**2	66		
Asquith et al. (1987)	-0.85%**	343	1973-83	(-1,0)
Varaiya & Ferris (1987)	-2.15%**	96	1974-83	(-1,0)
Servaes (1991)	-1.07%**	384	1792-87	(-1,Close)
Jennings & Mazzeo (1991)	-0.80%**	352	1979-85	(-1,0)
Banerjee & Owers (1992)	-3.30%**	57	1978-87	(-1,0)
Byrd & Hickman (1992)	-1.20%**	128	1980-87	(-1,0)
Kaplan & Weisbach (1992)	-1.49%**	271	1971-82	(-5,5)
Sirower (1997)	-2.30%**	168	1979-90	(-1,1)
Mitchell & Stafford (2000)	-0.14%**	366	1961-93	(-1,0)
	-0,07%			
Walker (2000)	-0.84%**	278	1980-96	(-2,+2)
	-0.77%			
DeLong (2001)	-1.68%**	280	1988-95	(-10,1)
Houston et al. (2001)	-4.64%**	27	1985-90	(-4.1)
	-2.61%	37	1991-96	
	-3.47%	64	1991-96	
Dodd & Ruback (1977)	+2.83%**1	124	1958-78	(0,0)
	+0.58%2	48		
Kummer & Hoffmeister (1978)	+5.20%**	17	1956-70	(0,0)
Bradley (1980)	+4.36%**1	88	1962-77	(0,0)
	-2.96%2	46		
Bradley, Desai & Kim (1983)	+2.35%**1	161	1962-76	(-10,+10)
Asquith et al. (1983)	+3.48%**1	170	1963-79	(-20,+1)
	+0.70%2	41		
	+0.07%2	102		
Eckbo (1983)	+0.07%1	102	1963-78	(-1,0)
	+1.20%**2	57		
Dennis & McConnell (1986)	-0.12%	90	1962-80	(-1,0)
	+3.24%**			
Jarrell et al. (1987)	+1.14%**	440	1962-85	(-10,5)
Bradley et al. (1988)	+1%**	236	1963-86	(-5,5)
Jarrell & Poulsen (1989)	+0.92%**	461	1963-86	(-5,5)
Loderer & Martin (1990)	+1.72%**	970	1966-88	(-5,0)
	+0.57%**	3401	1966-88	

	-0.07%	801	1981-84	
Maquieria et al. (1998)	+6.14%**	55	1963-96	(-60,60)
	-4.79%	57		
Eckbo & Thorburn (2000)	+1.71%**	1261	1964-83	(-40,0)
Leeth & Borg (2000)	+3.12%**	466	1919-30	(-40,0)
Mulherin (2000)	+0.85%**	161	1962-97	(-1,0)
Kohers & Kohers (2000)	+1.37**	961	1987-96	(0,1)
	+1.09%**	673		
	+1.26%	1634		

1 Return of merger is successful, 2 Return of merger is unsuccessful. ** denotes significance on a 5% level.

In a more recent M&A meta analysis, Meckl and Röhrle (2016) focus on English and German deals, and cover 33 event studies in the years between 1950 and 2010. In this analysis a slight majority of studies find that M&A have a negative impact on acquirer shareholder value, and around 48% of studies conclude M&A to have a positive effect. Around 49% of the domestic transactions yield positive returns, compared to around 57% positive returns of the cross-border transactions.

Christofferson et al. (2004) investigate 160 transactions and find results consistent with the hubris hypothesis proposed by Roll (1986). In particular, they argue that revenue-increasing synergies often are overestimated and seldom reached post-merger. However, cost synergies are much more likely to be achieved according to Christofferson et al. (2004). Thus, in an efficient market, negative effects from announcements regarding revenue synergies could be expected.

Campa and Hernando (2004) investigate shareholder value creation of M&A announcements in the European Union during the period 1998 to 2000. Around 55 % of the transactions show a negative return for bidders, but the mean cumulative abnormal returns are statistically insignificant. This implies that shareholders on average earn a zero percent excess return at the announcement. Their study also shows that firms operating in regulated industries receive lower abnormal returns compared to firms operating in un-regulated industries, and they conclude that this is particularly the case for companies in the financial industry.

Within the financial industry, a particular increase of M&A activity has been reported in recent years within the real estate industry (Kirchhoff, Schiereck and Mentz, 2006), driven by changes such as innovation, deregulation, and increased competition. Their study investigates 69 M&A transactions in real estate but find no clear implications on the value creation to shareholders to acquiring firms. They report insignificant abnormal returns to shareholders of acquiring companies, and slightly negative CARs in two of four event windows. Other M&A studies focusing on

real estate transactions find lower returns both for targets and acquirers, and slightly negative returns to bidders, when comparing to non-real-estate transactions (see Eichholtz, 2008; Campbell, 2001; Anderson et al., 2012; Womack, 2012). Womack (2012) argue that negative and non-negative abnormal results are explained by certain motives for M&A that differ from other industries, and that motives in real estate are less often done with respect to shareholder interests, and more often motivated by empire building, over valuation or inefficient management (Womack, 2012). Lower returns in real estate transactions are explained by the lack of synergies (Anderson et al., 2012). This is in line with the proposition by Eichholtz and Kok (2008) who justify non-negative and negative abnormal returns by homogeneity in assets and operations, decreasing the likelihood of synergy profits. According to the same authors the real estate industry is associated with high level of transparency, which reduces information asymmetry problems, which would result in a more fair value paid, and lower abnormal returns. Studies that explain lower returns in real estate M&A focus on American data, and claim that the real estate industry possesses certain institutional characteristics, are often exposed to certain tax rules, and also the low level of non-hostile takeovers as explanations to lower abnormal returns in these mergers (Campbell, 2001; Anderson et al., 2012; Womack, 2012).

In line with the market-timing hypothesis, the choice of payment method amplifies the results in both directions (Bruner, 2004). When an acquirer uses cash to pay, their returns are either neutral or slightly positive. In contrast, when stock is used as the payment method, returns are significantly negative. Bruner (2004) also discover that stock payments are more common when the stock price is high. Martynova and Renneboog (2008) find that US studies unanimously agree with the evidence of Bruner (2004) that cash deals give higher returns to bidder than equity financed deals. In contrast though, Goergen and Renneboog (2004) find the opposite relationship to be true in European M&A.

The conclusions are in line with Chang (1998) who reports that stock as payment method in public M&A transactions result in significantly negative returns to shareholders of acquiring firms, reporting -2.5% negative returns when stock financed, but only -0.2% when the transaction is cash financed. Campbell (2001) investigate in particular real estate firms and the effect of payment method, and find that stock financed M&A result in negative change in acquirer's value when target is public.

Savor and Lu (2009) find that the bidder's shareholders are better off as a result of management using overvalued stock to purchase another firm. They find that the long-run performance of the bidders increases as a result that the firm has been able to buy hard assets with an inflated currency as a means of payment. The

management of the firm uses overvalued stock before the market inevitably corrects the valuation and gets assets in return at a discount, and leaves its shareholder better off than if it would simply just been passive before the market corrected the overvaluation. The long-term benefits to bidders shareholders thus outweigh the initial negative post-announcement returns from the signaling effect. These results are in line with what the market timing hypothesis predicts (Savor and Lu, 2009).

Another perspective is whether diversification in acquisitions is profitable or not. We separate between diversifying transactions where the M&A activity aim to diversify the companies, and focused transactions, where the acquirer and the target operate in the same line of business. According to Bruner (2004) the results on the topic are mixed: some research show that focused transactions are more profitable than diversifying transactions, but others find that diversifying deals instead create shareholder value. The latter is found in particular when conglomerates are involved in the transaction. Maquieira et al. (1998) find that focused transactions create shareholder value, whilst diversifying deals do not. This evidence is also found in a Swedish context, as Doukas et al. (2002) conclude that diversifying deals destroy shareholder value, and focused deals benefit shareholder value in both the short and long run. In a study focusing on real estate M&A transactions, Elayan (1993) finds that there are positive synergy effects when real estate companies diversify and merge across industries, and conduct diversifying M&As.

