

The Impact of Firm-Level Shareholder Protections on Abnormal Returns on Insider Trading

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Abstract

This study is the first to investigate the relationship between firm-level shareholder protections and abnormal returns on insider trading. We thereby extend the few studies that have analysed insider trading from a shareholder protection perspective. The novelty of this study is its concentration on firm-level shareholder protection. Our results show that firm-level shareholder protections have a significantly positive impact on abnormal returns on insider purchases, indicating that firm-level shareholder protection is more influential than country-level shareholder protection. We found support that the information content hypothesis is valid for explanation of abnormal return on insider trading, which is in line with earlier studies. This result is an indication that insider purchases in firms that have adopted strict corporate governance rules are viewed by the market as trustworthy leading to positive market reactions on insider trading.

Keywords: Shareholder protection; Insider trading; Firm-level

Introduction

This study investigates the relationship between firm-level shareholder protections and abnormal returns on insider trading. Insider trading has been a central topic within both practice and research. A main question in this discussion asks whether insider trading should be seen as a problem or if it actually contributes to a more effective market [1].

The most general view is that insider trading is a symptom of imperfection within the market because it presents the opportunity for insiders to take advantage of superior information [2-4]. Insiders exploit outsiders because they can receive abnormal returns. The way to handle this problem is to implement regulations with the purpose of reducing the opportunity for insider trading [5-14].

A contrasting view is that insider trading must be accepted as a part of the game and that it is an effective and fast way to transfer expectations to the market. Outsiders can respond quickly to the signs of insider trading and therefore also gain profits or reduce losses. According to this view, regulation with the purpose of reducing insider trading makes the market more inefficient in the long run. Instead, regulations should support fast responses to insider trading [1,15-17]. These contrasting views have initiated empirical studies that examine how regulative settings and regulations affect insider trading and its consequences [18-21]. Two recently published studies by Fidrmuc et al. [22] and Dardas [23] extend existing research by highlighting how shareholder protections affect insider trading and the possibility of abnormal returns. These authors also compare countries with different legal origins based on the assumption grounded in the legal origin hypothesis, i.e. that legal origin affects how effective a regulation will be. However, the results of these studies are contradictory. Fidrmuc et al. [22], who use data from 16 countries, find that abnormal returns on insider transactions are positively correlated with country-level shareholder protections. The authors suggest that shareholder protection laws are highly relevant in shaping the information environment between the insiders and outsiders of a firm. According to the authors, this conclusion supports the information-content hypothesis that stipulates that market reactions to insider purchases increase with greater shareholder protection because shareholder protection enhances both the trustworthiness and the transparency of their actions. However, Dardas [23] used data from 17 countries and

categorises countries based on their belonging to different legal origins, resulting in three groups representing different levels of shareholder protection. English law countries represent high levels of shareholder protection, German and Scandinavian law countries represent medium levels shareholder protection and French law countries represent low levels of shareholder protection. The results show that abnormal returns on insider trading are highest in German and Scandinavian law countries, i.e. the countries representing medium levels of shareholder protection, compared to the other countries. French law countries show the lowest abnormal returns on insider trading, while English law countries exhibit mid-level abnormal returns. Dardas [23] explains that the results for English law countries stem from their longer history of using directors to address investment strategies, which results in smaller opportunities for abnormal returns.

We find the contradicting results interesting and a basis upon which to analyse the relationship between shareholder protections (beyond shareholder protections at the country level) and abnormal returns on insider trading. We build upon the implicit assumption of earlier studies that shareholder protections do not differ between firms within a country [22,23]. This assumption is supported by several studies that examine both country- and firm-level shareholder protections and show that it is not necessary for firms in strong shareholder countries to have strong shareholder protections in reality; instead, shareholder protections on the firm level vary greatly within a given country [24-27]. Markets throughout the world are becoming increasingly integrated, and several companies are currently cross-listed in exchanges in two or more countries. As previously explained, this conclusion implies that firm-level shareholder protections would have a more profound impact on the transparency and trustworthiness of insider actions and therefore may have a more direct impact on the

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effects of insider trading. Fully compiling the effects of insider trading in a specific company with country-level shareholder protections may therefore be quite misleading and would explain the contradictory results. The primary objective of this study is to deepen the results obtained by Fidrmuc et al. [22] and Dardas [23] by taking shareholder protections on the firm level into account to analyse their effects on abnormal returns for corporate insiders. Additionally, by taking the country dimension into account and choosing firms in three countries representing different levels of shareholder protections on the country level, we will be able to include a complementary analysis of the impact of shareholder protections on this level.