3. Data and Methodology

3.1 Sample Composition

Our empirical analysis is based on a final sample of 141 M&A announcements over the period 2014-09-01 to 2017-09-01 collected from Thomson Reuters Eikon Mergers and Acquisitions database. Each merger in our sample satisfies the following selection criteria: (a) both the target and the acquiring company is from Sweden; (b) the acquirer is a listed company; (c) information on the total return to shareholders is available for the acquirer; (d) the deal size is at least 1 million USD. We exclude M&A announcements concerning buybacks, acquisitions of partial interest, and acquisitions of remaining interest. Two observations were also excluded due to the fact that the deal size in relation to the rest of the sample did not make any logical sense since the ratio of the deal size to acquirer market cap was 176 and 43, respectively.

Table 2 to 4 provides information on the sample composition by industry, time and payment method. The distribution of the sample across industries is shown in Table 2, panel A. For classification of industries we chose to use Thomson Reuters Business Classification (TRBC) for dividing companies into different industry categories. The classification divides companies at five levels of granularity, and in line with prior research we chose to limit ourselves to divide our observations at the top level, the economic sector, which classifies companies across 10 different categories (see Campa and Hernando, 2004). Financials is the largest proportion making up around 40 % of the sample for acquirers and slightly less for targets. Financials is followed by Technology, Industrials and Consumer Cyclicals, across both acquirers and targets.

In Table 2, panel B the four largest sectors are listed by their subdivisions, also known as TRBC Business Sectors. Real Estate is the largest business sector within Financials, making up around 85 % of the acquirers and 96 % of the targets. Software and IT-services is the largest business sector within Technology, Industrial and Commercial Services is the largest business sector within Industrials, and Cyclical Consumer Services is the largest business sector within Consumer Cyclicals. The full distribution across subdivisions is presented in Appendix 1, Table 2, Panel C.

Table 2
Panel A: Sample Composition by Industry.

Distribution of number of M&A announcements by Thomson Reuters Business Classification System (TRBC) Economic Sector. There are 10 top level economic sectors by the TRBC system.

TRBC Economic Sector	Acquirer	Percent	Target	Percent
Basic Materials	6	4.26	4	2.84
Consumer Cyclicals	15	10.64	20	14.18
Consumer Non-Cyclicals	8	5.67	10	7.09
Energy	0	0.00	1	0.71
Financials	55	39.01	48	34.04
Healthcare	8	5.67	10	7.09
Industrials	17	12.06	24	17.02
Technology	23	16.31	19	13.48
Telecommunication services	8	5.67	5	3.55
Utilities	1	0.71	0	0.00
Total	141	100.00	141	100

Table 2
Panel B: Sample Composition by Sub-Industry

Distribution of number of M&A announcements by Thomson Reuters Business Classification System (TRBC) Business Sector within the Economic Sectors Financials, Technology, and Consumer Cyclicals.

	Acquirer	Percent	Target	Percent
Financials				
Banking & Investment Services	7	12.73	2	4.17
Investment Holding Companies	1	1.82	0	0.00
Real Estate	47	85.45	46	95.83
Total	55	100.00	48	100.00
Technology				
Software & IT Services	15	65.22	13	68.42
Technology Equipment	8	34.78	6	31.58
Total	23	100.00	19	100.00
Industrials				
Industrial & Commercial Services	10	58.82	19	79.17
Industrial Goods	7	41.18	4	16.67
Transportation	0	0.00	1	4.17
Total	17	100.00	24	100.00
Consumer Cyclicals				
Automobiles & Auto Parts	1	6.67	2	10.00
Cyclical Consumer Products	3	20.00	6	30.00
Cyclical Consumer Services	8	53.33	9	45.00
Retailers	3	20.00	3	15.00
Total	15	100.00	20	100.00

Table 3 presents the distribution of M&A announcements by payment method. The payment is labeled as stock if any stock was used in the transaction, and as non-stock if there was not any stock used in the transaction. The majority of transactions only involved non-stock transactions. In around 35 % of the announcements stock was used in the transaction. The non-stock payment is made up by mainly cash and profit related payments. Debt also occurs as a payment method, and in some cases smaller parts of the payments also consists of funds, notes or options.

Table 3
Sample Composition by Payment Method

Distribution of number of M&A announcements by payment method. Payment method is labeled as non-stock if no stock was used in the transaction, and labeled as stock if any stock was used in the transaction.

Payment method	Freq.	Percent
Non-stock	92	65.25
Stock	49	34.75
Total	141	100.00

3.2 Methodology and Variable Statistics

In line with previous literature we conduct an event study to investigate the effect of M&A announcement on return to shareholders of the acquiring company (see MacKinlay, 1997; Bruner, 2002; Campa and Hernando, 2004).

We adopt a methodological framework as outlined by MacKinlay (1997). He describes several models that can be used to estimate expected return for the securities during the event window. We decide to use the one market factor model; the Market Model. The model is an improvement from using a simpler model such as constant mean return model, and favored to more complex models such as multi factor models because of their proven limited gain in explanatory power (ibid.).

3.2.1 Cumulative Abnormal Returns

In order to measure the full effect of the M&A on shareholder value to the acquiring firm, and gain insights on the influence of the announcement around the event day, we compute cumulative abnormal returns (CAR) for the sample. First, daily abnormal returns (AR) are calculated in order to gain insight on the isolated daily effects of the M&A announcements around and on the announcement. Abnormal return (AR) is computed in relation to the expected returns of the firms. The expected returns are calculated according to the market model, where the return of any given security is related to the return of the market portfolio:

$$R_{it} = a_i + \beta_i R_{mt} + \epsilon_{it}$$

$$E(\epsilon_{it}) = 0 \qquad var(\epsilon_{it}) = \sigma^2_{\epsilon_i}$$

Where R_{it} and R_{mt} are the returns for period t on security i and the market portfolio m, respectively. ε_{it} is the zero mean disturbance term. α_i and β_i and σ^2_{et} are the parameters of the market model. We choose OMXSPI as a benchmark for the market portfolio. The OMXSPI represents all stocks traded on the Swedish stock market,

and is therefore a good benchmark for our sample. For the estimation window the parameters of the model are:

$$\hat{\beta}_i = \frac{\sum_{t=T_0+1}^{T_1} (R_{it}-\hat{\mu}_i)(R_{mt}-\hat{\mu}_m)}{\sum_{t=T_0+1}^{T_1} (R_{im}-\hat{\mu}_m)^2}$$

$$\hat{a}_i = \hat{\mu}_i - \hat{\beta}_i \hat{\mu}_m$$

$$\hat{\sigma}^2_{\epsilon_i} = \frac{1}{L_1-2} \sum_{t=T_0+1}^{T_1} (R_{it}-\hat{a}_i-\hat{\beta}_i R_{mt})^2$$

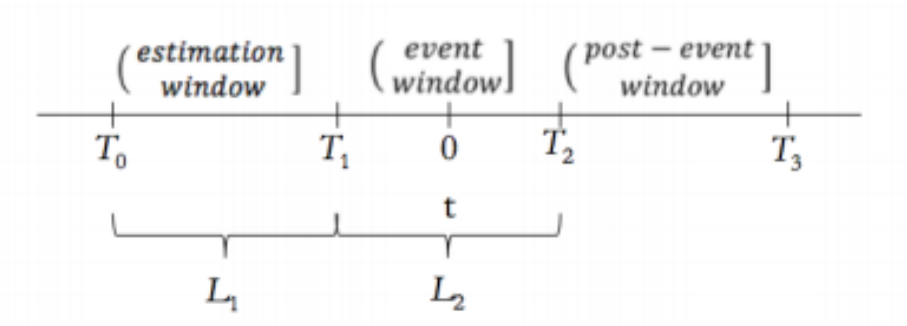
where:

$$\hat{\mu}_i = \frac{1}{L_1} \sum_{t=T_0+1}^{T_1} R_{it}$$

and:

$$\hat{\mu}_m = \frac{1}{L_1} \sum_{t=T_0+1}^{T_1} R_{mt}$$

R_{it} and R_{mt} are the returns in the event period for security i and the market portfolio m, respectively. We define t as the event date and let t = T_1+1 to t =T_2 be the event window L_2=T_2 – T_1. We let t = T_0+1 to t =T_1 be the estimation window L_1=T_1 – T_2. The estimation window and event window should not overlap in order to avoid bias in L_2 (MacKinlay, 1997). The estimation window L_1 is set to 150 days, counting 90 days before the announcement and back, so T_2 = t – 240, T_1 = t – 90. μ_i and μ_m are the estimated average returns during the estimation window for the securities and the market, respectively.



Beta parameters ($\hat{\beta}_i$ and intercepts ($\hat{a}_i$) are estimated for each firm during the estimation window, and used to compute estimated return during the event window, L_2. Using the market model to estimate the expected return, we compute AR as the

disturbance term of the market model over an event window around announcement day t using:

$$AR_{it} = R_{it} - \hat{a}_i - \hat{\beta}_i R_{mt}$$

CAR is computed as an aggregation of abnormal return observations from time period t_1 = t-42, t-21, t-5, t-2, t-1; to t_2 = t+1, t+2, t+5, t+21, t+42, for individual securities i:

$$CAR_i(t_1,t_2) = \sum_{t=t_1}^{t_2} AR_{it}$$

We compute multiple windows for CAR in order to check for robustness of the influence of the M&A announcements on shareholder value. The CAR windows that we cover represent four pre-announcement, four around announcement, and four post-announcement, making up in total 12 windows. The windows for CAR cover two months prior announcement and two months post announcement, assuming that one month averages 21 trading days, and thus spans over 85 trading days, (t−42, t+42). Both AR and CAR is checked for outliers in accordance with Barnett and Lewis (1994) by winsorizing on a 10% level, where the 5% most extreme observations in each tale are replaced by the mean value. This assures that extreme outliers do not drive the results by pushing the data in a certain direction.

We use a two-sided test in order to test the null hypothesis that abnormal returns are zero by running average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) for the selected windows. AAR and CAAR are computed as:

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{it}$$

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

The null hypothesis is then tested using:

$$\vartheta_1 = \frac{AAR_t}{\sqrt{var(AAR_t)}} \sim N(0,1)$$

and

$$\vartheta_2 = \frac{CAAR_i(t_1,t_2)}{\sqrt{var(CAAR_i(t_1,t_2)}} \sim N(0,1)$$

3.2.2 Non-parametric model

We test the null hypothesis that the sample median of the CAR values over different windows is equal to zero with Wilcoxon one-sample signed rank test. We run the the test three times, first testing whether or not the CAR is significantly different from zero, second by dividing the sample into financial and non-financial observations according to the TRBC Economic Sectors (see Table 2, Panel A), and third by dividing the sample into stock and non-stock deals (see Table 3). The non-parametric sign test is carried out as an alternative to the t-test since the model is free from assumptions on the distribution of returns. We define K_{it} as the rank of the abnormal return of security i for event period t and test the null hypothesis that abnormal returns are zero using:

$$\vartheta_3 = \frac{\frac{1}{N}\sum_{i=1}^{N} K_{i0} - \frac{L_2+1}{2}}{s(K)}$$

where

$$s(K) = \sqrt{\frac{1}{L_2}\sum_{t=T_1+1}^{T_2}\left(\frac{1}{N}\sum_{i=1}^{N} K_{i0} - \frac{L_2+1}{2}\right)^2}$$

3.2.3 Cross-sectional model

In order to control for company specific characteristics and their influence on abnormal return we perform a cross-sectional regression. CAR is the dependent variable when testing for the influence of different M&A characteristics. The characteristics of interest that we chose to use as independent variables are the following:

Financial/Real estate

We control for firms belonging to the financial industry, and in our sample in particular, firms belonging to this industry largely consists of firms from the real estate sector (see Table 2, Panel B). Regression (1) will thus mainly control for the influence of real estate transactions on CAR. We hypothesize that real estate have a similar influence as found by studies investigating the influence of the financial sector as whole, thus a negative effect on CAR (see Campbell, 2001; Eichholtz and Kok, 2008; Anderson, 2012; Wolmack, 2012). We construct a dummy that takes the value 1 if the firm belongs to the Financial TRBC Economic Sector and 0 if it belongs to another TRBC Economic Sector (see Table 2, Panel A). Regression (1):

$$CAR_i(t_1,t_2) = \delta_0 + \delta_1 FINANCIAL + \epsilon_i$$

Size

Asquith et al. (1983) show that the observed abnormal return to be positively related to the relative size of the bidding and target firm. They also state that when the acquirer is large in relation to the target gains can turn out as statistically insignificant when concerning abnormal returns. According to Campa and Hernando (2004) prior studies identifies that size likely relates to abnormal returns. To control for the relative size of the acquirer to the target, we construct a continuous variable "size" as the ratio of the deal size to the market capitalization of the acquirer at the time of announcement. The average deal size in our sample is 0.56, which means that the average deal corresponds to approximately 56% of the market cap of the acquiring company at the time of announcement. The descriptive statistics are summarized in Table 4, Panel A. Regression (2):

$$CAR_i(t_1,t_2) = \delta_0 + \delta_1 FINANCIAL + \delta_2 SIZE + \epsilon_i$$

Table 4
Panel A: Descriptive Statistics of Size
Descriptive statistics of the independent variable Size. Size is measured as the deal size to market cap of the acquirer at the time of announcement.

Variable	N	Mean	Std. Dev.	Min	Max
SIZE	141	0.56	1.79	0.0014	13.76

Stock ratio

Campa and Hernando (2004) suggest that that cash is preferred to stock in deals, and that stock payment is associated with negative returns while cash purchasers have zero or positive returns. Furthermore, Doukas et al. (2002) have a variable that controls specifically for payment method, and Eckbo et al. (1990) specifically focus on the medium of exchange in takeovers and its consequence of returns. Therefore, we define the variable "stock ratio" as the ratio of the amount of stock used in the transaction to the total payment. The average deal uses about 21% stock, and the variable naturally ranges from 0 to 1. The descriptive statistics are summarized in Table 4, Panel B. Regression (3):

$$CAR_i(t_1,t_2) = \delta_0 + \delta_1 FINANCIAL + \delta_2 SIZE + \delta_3 STOCK\_RATIO + \epsilon_i$$

Table 4
Panel B: Descriptive Statistics of Stock Ratio
Descriptive statistics of the independent variable Stock Ratio. Stock Ratio is measured as the amount of stock in relation to total payment

Variable	N	Mean	Std. Dev.	Min	Max
STOCK_RATIO	141	0.21	0.35	0	1

Same Industry

Campa and Hernando (2004) state that whether or not the acquirer and target belong to the same industry is highly likely to affect the excess returns, thus it should be controlled for. For that reason we construct a dummy variable that takes on the value 1 if the industry is the same for the target and the acquirer and it is a focused acquisition and 0 if it is not the same industry and a diversifying acquisition. This is in line with the methodology of several authors (see Campa and Hernando, 2004; Doukas et al., 2002; Maquieira et al., 1998). The distribution is shown in Table 5. The majority, around 69%, of M&A announcements are focused, where both the acquirer and the target operates within the same TRBC economic sector.
Regression (4):

$$CAR_i(t_1,t_2) = \delta_0 + \delta_1 FINANCIAL + \delta_2 SIZE + \delta_3 STOCK\_RATIO + \delta_4 SAME\_INDUSTRY + \epsilon_i$$

Table 5
Sample Composition by M&A Strategy of Industry

Distribution of number of M&A announcements by strategy of industry diversification or by strategy of industry focus. If the acquirer and the target belong to the same TRBC economic sector the strategy is labeled as focused, and if the acquirer and the target belong to different TRBC economic sectors the strategy is labeled as diversified.