We used a comprehensive dataset to establish each firm's shareholder protections, and we analysed firms from three different countries and collected over 5,700 insider transactions from insiders within these firms. Our results confirm our expectations that firm-level shareholder protection affects abnormal returns on insider trading and appears to be more important than shareholder protection levels on the country level. Insider trading in firms with strong shareholder protection results in significantly higher abnormal returns than does insider trading in firms with low shareholder protection. This result indicates that a firm's corporate governance is very important in shaping the information environment between insiders and outsiders of the firm. Our results support the information-content hypothesis, i.e. that insiders in firms with strong corporate governance are perceived to be more trustworthy in their actions in the market because they respond faster than outsiders. This hypothesis is in line with the findings of Fidrmuc et al. [22].

This study contributes to the extensive research on insider trading by proposing an important explanation of abnormal returns on insider trading. The novel contribution of our study is particularly an examination of the relationship between firm-level shareholder protections and abnormal returns. Our results also shed light on the agency cost problem in which insiders exploit superior information to gain profits from insider trades, indicating that stricter corporate governance on the firm level may not mitigate these agency costs.

Research Question

Fidrmuc et al. [22] and Dardas [23] build upon the notion that shareholder protection contributes to returns on legal insider trading. We agree with this notion because earlier studies have shown that shareholder protection or corporate governance is influential in shaping the information environment in the capital market. The present research question involves whether shareholder protection on the country level or firm level is the most important factor in determining returns on insider trading. The literature on corporate governance is extensive, and there are many studies from both the country-level perspective [27,28] and the firm-level perspective [29,30]. Within the line of research from a country-level perspective, there has been a stream of comparative governance literature [31,32] focused on how economies, capital markets and firms perform under different legal regimes. In general, these studies demonstrate that country-level corporate governance influences firm performance. Additionally, within the line of research from a firm-level perspective, there are many studies that examine the value and relevance of firm-level corporate governance. These studies typically find that higher standards of firm-level governance are associated with increased firm value, decreased costs of capital, greater access to external financing, and other beneficial aspects of firm value

[20,33-41]. There are also several examples that analyse whether and how corporate governance affects the information environment as well as the impact of dealing with problems with asymmetric information, which could be directly translated to the problems between insiders and outsiders. Particularly relevant is the empirical research on financial analysts in which comparative studies of analyst performance and country-level shareholder protection have shown that analysts perform better (by producing more accurate earnings forecasts, for example) in countries with strong shareholder protection than in countries with weak shareholder protection [42-46]. These studies suggest an association between legal and financial reporting environments and analysts' forecast behaviour. The main argument of these studies is that strengthening country-level shareholder protection improves firms' public information, which can lead to a decreased need for analysts to gain private information. If more information is known by an outsider (as is the case in strong shareholder protection countries), an insider would have less private information with which to earn abnormal returns on insider purchases or sales.

However, although firm-level corporate governance has been studied extensively, there are not many studies on this issue as it relates to firm-level corporate governance. One of the few studies combining an analysis of firm-level corporate governance and analyst performance is by Beekes and Brown [47]. They find that Australian firms with better corporate governance have a greater analyst following and that there is less bias and greater accuracy but greater disagreement in their forecasts. Their results are therefore in line with those of Heflin et al. [48] and Irani and Karamanou [49], who argue that if analysts seek to gain an advantage by gathering private information in response to an increase in public information, this improvement of public information may improve accuracy while simultaneously increasing dispersion.