Strategy of Industry	Freq.	Percent
Diversified	44	31.21
Focused	97	68.79
Total	141	100.00

Year Dummies

We also control for the time year effects on the abnormal returns using year dummies. The sample composition over time represents 2 full years, 2015 and 2016 of M&A announcements; the 3 last months of 2014; and the 8 first months of 2017. Table 6 shows the distribution of the sample by announcement year. Naturally the largest proportion of the sample is distributed over the two full years 2015 and 2016. There is a growth in number of M&A announcements comparing the two full years 2015 and 2016, and around 43 % of the M&A announcements took place in 2016.
Regression (5):

$$CAR_i(t_1,t_2) = \delta_0 + \delta_1 FINANCIAL + \delta_2 SIZE + \delta_3 STOCK\_RATIO + \delta_4 SAME\_INDUSTRY + \delta_5 2014 + \delta_6 2015 + \delta_7 2017 + \epsilon_i$$

Table 6
Sample Composition by Time

Distribution of number of M&A announcements by announcement year. The announcements took place during the period September 2014 to September 2017.

Announcement year	Freq.	Percent
2014	10	7.09
2015	39	27.66
2016	60	42.55
2017	32	22.70
Total	141	100

Other considerations

Studies points out that whether or not the merger is considered as friendly or hostile is likely to affect abnormal returns (Campa and Hernando, 2004). According to Swedish law, one must control at least 90 % of the shares in order to fully take control over a company. Furthermore, Sweden is a country with many majority and family owners whom control companies with a dual class shares system (Doukas et al., 2001). This is why it is close to impossible to initiate a hostile takeover in Sweden and why most of the acquisitions that actually occur are friendly. Since there were only 1 case of a non-friendly takeover we chose not to control for this factor, and the non-existence of hostile takeovers arguably depend on the nature of the Swedish context. Evidence also suggests that LBOs and MBOs can affect the abnormal returns (Campa and Hernando, 2004; Schwert, 2000). However, in our sample there were only four examples of LBOs, which is why we concluded it to be irrelevant to test for. In all cross sectional regressions we use White standard errors as recommended by MacKinlay (1997) in order to receive heteroscedasticity-consistent t-statistics.

5. Results and Analysis

5.1 Cumulative Abnormal Returns

5.1.1 Univariate tests

The average abnormal returns to the shareholders of acquirers for the 141 M&A's over the 11-day event window around the announcement day t, (t−5, t+5), is computed and summarized in Table 7. We report results both for the non-transformed data and for the winsorized data, adjusting for outliers in accordance with Barnett and Lewis (1994) at a 10% level. The results show that there is a positive price increase of 2.28% for the non-transformed data and 1.66% when adjusting for outliers, on the announcement day. The results are significant on a 1 % level both when the data is not transformed and when adjusted for outliers. A significant negative price effect is recorded 2 days prior to the announcement, which could be explained by information leakage, but the magnitude is modest since the effect is only –0.61% and –0.35% for the non-transformed and winsorized results respectively. Post announcement we report significant effects for the adjusted data for 2 of the 5 days.

The results are also presented in Figure 1 as a diagram over the same event window, (t−5, t+5), which shows that the magnitude on the announcement day is large in relation to the other days around announcement. It also shows that the magnitudes of the non-transformed and adjusted data are similar across the other AARs that are not on the announcement day, t.

Table 7
Average Abnormal Returns Through the Event Window (t−5, t+5)

Sample mean and statistical significance of the distribution of average abnormal return (AAR) to the acquirer. Abnormal returns are calculated as the difference between realized shareholder returns and expected shareholder returns, measured using the market model. Each statistic for the distribution of AAR is measured around the announcement date, t. In the second column the distribution has been adjusted for outliers in accordance with Barnett and Lewis (1994) by winsorizing at a 10 % level.

	Acquirers	
	Non-transformed	Winsorized
Pre-announcement		
t−5	−0.07%	−0.02%
t−4	−0.21%	−0.11%
t−3	0.09%	0.16%
t−2	−0.61%**	−0.35%***
t−1	0.49%	−0.09%
Announcement		
t	2.28%***	1.66%***
Post-announcement		
t+1	0.06%	0.30%
t+2	−0.37%	−0.44%***
t+3	−0.19%	−0.07%
t+4	0.02%	−0.15%
t+5	−0.28%	−0.20%*

*/**/*** denote significance at the 10%/5%/1% level.

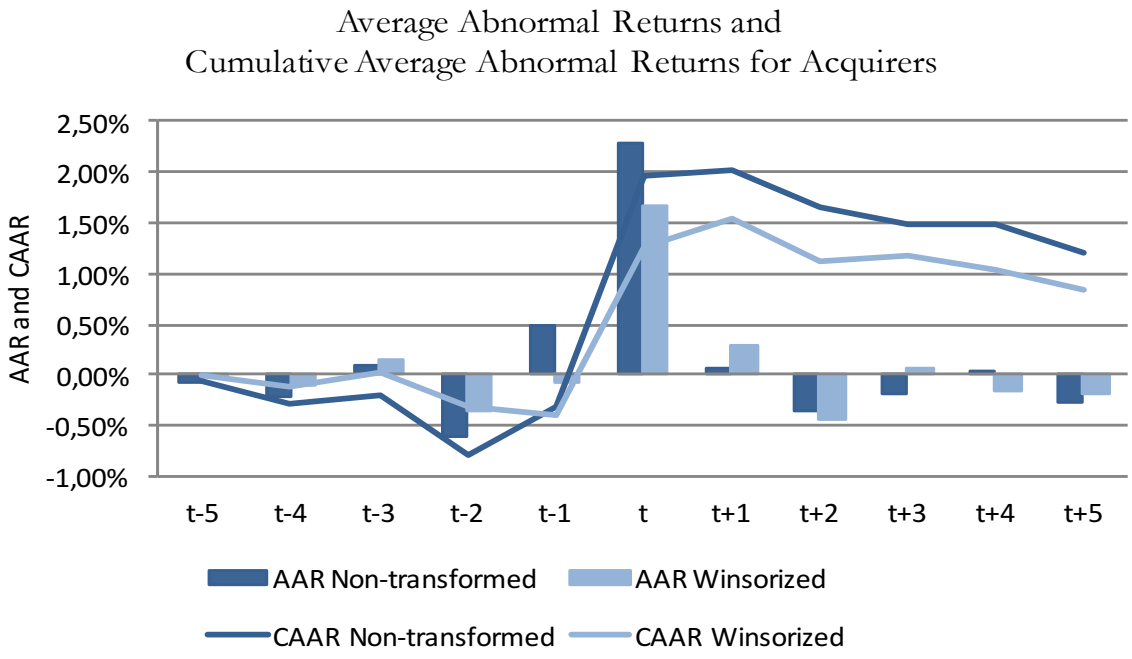


Figure 1: Average Abnormal Returns and Cumulative Average Abnormal Returns (t−5,t+n) for Acquirers around the announcement day (t)

In order to estimate the full effect of the M&A announcement to the shareholders of the acquiring companies the cumulative abnormal returns for the 141 M&As are computed and summarized in Table 8. The results are reported both for the non-transformed data and for the winsorized data, which adjusts for outliers in accordance with Barnett and Lewis (1994) at the 10% level. The result shows that there are significant and positive effects of the M&A announcement for the windows covering the announcement day t. For all 4 of these windows covering the announcement we find positive CAR both for the non-transformed and the winsorized data. The largest effects are found for the narrowest window around announcement, the 3-day window (t−1, t+1), reporting positive 2.84% for the non-transformed data and positive 2.05% for the winsorized data, both of which are significant at a 1% significance level. The wider windows around announcement of 5 days (t−2, t+2), and 7 (t−3, t+3), days around announcement show similar results of positive and significant results of positive 1.86% and 1.76% respectively at a 5 % significance level for the non transformed data and of positive 1.37% and 1.21% respectively at a 1 % significance level for the winsorized data. For the 11-day window positive results of 1.22 % and 1.34% are shown for both the non-transformed and winsorized data respectively, of which the winsorized result is significant at a 5 % significance level. For both the pre-announcement windows and post-announcement windows largely negative CAR values are reported. For the pre-announcement data with windows ranging from 2 days prior to announcement (t−2, t−1), up to 2 months prior to announcement (t−42, t−1) 3 out of 4 of the results show negative CAR among the non-transformed data and 4 out of 4 show negative CAR among the winsorized data. No significant results are found among the non-transformed data, but 2 significant negative results are found for the winsorized data at a 1% and 5% significance level, both of which are negative of −0.46% and −2.51%. For the post-announcement windows ranging from 2 days post-announcement (t+1, t+2), up to 2 months after announcement (t+1, t+42) 4 out of 4 show negative CAR, both among the non-transformed and the winsorized data. No significant results are found among the non-transformed data, but 1 significant negative result is found for the winsorized data for the 4-day event window (t+1, t+5) of −0.82%.