To conclude this section, research on both the firm level and the country level indicates that strengthening shareholder protection (on both levels) improves the availability of public information relative to the availability of private information. If so, insiders would have relatively less private information with which to trade when shareholder protection strengthens. However, this notion does not address the ability of insiders to use this private information to earn abnormal returns. We present a result similar to that reported by Acharya et al. [50], which indicates that firm-level governance systems effectively mitigate potential agency conflicts between managers and shareholders even without any country-level governance mechanisms. We therefore determine that within the context of insider trading, it is much more important to use firm-level shareholder protection than country-level shareholder protection to analyse insider trading. The firm-level shareholder protection examined in this study were constructed using firm-level shareholder protection attributes such as board effectiveness and audit quality. Because abnormal returns from insider trading mainly tend to be viewed as agency problems between shareholders and managers, it can be argued that these agency problems may be handled more effectively with firm-level, rather than country-level, shareholder protection mechanisms.

However, as mentioned in the introduction, strengthening firm-level shareholder protection may result in two divergent outcomes; the literature identifies these outcomes as rent extraction and information content. For example, Leland [51] argues that insider trading transfers wealth from uninformed shareholders to informed insiders.

Additionally, Bebchuk and Fried [52] report abnormal trading profits made by corporate insiders as agency costs. By contrast, Carlton and Fischel [15] argue that insider trading facilitates the flow of information and the rapid reflection of private information in stock prices. In support of the informational role of insider trades, Piotroski and Roulstone [53] show that insider trading increases the relative amount of firm-specific information incorporated into stock prices. The results presented by Fidrmuc et al. [22] support the information content outcome by showing that abnormal returns on insider purchases are higher in countries with high shareholder protection. The authors conclude that these results favour the information-content perspective based on the notion that insider trades reveal private information to the market and contribute to prices that better reflect fundamental firm values.

Method and Data

A firm-level measure of corporate governance

To measure firm-level corporate governance, we use the Corporate Governance Quotient CGQ dataset in accordance with Aggarwal et al. [24], Bruno and Claessens [25], and Chhaochharia and Laeven [26]. The provider, ISS, began collecting data from U.S. firms in 2002 and from non-U.S. firms in 2003; in total, ISS collects firm-level data from samples of firms from 30 countries. Several of the variables within the dataset were created from data gathered through other included variables, which could explain why researchers have previously chosen to use only part of the dataset. However, the parts of the dataset that these authors used differ. Chhaochharia and Laeven [26] use 17 of the dataset's attributes to create their governance index, Bruno and Claessens [25] use 18 attributes to create six different indices, and Aggarwal et al [24] use 44 attributes. For our analysis, we choose the same 44 attributes selected by Aggarwal et al [24]. This dataset gives us the opportunity to perform the most comprehensive firm-level analysis possible. Aggarwal et al.'s [24] methodology includes four subcategories of firm-level governance metrics: (1) Board (25 attributes), (2) Audit (3 attributes), (3) Anti-takeover (6 attributes), and (4) Compensation and Ownership (10 attributes). Table 1 lists the 44 specific attributes that are used in this study, classified according to the four aforementioned subgroups. If a firm possesses all of the attributes, its index is recorded as 100 per cent.

Research design

Because this study focuses on information asymmetry between insiders and outsiders, we develop a design with which to handle this issue. The literature has shown that information asymmetry between insiders and outsiders vary between firms, especially between smaller firms and larger firms or between specific industries. For example, smaller firms and some specific industries receive lower analyst coverage and less public information, which could also be less reliable. Therefore, it is assumed that these firms have higher information asymmetry between insiders and outsiders than other firms do. We therefore develop a research design to mitigate this problem of different information asymmetry. We aim to include as many similar firms as possible in our sample despite analysing firms from three different countries. The countries are chosen because they represent different shareholder protection regimes. The U.S., Germany and Sweden are representative of the three legal traditions described by La Porta et al. [32] Anglo-Saxon, German and Scandinavian – and therefore have different shareholder protection laws on the country level. Because the size of firms varies within countries, we choose a method for obtaining a sample of similar firms from each country. We therefore select Swedish

BOARD
1. All of the directors attended 75% of the board meetings or had a valid excuse.
2. The CEO serves on the boards of two or fewer public companies.
3. The board is controlled by more than 50% independent outside directors.
4. The board size is greater than 5 but less than 16.
5. The CEO is not listed as having a related-party transaction.
6. No former CEO is on the board.
7. The compensation committee is composed solely of independent outsiders.
8. The chairman and CEO are separate, or there is a lead director.
9. The nominating committee is composed solely of independent outsiders.
10. A governance committee exists and has met in the past year.
11. Shareholders vote on directors that are selected to fill vacancies.
12. The governance guidelines are publicly disclosed.
13. The board is annually elected (no staggered board).
14. A policy exists regarding outside directorships (with a limit of four or fewer boards).
15. Shareholders have cumulative voting rights.
16. Shareholder approval is required to increase/decrease board size.
17. There is a majority vote requirement to amend the charter/bylaws (not necessarily a supermajority).
18. The board has the expressed authority to hire its own advisors.
19. The performance of the board is reviewed regularly.
20. A board-approved succession plan is in place for the CEO.
21. The outside directors meet without the CEO and disclose the number of times that they meet.
22. The directors are required to submit their resignation upon a change in position.
23. The board cannot amend the bylaws without shareholder approval or can do so only under limited circumstances.
24. The board does not ignore shareholder proposals.
25. The board qualifies for combination points in proxy contest defences.
AUDIT
26. The consulting fees paid to auditors are less than the audit fees paid to auditors.
27. The audit committee is composed solely of independent outsiders.
28. Auditors are ratified at the most recent annual meeting.
ANTI-TAKEOVER
29. Single class, common.
30. There is a majority vote requirement to approve mergers (not necessarily a supermajority).
31. Shareholders may call special meetings.
32. Shareholders may act by written consent.
33. The company either has no poison pill or has a pill that was shareholder-approved.
34. The company is not authorised to issue blank check preferred stock.
COMPENSATION & OWNERSHIP
35. The directors are subject to stock ownership requirements.
36. The executives are subject to stock ownership guidelines.
37. There are no interlocks among compensation committee members.
38. The directors receive all or a portion of their fees in stock.
39. All stock incentive plans are adopted with shareholder approval.
40. Options grants align with company performance and demonstrate a reasonable burn rate.
41. The company expenses stock options.
42. All of the directors with more than one year of service own stock.
43. Officers' and directors' stock ownership is at least 1% but not over 30% of the total shares outstanding.
44. Repricing is prohibited.

Table 1: Forty-four firm-level corporate governance attributes
The above approach used by Aggarwal et al. (2008), we construct four subcategories of firm-level governance attributes: (1) Board (twenty-five attributes), (2) Audit (three attributes), (3) Anti-takeover (six attributes), and (4) Compensation and Ownership (ten attributes). The table presents the forty-four attributes that are considered in this study, divided into these four subgroups.

companies because Sweden is a small economy, and companies that are publicly traded in the Nasdaq OMX Stockholm Exchange are generally much smaller in size compared to companies in Germany and the U.S. To obtain a sample of companies with a reasonable number of insider trades, we choose the 26 companies in Sweden with the greatest rates of turnover. We then select the same number of firms from the U.S. and Germany, which have characteristics most similar to the firms from Sweden based on industry and sales. After checking for these characteristics, the chosen firms were included in the CGQ dataset; the final sample consists of 78 firms in total, i.e. 26 from each country.

Firm-level sample

The sample for the study is based on company data retrieved from the Orbis database and has been designed based on companies listed in the Nasdaq OMX Stockholm Exchange, the New York Stock Exchange and the Frankfurt Boerse.

Table 2 presents a summary of the CGQ statistics for the 78 firms in our sample. As expected, the levels of firms' shareholder protections are the highest for U.S. firms and the lowest for German firms. The median U.S. firm has a shareholder protection of 0.68 or 68 per cent, meaning that the median firm in our U.S. sample complies with 68 per cent of the 44 CGQ attributes. On the other hand, the median German firm complies with only 51 per cent of the CGQ attributes. Notably, there is a wide variation in firm-level shareholder protection among firms in each country. For example, the minimum value of shareholder protection for a firm from a strong shareholder protection country such as the U.S. is lower than the median values for firms in Sweden and Germany. Table 2 therefore supports the aim of this study to not only look at country-level shareholder protection but also analyse firm-level shareholder protection because country-level and firm-level shareholder protection might not correlate in a substantial way. Next, we use the median of the full sample from Table 2 to divide the firms into two groups: firms with high shareholder protection (median values higher than 0.59) and firms with low shareholder protection (median values lower than 0.59). Each group includes firms from each country. The first group is hereafter named High CGQ, whereas the other group is hereafter named Low CGQ. We also determine each firm's ownership structure, and ownership concentration is defined according to the general information on ownership reporting in 2011 from the Orbis database. To reclassify whether a company was concentrated or dispersed, we use the definition by La Portas et al. [32]. Companies with a single owner and voting shares of 20 per cent or more are considered to be companies with concentrated ownership, whereas those with voting shares below 20 per cent are considered to be companies with dispersed ownership.