Table 8
Cumulative Average Abnormal Returns by Event Window

Cumulative average abnormal returns and statistical significance of the distribution of cumulative abnormal return (CAAR) to the acquirer. Abnormal returns are calculated as the difference between realized shareholder returns and expected shareholder returns, measured using the market model. Each statistic for the distribution of CAAR is measured around the announcement date, t. In the second column the distribution has been adjusted for outliers in accordance with Barnett and Lewis (1994) by winsorizing at a 10 % level.

	Acquirers	
	Non-transformed	Winsorized
Pre-announcement		
(t–42, t–1)	1.11%	−1.65%
(t–21, t–1)	−1.10%	−2.51%***
(t–5, t–1)	−0.31%	−0.31%
(t–2, t–1)	−0.11%	−0.46%**
Announcement		
(t–5, t+5)	1.22%	1.34%**
(t–3, t+3)	1.76%**	1.21%***
(t–2, t+2)	1.86%**	1.37%***
(t–1, t+1)	2.84%***	2.05%***
Post-announcement		
(t+1, t+2)	−0.31%	−0.25%
(t+1, t+5)	−0.76%	−0.82%**
(t+1, t+21)	−1.77%	−1.32%
(t+1, t+42)	−1.19%	−0.36%

*/**/*** denote significance at the 10%/5%/1% level.

In what follows we restrict ourselves to analysis of the results corresponding to the sets of windows covering the announcement of the following: (t−1, t+1), (t−2, t+2), (t−3, t+3) and (t−5, t+5).

5.1.2 Non-Parametric Results

Table 9, panel A presents the CAR in a one-sample Wilcoxon sign rank test, testing the hypothesis that CAR is statistically different from zero. All of the results are in line with the results from the t-tests carried out for the same windows (see Table 7) and based on the positive ranks. 3 out of 4 of the event windows are statistically significant at a 1% significance level. The widest event window, the 11-day event window is also statistically significant but at a 10% significance level.

Table 9
Panel A: Non-parametric Analysis of Cumulative Abnormal Returns

Non-parametric analysis of the cumulative abnormal returns and statistical significance of the distribution of cumulative abnormal return (CAR) to the acquirer using the one-sample Wilcoxon signed-rank test. Abnormal returns are calculated as the difference between realized shareholder returns and expected shareholder returns, measured using the market model. Each statistic for the distribution of CAR is measured around the announcement date, t.

Event window	Median	Wilcoxon Z
(t–5, t+5)	0.95%	1.73*
(t–3, t+3)	1.26%	2.68***
(t–2, t+2)	1.42%	2.65***
(t–1, t+1)	1.13%	3.86***

*/**/*** denote significance at the 10%/5%/1% level.

5.2 Cross Sectional Results

In Table 10, panel A and B show the results from the regression analysis using CAR for the 3-day event window, (t−1, t+1), as dependent variable for regression equation (1) through (5). In Table 10 panel A, the CAR is non-transformed and in panel B the CAR is winsorized at a 10% level. Results show that firms operating in the financial industry show lower abnormal returns than acquiring firms operating in other industries. We find significant results for the financial dummy variable throughout all equations, both for the non-transformed and for the winsorized data. The effects range from −3.9% to −4.8% for the non-transformed data and slightly less negative, from − 2.9% to −3.4% for the winsorized data. Through equations (1) through (3) results are significant at a 1% significance level for both the non-transformed and winsorized data. In all regressions the negative financial coefficient is similar in magnitude to the intercept (the constant), implying that shareholders earn around the expected return in these deals. The deal size in relation to the market cap of the acquiring firm implies a small but positive effect on abnormal return both for the non-transformed and for the winsorized data, and significant results among the winsorized data ranging between 0.43% and 0.63%, at a 1% significance level for equations (3) to (5) and at a 5% significance level for equation (2). There is evidence suggesting that stock as a payment method has a negative impact on the abnormal return to acquiring shareholders. The results are significant for the winsorized data at a 10% significance level implying a negative effect on CAR of 2.5% and 2.4% for equation (3) and (4) respectively. In equation (4) and (5) we check whether a focused or diversified strategy of the M&A had any effect on the return to shareholders of

acquiring firms. However the coefficients are not significant in any of the cases. When controlling for the year dummies coefficients are non significant in most cases.

Table 10

Panel A: Regression Analysis of Cumulative Abnormal Returns (t–1, t+1) non-transformed. Estimated coefficients of equation (1) through (5) in a sample of 141 M&A announcements.

Variable	(1)	(2)	(3)	(4)	(5)
FINANCIAL	−0.040***	−0.040***	−0.048***	−0.042**	−0.039**
	(−3.06)	(−3.07)	(−3.69)	(−2.46)	(−2.17)
SIZE		0.0034	0.0065	0.0058	0.0059
		(0.78)	(1.27)	(1.07)	(1.07)
STOCK_RATIO			−0.038	−0.034	−0.031
			(−0.89)	(−0.73)	(−0.67)
SAME_INDUSTRY				−0.015	−0.014
				(−0.56)	(−0.50)
2014					0.016
					(1.00)
2015					−0.027
					(−1.20)
2017					0.014
					(0.72)
CONS	0.042***	0.040**	0.049***	0.057***	0.058***
	(3.45)	(3.43)	(3.95)	(3.19)	(2.95)
N	141	141	141	141	141
R2	0.037	0.041	0.055	0.059	0.086
*/**/*** denote significance at the 10%/5%/1% level.					

Table 10
Panel B: Regression Analysis of Cumulative Abnormal Returns (t–1, t+1) winsorized.
Estimated coefficients of equation (1) through (5) in a sample of 141 M&A announcements.

Variable	(1)	(2)	(3)	(4)	(5)
FINANCIAL	−0.029***	−0.031**	−0.034***	−0.033***	−0.032***
	(−4.22)	(−4.12)	(−4.80)	(−3.88)	(−3.78)
SIZE		0.0043**	0.0063***	0.061***	0.0060***
		(2.39)	(3.47)	(3.28)	(3.22)
STOCK_RATIO			−0.025*	−0.024*	−0.021
			(−1.89)	(−1.73)	(−1.64)
SAME_INDUSTRY				−0.035	−0.026
				(−0.36)	(−0.27)
2014					0.018
					(1.47)
2015					−0.013
					(−1.54)
2017					0.014
					(1.42)
CONS	0.032***	0.030***	0.036***	0.038***	0.036***
	(6.19)	(5.73)	(5.82)	(4.94)	(4.40)
N	141	141	141	141	141
R2	0.087	0.11	0.14	0.14	0.19
*/**/*** denote significance at the 10%/5%/1% level.					

We also estimate regression equation 5 using the wider event windows (t−2, t+2), (t−3, t+3) and (t−5, t+5), both using non-transformed and winsorized CARs. Results are summarized and presented in Table 13, Panel A and B (see Appendix 2). In general the signs of the coefficients are the same for all variables also for the wider event windows as the results presented for the 3-day event window (t−1, t+1). However, for the variables of interest we only find significant coefficients for the winsorized data. These results suggest that financial mergers and an increased use of stock in the transaction both yield a negative return for the shareholders of the acquiring companies. Results are significant at a 5% significance level for the financial variable in two of the three regressions; at a 1% and 5% level for all of the regressions for the stock ratio variable; and at a 10% level for the size variable in one of the three regressions.