Data on insider trading were collected from January 2006 until the end of December 2012, a period equivalent to seven years. The German

companies in the sample were registered in 999 insider transactions, the Swedish companies were registered in 1,974 insider transactions, and the American companies were registered in 2,809 insider transactions. In total, data on 5,782 transactions were collected. A difference exists between the numbers of insider transactions analysed between countries because the German and American data were retrieved by hand. The collection of Swedish data was extracted from the Financial Supervisory Authority (FI) website. The German data were retrieved from Insider Daten, which compiles the publications under the Federal Financial Supervisory Authority (BaFin), while the U.S. data were taken from a similar page, SecForm4, which compiles trade data from the U.S. Securities and Exchange Commission (SEC). For all transactions, we collected the following information: the names and identifiers of the company, transaction dates, announcement dates, transaction types (e.g., buy, sell, grant), the number of shares traded, transaction prices, and the insider's name and position in the firm (CEO, board Member, major Owner, other).

Table 3 summarises the trade statistics. In total, we collected data on 2,312 purchases (785 were trades in High CGQ firms while 1,527 were trades in Low CGQ firms) and 3,470 sales (2,487 were trades in High CGQ firms while 983 were trades in Low CGQ firms) for the 78 sample firms over the seven-year time period. Additionally, Table 3 shows the origin country of the High CGQ transactions. The majority of these transactions come from Sweden (purchases) and the U.S. (sales).

In Table 4, the transactions are divided by the position of insiders within the firm. A large portion of the trades were made by insiders other than CEOs, board members and major owners. In addition, we show the median ownership concentrations for the firms with dispersed ownership in Table 4. Of the 26 firms, 94 per cent have dispersed ownership, while only 35 per cent of Swedish firms in this sample have dispersed ownership. Compared to earlier studies (Fidrmuc et al.), we therefore measure ownership concentration on the firm level and not on the country level.

Comparative statistics

Table 5 shows the results for CARs over 6-, 11- and 101-day windows from the transaction day. For purchases recorded in Panel A, the overall average market is positively significant over the three windows, with the market adjusting on average by 0.7%, 0.6% and 7.0%, respectively. For the three windows, the markets react positively for all countries as well as for the full sample, except for the 6-day and 11-day windows in Germany. The long-term abnormal returns are larger on average and are significant at the 1% level. For all windows, we find that the markets react more significantly for firms with high shareholder protection relative to firms with low shareholder protection.

CARs for sale trades are presented in Panel B of Table 5. The results

	CGQ for firms		Median	Mean
	Min	Max		
Sweden	0.43	0.64	0.54	0.55
Germany	0.41	0.59	0.51	0.51
USA	0.41	0.77	0.68	0.67
Full Sample	0.41	0.77	0.59	0.60

Table 2: CGQ for firms

Firm-level shareholder protection measured with 44 attributes from the Institutional Shareholder Service. The numbers in the table are percentages of how many of the attributes are compiled by the firms. Note that the median for the sample is 59%, which is used to divide the sample into firms with strong shareholder protection (above 59%) and firms with weak shareholder protection (below 59%).

	Purchase transaction		Sale transaction	
	Total	High CGQ	Total	High CGQ
Sweden	1,396	462	578	179
Germany	638	58	361	11
USA	278	278	2,531	2,297
Full sample	2,312		3,470	
High CGQ	785		2,487	
Low CGQ	1,527		983	

Table 3: Summary of statistics from insider trades shown for the three countries as well as for the full sample. The transactions are broken down by the type of transaction and High CGQ firms and Low CGQ firms.

	Position				Ownership concentration
	CEO	Board Member	Major owner	Other	
Panel A: Purchase					
Sweden	82	446	86	786	0.35
Germany	80	161	440	393	0.44
USA	27	156	10	85	0.94
Sum	189	763	536	1,267	
Panel B: Sale					
Sweden	5	84	49	440	
Germany	32	62	0	267	
USA	161	1,089	114	1,157	
Sum	198	235	163	1,864	

Table 4: Descriptive statistics for different insider positions, transactions and ownership concentrations, broken down by different countries.

	CAR (0.5)		CAR (0.10)		CAR (0.100)	
	Mean	Median	Mean	Median	Mean	Median
Panel A: Purchase						
Sweden	0.89%**	0.37%**	0.32%	-0.03%	4.00%***	1.00%**
Germany	-0.47%	-0.59%	-0.26%	-0.49%	7.27%***	6.07%***
USA	2.80%***	1.96%***	3.71%***	1.75%***	21.50%***	10.87%***
Full sample	0.74%**	0.28%	0.57%*	0.06%	7.00%***	3.14%***
High CGQ	2.04%***	0.76%***	2.14%**	0.63%**	10.21%***	3.53%***
Low CGQ	0.07%	0.09%	-0.24%	-0.22%	5.35%***	2.75%***
High versus Low CGQ T-stat/z-stat	2.84**	2.71**	3.14***	2.49**	2.58**	1.44
Panel B: Sale						
Sweden	-0.17%	0.01%	-0.95%**	-0.52%**	-4.75%**	-5.21%***
Germany	-1.45%***	-1.34%***	-1.94%***	-1.83%***	-8.44%***	-8.81%***
USA	-0.24%*	0.07%	-0.62%***	-0.39%***	-3.75%***	-3.85%***
Full sample	-0.36%***	-0.12%	-0.81%***	-0.59%	-4.45%***	-4.49%***
High CGQ	-0.38%**	0.02%	-0.84%***	-0.50%***	-4.02%***	-3.52%***
Low CGQ	-0.31%	-0.44%*	-0.73%**	-0.92%***	-5.51%***	-7.18%***
High versus Low CGQ T-stat/z-stat	0.29	1.122	0.32	1.53	1.04	2.921***
T-stat/z-stat						

Table 5: Descriptive CAR after insider transactions

Note *p < 0.05; **p < 0.001; ***p < 0.001

The table shows mean and median CARs in various windows. Day 0 is the transaction day. The Wilcoxon sign-rank test is used to test the significance of the median. The Wilcoxon rank-sum test is used to test the equality of medians.

for sales are somewhat less obvious than those for purchases. The overall average market is negatively significant over the three windows, with the market adjusting on average by -0.4%, -0.8% and -4.45%. For the three windows, the markets mainly react negatively for all countries as well as for the full sample. However, we find no significantly negative reaction (except for the median for the 101-day window) for high shareholder protection firms relative to low shareholder protection firms. Therefore, we could argue that our results are consistent with the insider literature, which stipulates that sale transactions are less informative because an insider may sell for reasons related to liquidity and portfolio. In summary, Table 5 indicates that abnormal returns differ across firms with different shareholder protections.

Empirical results

Our main focus of this study is the effect of firm-level corporate governance on abnormal returns on insider transactions. In the regressions shown in Table 6, we also control for other characteristics, but because our research design involves 26 similar firms in each country, we find no need to control for certain factors such as firm size

and market capitalisation, among others. We estimate the following regression model:

$$CAR_{ij} = \beta CGQ + \gamma \text{Control variables}$$

where CAR_{ij} is the cumulative abnormal returns for transaction i in company j . CGQ represents firm-level shareholder protections, our main variable of research interest. Control variables in our regression include Ownership, Country, Insider position, and Transaction size. However, although we analyse similar firms, firm characteristics such as ownership concentration, insider position and transaction size could differ among the sample. Therefore, we control for these variables. Ownership concentration is measured as a dummy variable where 1 stands for concentration ownership while 2 stands for dispersed ownership. Insider position is measured on a scale in which 1=other, 2=Board member, 3=CEO, and 4=Major owner. Transaction size is measured on a scale in which 1=0-3,550 U.S. dollars, 2=3,550-14,000 U.S. dollars, 3=14,000-35,000 U.S. dollars, 4=35,000-140,000 U.S. dollars, and 5=140,000+ U.S. dollars. Table 6 shows the regressions for CARs over 6, 11 and 101 days. The impact of shareholder protections

on abnormal returns is estimated using the firm-level CGQ index.