5.3 Financial Mergers and Payment Method

Since a large part of the sample covered financial M&As we investigate the differences between financial and non-financial mergers. We also compare CAR of the mergers involving stock to mergers using no stock as payment method.

5.3.1 Financial Mergers

Table 11, panel A presents the differences between financial and non-financial mergers. The results are not winsorized. The largest significant effect is found for the 3-day event window (t−1, t+1) of the non-financial mergers. The CAR is 4.21 % and significant at a 1% significance level, which is 4.03% higher than the CAR of the financial mergers for the same event window. The difference is significant at a 5% significance level. For the 7-day (t−3, t+3) and 5-day (t−2, t+2) event windows results are similar, showing CARs of 2.66% and 2.65% at 5 % significance levels, which are equivalent of 2.34% and 2.60% higher than the average return of the CARs of the financial mergers.

Table 11
Panel A: Parametric Analyisis of Differences in Cumulative Average Abnormal Returns by Financial and Non-financial Mergers

Cumulative average abnormal returns and t-statistic of the distribution of cumulative abnormal return (CAAR) to the acquirer. Abnormal returns are calculated as the difference between realized shareholder returns and expected shareholder returns, measured using the market model. Each statistic for the distribution of CAAR is measured around the announcement date, t. Merger is labeled as financial if the acquiring company is part of the financial TRBC economic sector, else as non-financial. Difference is the mean of non-financial mergers less the mean of financial mergers.

		Non-financial mergers	Financial mergers	Difference
Announcement				
(t–5, t+5)	Excess return	1.29%	1.08%	0.21%
	t-stat	(0.96)	(1.06)	(0.10)
(t–3, t+3)	Excess return	2.65%**	0.05%	2.60%
	t-stat	(2.11)	(0.05)	(1.38)
(t–2, t+2)	Excess return	2.66%**	0.32%	2.34%
	t-stat	(2.26)	(0.44)	(1.36)
(t–1, t+1)	Excess return	4.21%***	0.18%	4.03%**
	t-stat	(3.46)	(0.36)	(2.32)
N		93	48	

*/**/*** denote significance at the 10%/5%/1% level.

As we perform a non-parametric two-sample Wilcoxon signed-rank test, comparing non-financial and financial mergers (see Table 11, panel B), the results are in line with the results of the t-tests presented in Table 11, panel A. All non-financial mergers show positive signs and financial mergers show negative signs on their median values. Three out of four results are significant at least at a 10 % significance

level, indicating that financial mergers results in lower abnormal returns compared to non-financial mergers.

Table 11
Panel B: Non-parametric Analysis of Differences in Cumulative Abnormal Returns by Financial and Non-financial Mergers

Non-parametric analysis of differences between financial and non-financial mergers in cumulative abnormal returns (CAR) to the acquirer using the two-sample wilcoxon signed-rank test (also known as Mann–Whitney U test). Abnormal returns are calculated as the difference between realized shareholder returns and expected shareholder returns, measured using the market model. Each statistic for the distribution of CAR is measured around the announcement date, t. Merger is labeled as financial if the acquiring company is part of the financial TRBC economic sector, else as non-financial.

	Median		Wilcoxon Z
Event window	Non-financial merger	Financial merger	
(t–5, t+5)	1.15%	−0.78%	0.34
(t–3, t+3)	2.17%	−0.13%	1.95*
(t–2, t+2)	2.06%	−0.11%	2.00**
(t–1, t+1)	2.06%	−0.08%	3.21***

*/**/*** denote significance at the 10%/5%/1% level.

5.3.2 Payment Method

Table 12, panel A show the differences in CAR between mergers using stock as payment and mergers not using any stock as payment. The results are not winsorized. For the non-stock mergers we find higher positive CAR values compared to the stock mergers, but the differences in mean between the two samples is not as spread as when comparing financial and non-financial mergers. The largest effect is found among the non-stock mergers for the 3-day event window (t−1, t+1) of 3.07%, which is significant at a 1 % significance level. This is 0.65% larger than the average return of the stock mergers for the same event window. The 5-day event window (t−2, t+2) shows a similar result, which is positive for the non-stock mergers of 2.47% and also significant at a 1% significance level. The result is 1.74% larger than the average return of the stock mergers for the same window. For the 7-day event window (t−3, t+3) and 11-day event window (t−5, t+5) results are significant at a 5% significance level and also positive showing CARs of 2.13% and 2.01% respectively for the non-stock mergers. The results are 1.07% and 2.28% larger than the average CARs of the stock mergers represented in during the same event windows.

Table 12
Panel A: Parametric Analysis of Differences in Cumulative Average Abnormal Returns by Stock and Non-stock Mergers

Cumulative average abnormal returns and t-statistic of the distribution of cumulative abnormal return (CAAR) to the acquirer by payment method. Abnormal returns are calculated as the difference between realized shareholder returns and expected shareholder returns, measured using the market model. Each statistic for the distribution of CAAR is measured around the announcement date, t. Merger is labeled as stock merger if any stock was used in the transaction, else as non-stock merger. Difference is the mean of non-stock mergers less the mean of stock mergers.

		Non-stock mergers	Stock mergers	Difference
Announcement				
(t–5, t+5)	Excess return	2.01%**	−0.27%	2.28%
	t-stat	(2.38)	(−0.13)	(1.16)
(t–3, t+3)	Excess return	2.13%**	1.06%	1.07%
	t-stat	(2.22)	(0.57)	(0.57)
(t–2, t+2)	Excess return	2.47%***	0.73%	1.74%
	t-stat	(3.00)	(0.41)	(1.01)
(t–1, t+1)	Excess return	3.07%***	2.42%	0.65%
	t-stat	(3.43)	(1.39)	(0.37)
N		92	49	

*/**/*** denote significance at the 10%/5%/1% level.

We compare differences in median CAR between stock and non-stock mergers by running the non-parametric Wilcoxon signed-rank test, as presented in Table 12 Panel B. In general the results are also in line with the findings from the two-sample t-tests presented in Table 12, Panel A. For three out of four of the event windows, stock mergers have lower median values than non-stock mergers, but no results are statistically significant.

Table 12
Panel B: Non-parametric Analysis of Differences in Cumulative Abnormal Returns by Stock and Non-stock Mergers

Non-parametric analysis of the cumulative abnormal returns and statistical significance of the distribution of cumulative abnormal return (CAR) to the acquirer using the two-sample Wilcoxon signed-rank test (also known as Mann–Whitney U test). Abnormal returns are calculated as the difference between realized shareholder returns and expected shareholder returns, measured using the market model. Each statistic for the distribution of CAR is measured around the announcement date, t. Merger is labeled as stock merger if any stock was used in the transaction, else as non-stock merger.

	Median		Wilcoxon Z
Event window	Non-stock merger	Stock merger	
(t–5, t+5)	1.10%	−0.54%	1.00
(t–3, t+3)	1.31%	0.70%	0.47
(t–2, t+2)	1.61%	1.25%	1.31
(t–1, t+1)	0.84%	1.67%	−0.19

*/**/*** denote significance at the 10%/5%/1% level.

6. Robustness considerations

In order to control for the robustness of the results we choose to include alternative independent variables in the cross-sectional model. First, we test whether or not we will obtain different results if the stock variable is categorical, instead of continuous. We try two different approaches in categorizing the variable and run both regressions. In the first approach the dummy variable is categorized in the same manner as in Table 3, Sample Composition by Payment Method, where the variable is categorized as a stock merger if any stock was used in the transaction, and as a non-stock merger if there was not any stock used in the transaction. In the second approach the dummy variable is categorized as a stock merger if 25% or more stock was used in the transaction, and as non-stock merger if less than 25% stock was used in the transaction. The results are summarized and presented in Table 14 (see Appendix 3), and we conclude that in both cases, all variables maintain the same sign and level of significance as before.