Panel A of Table 6 shows strong positive shareholder protection effects on purchases. In Column 1, after controlling for ownership concentration, country, insider position and transaction size, the 6-day CAR is positively significant with a p -value < 0.01 for CGQ, meaning that higher firm-level CGQ means larger abnormal returns. For the other windows CGQ is also significant with p -value < 0.01 for the 11-day and p -value 0.001 for the 101-day window. Notably, the country variable is not significant in any of the three windows indicating no significant difference across countries.

For sales in Panel B CGQ is only significant (p -value < 0.001) for the longer window. This latter result could be in line with earlier research. For example, Bruno [25] show large difference in trading volume between insider purchase and sale around announcement day.

Conclusions

In this study, we extend the few studies [22,23] that have analysed insider trading and shareholder protection. Unlike these earlier studies, we use firm-level shareholder protection data. Our results show that firm-level shareholder protection has a significantly positive impact on abnormal returns on insider purchases, indicating that firm-level shareholder protection is more influential than country-level

shareholder protection. This positive correlation supports the results obtained by Fidrmuc et al. [22] that information content is decisive in strengthening shareholder protection. We found support that the information content hypothesis is valid for explanation of abnormal return on insider trading, which is in line with earlier studies. This result is an indication that insider purchases in firms that have adopt strict corporate governance rules are viewed by the market as trustworthy leading to positive market reactions on insider trading.

We contribute to the extensive research on insider trading by proposing an important explanation of abnormal returns on insider trading. The novel contribution of our study is namely the examination of the relationship between firm-level shareholder protections and abnormal returns. Our positive results also shed some light on the agency cost problem in which insiders exploit superior information to gain profits from insider trades. Our results particularly indicate that stricter firm-level corporate governance might not mitigate these agency costs. The shortcomings of this research may result from our not capturing all of the companies in each exchange, but the sample used in this study should be sufficient to infer any differences that exist between countries.

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	CAR (0.5)	CAR (0.10)	CAR (0.100)
<i>Panel A: Purchase</i>			
CGQ	0.1160** -0.0392	0.1503*** -0.0445	0.3171** (0.1234)
Ownership	-0.0104 -0.0058	-0.0129** -0.0066	0.0134 (0.0182)
Country	-0.0026 -0.0036	0.0019 -0.0041	0.0112 (0.0114)
Insider position	0.0052 -0.0037	0.0100** -0.0042	0.0310** (0.0117)
Transaction size	0.0001 -0.0022	-0.0009 -0.0025	-0.0246** (0.0070)
Constant	-0.0466 -0.0246	-0.0769** (0.0279)	-0.1366 (0.0775)
Number of observations	2,312	2,312	2,312
R2	0.68%	0.87%	1.58%
<i>Panel B: Sale</i>			
CGQ	0.0036 -0.0141	0.0171 (0.0182)	0.4664*** (0.0763)
Ownership	0.0054 -0.0032	0.0052 (0.0042)	-0.044** (0.0175)
Country	-0.0063** -0.0022	-0.0046 (0.0029)	-0.0173 (0.0120)
Insider position	0.0039** -0.0015	0.0046** (0.0019)	0.0543*** (0.0079)
Transaction size	-0.0003 -0.0009	-0.0008 (0.0011)	-0.0153*** (0.0046)
Constant	-0.009 -0.0094	-0.0008** (0.0011)	-0.2759*** (0.0510)
Number of observations	3,470	3,470	3,470
R2	0.56%	0.42%	3.22%

Table 6: The regressions for CARs over 6, 11 and 101 days
The impact of shareholder protection on abnormal returns is estimated using the firm-level CGQ index. The control variables are ownership, country, insider position and transaction size.

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