Second, we test whether or not we will obtain the same results when we use different classification for the dummy variable "same industry". In the original regression, observations is categorized according to their TRBC Economic Sector classification, and divided into 10 different categories. According to the TRBC classification, observations can also be categorized into the subcategories TRBC Business Sector,

which divides the companies across 28 categories, and TRBC Industry Sector, which divide observations across 54 categories. In our sample the dummy variable counts 97 out of 141 observations as belonging to the same industry when classified according to the original definition compared to 90 out of 141 and 73 out of 141, when classified according to the TRBC Business Sector and TRBC Industry Sector respectively. The results are summarized and presented in Table 15 (see Appendix 4). When same industry is classified according to the TRBC Business Sector, all variables maintain the same sign and level of significance as before the industry variable is changed. When same industry is classified according to the TRBC Industry Sector, the sign for the financial dummy is the same as before and level of significance increases to a 1% level. The "same industry" dummy changes sign and is slightly positive, but still insignificant. The other variables maintain the same sign and level of significance.

Third, we test for robustness as we define the dummy variable "financial" differently. This is done in combination with the different industry classifications for the variable "same industry" as defined in the original industry definition and as defined in Table 15 (see Appendix 4). We define the financial dummy variable at the TRBC Business Sector level, where we are able to isolate pure real estate deals. By this definition 47 deals are classified as real estate deals, compared to 55 financial deals when defining by the TRBC economic sector level. Same industry is defined on the economic-, business-, and the industry sector levels according to the TRBC system, see regression (5e), (5f) and (5g), respectively, as the results are presented and summarized in Table 16 (see Appendix 5). In all three regressions, the real estate variable maintains the same sign and approximately the same magnitude, and all on a significant level. The significance level is at a 10%, 5% and 1% level when defining same industry on the economic-, business-, and industry sector level, respectively. When defining same industry on the economic- and business sector level, all other variables maintain the same sign and level of significance.

7. Discussion

From our results we conclude that M&A announcements indicate a positive price reaction for the acquiring companies. This is supported by the univariate t-tests on AAR and on CAR, and in the non-parametric analysis. Results are in line with several studies that also find positive abnormal returns to acquiring firms on M&A announcement (Bruner, 2002; Campa and Hernando, 2004).

Thus, the positive announcement effect in our sample suggests that the market interprets M&A transactions to increase the value of the firm. This result is in line

with neoclassical theories as shareholder wealth is created, and can be explained by synergies. Results are also in line with the business environment shocks hypothesis. Firms can be reacting to a changing business environment, whether it is changing competition, regulation or consumer preferences and use M&A as a means to achieve a positive outcome in a changing environment. If M&A is done for the right purposes the markets react positively and this could indeed be what we see.

On the other hand, if the market believes acquisitions are done for opportunistic purposes it should react negatively to the announcement. Thus since we find positive returns upon announcement, we find no evidence that managers act according to the hubris hypothesis nor the poor governance and agency problem theory when they conduct M&A transactions.

When it comes to financial acquisitions, our results show significant positive effect on abnormal returns for non-financial acquisitions, and financial acquisitions shows a significant negative effect on abnormal returns. Our findings indicate that returns to shareholders in financial deals are around the expected return to shareholders. The results holds both in the cross sectional model and when performing non-parametric two sample tests. Since most of the financials in our sample is real estate, and the results are robust when we single out pure real estate transactions, we argue that it is the specific characteristics of real estate M&A that can explain the results. Our findings are important since prior studies argue that lower returns in real estate transactions are due to non-hostility and specific tax regulations of real estate investment trusts, but we find a difference between real estate and non-real estate transactions even though the full sample is absent of non-hostile takeovers and not subject to the American tax regulations. We also haven't found any support indicating that Swedish real estate transactions are subject to specific tax exemptions. Instead our conclusions boil down to a simple explanation argued in prior studies: M&A transactions are subject to lower asymmetric information for acquirers and provide lower synergetic value (Eichholtz and Kok, 2008; Anderson et al., 2012). With this view less value is created to shareholders and once again supported by neoclassical theory, the market should value these types of transactions lower than other types of M&A transactions.

When it comes to payment method, our results are less clear-cut but we reach several conclusions in line with prior research concerning stock and cash payment. These results show a negative and significant effect on CAR when adjusted for outliers, and these results hold robust for wider event windows.

We do not find support for the market timing hypothesis since we find positive abnormal returns upon announcement. According to this theory, managers use

overvalued stock to purchase a target. When the market corrects the overvaluation, the target's shareholders are the losers and the acquirer shareholders the winners, and a positive effect on returns should be observed, but only in the long run. (Savor and Lu, 2009; Rhodes-Kropf and Viswanathan, 2004; Rhodes-Kropf et al., 2005). On the other hand there can be a signaling effect when acquirers use stock, which has the opposite effect on stock price around announcement. Myers and Majluf (1984) argue that the choice of stock as payment method should be interpreted as a signal from management that the stock is overvalued. In line with this, Bruner (2004) argues that there should be a negative effect on abnormal returns upon announcement since business savvy managers have more information about the firm's true value and signal to the that the stock is overvalued when using stock as payment method. When everything is considered, stockowners still make a net gain in the long run when management times the market (Savor and Lu, 2009; Rhodes-Kropf and Viswanathan, 2004; Rhodes-Kropf et al., 2005).

Furthermore, when we divide the sample into stock and non-stock mergers, we do not find a significant difference between the groups, but that non-stock mergers do have a positive and significant effect on CAAR, while stock mergers do not. Implying that when cash is used, the acquirers gain on the announcement. This is also found in prior studies that argue overpaying is less common when cash is used (Rhodes-Kropf et al., 2005). Overpaying destroys shareholder value of acquirers and likely happens when deals have unrealistic pre-deal estimations (Christofferson et al. 2004). Once too much is paid based on unrealistic purposes, the results are bound to be unfavorable for acquiring stockholders. The results are also supported by Bruner (2004) who finds that returns are either neutral or slightly positive when cash is the means of payment. US studies also show that cash as payment protects against overpaying since it is associated with lower takeover premiums and positive post-announcement returns (Rhodes-Kropf et al., 2005; Martynova and Renneboog 2008).

Our results are in line with prior research concerning size but do not contribute to the context of focused and diversified acquisitions. We find that size has a small positive and significant effect on abnormal returns, as reported in prior research (Asquith et al., 1983; Campa and Hernando, 2004). Prior studies have found evidence for deals within the same industry having either a positive or negative effect on abnormal returns. However we cannot reject the null of the effect of deals being in the same or different industries since we only find statistically insignificant results. Results do not change when performing robustness tests where observations are divided into 28 and 54 categories instead of 10 categories.

8. Conclusions

We find that Swedish M&A in recent years on average yields a significantly positive abnormal return of 2.28 %, and when adjusting for outliers 1.68 %. For the financial or real estate industry, we find a significant negative effect on abnormal returns, which is in line with theory and prior studies. Deals that are financed with cash outperform deals that are financed with stock, which also is supported by prior studies. We do not find support that M&A deals that are focused on the core business are more profitable than diversified deals, even though this is common in earlier literature.

We do not find support for either the hubris hypothesis, poor agency and governance hypothesis or the market-timing hypothesis. We find support for the business environment shocks hypothesis and the synergies hypothesis, as the market rewards these deals in industries other than finance and real estate upon announcement. The deals must thus be made for value increasing purposes according to the market.

We conclude that M&A in Sweden is a good idea if it is made for the right reasons and in the right industry.

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Appendices

Appendix 1.

Table 2
Panel C: Sample Composition by Sub-Industry

Distribution of number of M&A announcements by Thomson Reuters Business Classification System (TRBC) Business Sector within the all economic sectors.

	Acquirer	Percent	Target	Percent
Applied Resources	4	2.84	4	2.84
Automobiles & Auto Parts	1	0.71	2	1.42
Banking & Investment Services	7	4.96	2	1.42
Chemicals	1	0.71	0	0.00
Cyclical Consumer Products	3	2.13	6	4.26
Cyclical Consumer Services	8	5.67	9	6.38
Food & Beverages	6	4.26	6	4.26
Food & Drug Retailing	2	1.42	2	1.42
Healthcare Services & Equipment	2	1.42	4	2.84
Industrial & Commercial Services	10	7.09	19	13.48
Industrial Goods	7	4.96	4	2.84
Investment Holding Companies	1	0.71	0	0.00
Personal & Household Products & Services	0	0.00	2	1.42
Mineral Resources	1	0.71	0	0.00
Pharmaceuticals & Medical Research	6	4.26	6	4.26
Real Estate	47	33.33	46	32.62
Renewable Energy	0	0.00	1	0.71
Retailers	3	2.13	3	2.13
Software & IT Services	15	10.64	13	9.22
Technology Equipment	8	5.67	6	4.26
Telecommunications Services	8	5.67	5	3.55
Transportation	0	0.00	1	0.71
Utilities	1	0.71	0	0.00
Total	141	100	Total	141

Appendix 2.

Table 13
Panel A: Regression Analysis of Cumulative Abnormal Returns (t-2,t+2), (t-3,t+3), and (t-5,t+5).
Estimated coefficients of equation (5) in a sample of 141 M&A announcements. Non-transformed.

Variable	(t-2,t+2)	(t-3,t+3)	(t-5,t+5)
FINANCIAL	-0.026	-0.032	0.010
	(-1.43)	(-1.49)	(0.05)
SIZE	0.0090	0.0093	0.0076
	(1.25)	(1.52)	(0.88)
STOCK_RATIO	-0.045	-0.047	-0.048
	(-1.01)	(-1.04)	(-1.02)
SAME_INDUSTRY	-0.019	-0.017	-0.033
	(-0.69)	(-0.60)	(-1.12)
2014	0.038	0.050**	0.040
	(1.92)	(2.12)	(1.39)
2015	-0.016	-0.013	-0.034
	(-0.85)	(-0.57)	(-1.47)
2017	0.031	0.021	0.024
	(1.44)	(0.92)	(1.06)
CONS	0.040*	0.021	0.042*
	(1.81)	(1.60)	(1.86)
N	141	141	141
R2	0.10	0.08	0.11

*/**/*** denote significance at the 10%/5%/1% level.

Table 13

Panel B: Regression Analysis of Cumulative Abnormal Returns (t-2,t+2), (t-3,t+3) and (t-5,t+5).

Estimated coefficients of equation (5) in a sample of 141 M&A announcements where the independent variable. Winsorized.

Variable	(t-2,t+2)	(t-3,t+3)	(t-5,t+5)
FINANCIAL	-0.023**	-0.022**	-0.0092
	(-2.26)	(-2.13)	(-0.73)
SIZE	0.0067*	0.0044	0.0071
	(1.95)	(1.31)	(1.51)
STOCK_RATIO	-0.043***	-0.035**	-0.041**
	(-2.67)	(-2.16)	(-2.01)
SAME_INDUSTRY	-0.0049	-0.068	-0.013
	(-0.41)	(-0.58)	(-0.83)
2014	0.031**	0.034**	0.039*
	(2.11)	(2.21)	(1.67)
2015	-0.010	-0.016	-0.011
	(-1.00)	(-0.16)	(-0.90)
2017	0.020	0.019	0.027
	(1.76)	(1.64)	(1.83)
CONS	0.027**	0.025**	0.027*
	(2.53)	(2.32)	(1.83)
N	141	141	141
R2	0.16	0.08	0.08

*/**/*** denote significance at the 10%/5%/1% level.

Appendix 3

Table 14
Robustness Test with Regression Analysis Using Alternative Stock Variable

Estimated coefficients of equation (5) of Cumulative Abnormal Returns (t–1, t+1) in a sample of 141 M&A announcements, where the continuous variable "stock ratio" is replaced by a dummy variable for controlling for stock. In (5a) stock ratio is replaced by a stock dummy where the variable takes on the value 1 if at least 25% stock was used in the transaction, and 0 if less than 25% stock was used in the transaction. In (5b) stock ratio is replaced by a stock dummy where the variable takes on the value 1 if any stock was used in the transaction, and 0 if there was not any stock used in the transaction. The data is non-transformed.

Variable	(5a)	(5b)
FINANCIAL	−0.037**	−0.042**
	(−2.32)	(−2.47)
SIZE	0.0044	0.0052
	(0.99)	(1.19)
STOCK_DUMMY	−0.017	−0.026
	(−0.68)	(−1.16)
SAME_INDUSTRY	−0.015	−0.013
	(−0.56)	(−0.52)
2014	0.016	0.014
	(1.03)	(0.96)
2015	−0.028	−0.030
	(−1.25)	(−1.35)
2017	0.014	0.012
	(0.70)	(0.63)
CONS	0.057***	0.062***
	(2.74)	(2.94)
N	141	141
R2	0.082	0.089
*/**/*** denote significance at the 10%/5%/1% level.		

Appendix 4.

Table 15
Robustness Test with Regression Analysis Using Alternative Same Industry Variable

Estimated coefficients of equation (5) of Cumulative Abnormal Returns (t–1, t+1) in a sample of 141 M&A announcements, where the continuous variable "same industry" is replaced by a variable classifying industry on a more detailed level. In (5c) same industry is classified as the same industry based on TRBC Business Sector level. In (5d) same industry is classified as the same industry based on TRBC Industry Sector level. The data is non-transformed.

Variable	(5c)	(5d)
FINANCIAL	−0.044**	−0.046***
	(−2.42)	(−3.05)
SIZE	0.0063	0.0066
	(1.09)	(1.28)
STOCK_RATIO	−0.034	−0.034
	(−0.74)	(−0.81)
SAME_INDUSTRY	−0.027	0.0035
	(−0.11)	(0.28)
2014	0.016	0.015
	(1.20)	(1.00)
2015	−0.028	−0.027
	(−1.20)	(−1.19)
2017	0.015	0.015
	(0.75)	(0.79)
CONS	0.052***	0.050***
	(2.90)	(3.98)
N	141	141
R2	0.082	0.082
*/**/*** denote significance at the 10%/5%/1% level.		

Appendix 5.

Table 16
Robustness Test with Regression Analysis Using Alternative Financial Dummy

Estimated coefficients of equation (5) of Cumulative Abnormal Returns (t–1, t+1) in a sample of 141 M&A announcements, where the dummy variable "financial" is replaced by a variable classifying industry on a more detailed level, at the TRBC Business Sector Level, only including pure Real Estate companies, which is used in both (5e), (5f) and (5g). In (5e) same industry is classified as the same industry as in the original based on TRBC Economic Sector level. In (5f) same industry is classified as the same industry based on TRBC Business Sector level. In (5g) same industry is classified as the same industry based on TRBC Industry Sector level. The data is non-transformed.

Variable	(5e)	(5f)	(5g)
REAL ESTATE	−0.040*	−0.044**	−0.047***
	(−1.89)	(−2.15)	(−2.78)
SIZE	0.0060	0.0064	0.0067
	(1.06)	(1.09)	(1.29)
STOCK_RATIO	−0.032	−0.035	−0.036
	(−0.67)	(−0.75)	(−0.82)
SAME_INDUSTRY	−0.013	−0.0021	0.0046
	(−0.46)	(−0.09)	(0.35)
2014	0.017	0.017	0.017
	(1.03)	(1.10)	(1.06)
2015	−0.026	−0.026	−0.025
	(−1.11)	(−1.10)	(−1.08)
2017	0.016	0.016	0.017
	(0.76)	(0.80)	(0.85)
CONS	0.056***	0.050***	0.048***
	(2.87)	(2.83)	(3.96)
N	141	141	141
R2	0.083	0.098	0.097
*/**/*** denote significance at the 10%/5%/1% level.			