

Business, Government, and the Information Environment: Stock Trading and Earnings Shocks in China, Indonesia, and Singapore

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We examine stock market behavior around earnings announcements in three countries with different degrees of government involvement with corporations. We find evidence consistent with insider trading in shares of politically connected Indonesian companies. We find little comparable evidence for Singapore. For China, government regulation appears associated with insider trading. Thus, national economic, legal, and regulatory characteristics seem to affect the information environment in capital markets. © 2004 Peking University Press

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1. INTRODUCTION

What are the implications of government involvement in the economy? A socialist central planner might argue that government participation in setting prices, allocating goods, managing enterprises, and regulating other aspects of economic exchange is essential to harness economic forces to benefit ordinary citizens. Furthermore, government ownership of corporations puts society's needs ahead of the narrow interests of owners and managers. A skeptic would counter that government regulation and ownership create bad incentives and foster corruption, inefficiency, and destruction. Furthermore, the economic and social consequences of extensive government participation in the economy seem evident given the historical record of socialism and communism in the 20th century.

Shleifer and Vishny (1998) describe "government corruption as the sale by government officials of government property for personal gain." They note the variety of government services, licenses, and privileges that government officials may grant in return for a bribe. Furthermore, "the goods that the government officials sell are not demanded for their own sake, but rather enable private agents to pursue economic activity that they could not pursue otherwise." If we define government property broadly to include information, government officials can reap additional income by selling access to information or trading on that information in financial markets. If an efficient and fair capital market contributes to producing and digesting information, disciplining firms, and allocating capital, information-related corruption can seriously impede corporate performance and economic growth.

There is already substantial evidence from studies of U.S. markets that corporate managers and other insiders trade to exploit their privileged access to corporate news and other information.¹ Any company enjoys privileged information that would be valuable in trading against uninformed outsiders. However, government officials are likely to enjoy access to an even greater range of information on forthcoming fiscal and monetary policy changes, pending legislation and regulation, forecasts of economic activity, and forthcoming changes in government policies that affect individual firms. If corporate managers can obtain access to such information, the potential for insider trading and other dimensions of "crony capitalism" is heightened.

This paper uses stock market reactions to earnings announcements to detect differences in the information environment across firms grouped by government regulation or ownership. The stock market response to earn-

¹See John and Lang (1991) and Damodaran and Liu (1993). John and Lang (1991) demonstrate a direct link between market behavior around dividend announcements and reported insider trading.

ings is an ideal laboratory with which to study the impact of information arrival and, in particular, to gauge the impact of government participation on the information environment. We classify firms by the degree of government ownership, extent of ties between government and private businessmen, or degree of regulation of the product market in three developing or recently developed economies. Government ownership, regulation, or other participation can give rise to a group of investors who exploit their superior information to trade against other investors in the stock market.² The characteristics of the three countries in our sample inspire predictions that we use to interpret market reactions to corporate news across firms classified by the extent of government involvement.

There is increasing recognition that legal and political conditions can affect stock performance (Morck, Yeung, and Yu (2000)), capital structure (Booth, Aivazian, Dermirguc-Kunt, and Maksimovic (2001)), the impact of accounting information (Ball, Kothari, and Robin (2000)), and other aspects of capital markets across countries. Therefore, we study three countries, China, Indonesia, and Singapore, that differ in interesting and useful ways. While Singapore's government has extensive holdings of shares in many local companies, the country is perceived as having a well-developed legal and regulatory environment, an uncorrupt bureaucracy, and a business community that operates largely within the law. Furthermore, there are significant numbers of firms without government ownership. Therefore, we predict similar reactions to earnings releases for both government-related firms and other firms in Singapore. Suharto's Indonesia, in contrast, is the premier example of "KKN", the Indonesian acronym for "corruption, cronyism, and nepotism". Corruption extended to what Hellman, Jones, and Kaufmann (2000) describe as "state capture", where firms influence the policies and regulations affecting them. We predict substantial evidence of private information prior to earnings releases in Indonesia, particularly for politically connected firms. China's evolution away from state planning is recent and more difficult to characterize. For over 20 years, political leaders have been intent on modernizing China's economy. At the same time, the evolving economic and political environment leaves much room for corruption and lawlessness.³ Given the competing forces in China's economic and political system, we leave it to the data to reveal whether

²In broadly related work, Fan and Wong (2001) find evidence in favor of the proposition that (family) ownership concentration in Asian countries is associated with reduced "informativeness" or "credibility" of earnings releases as measured by the relationship between earnings and annual stock returns.

³The 1998 Transparency International Corruption Perceptions Index (www.gwgd.de/~uwvw/CPI/1998.html) assigns Singapore a score of 9.1 (higher than the 7.5 for the U.S. or the 8.7 for the U.K), China a 3.5 comparable to Zambia or Turkey, and Indonesia a 2.0 comparable to Colombia or Nigeria.

government-regulated firms display more or less evidence of trading on private information than other firms.

The balance of the paper is organized as follows. Section II describes our three sample countries, the manner in which we classify firms, and our predictions about likely event study reactions. Section III describes our data and methodology. Section IV presents results. Section V is a summary, discussion of implications, and agenda for further research.

2. AN OVERVIEW OF POLITICAL ECONOMY

2.1. China

Pragmatic politicians led by Deng Xiaoping consolidated their control of China's central government with the Eleventh Central Committee meeting of the Chinese Communist Party in December 1978 [Garnault and Song (1999)]. The country then embarked on an extensive program of urban and rural economic reforms. Deng described the reform program as "crossing the river by feeling for stones at each step" and, indeed, the twenty year history of reform is best described as eclectic, rather than representing a highly organized and specific ideology. Chinese political leaders seek economic growth as a way to modernize and strengthen their country after 100 years of explicit decline⁴ and foreign domination followed by several decades of economic mismanagement under Mao Zedong.

While the government has pushed the economy towards private ownership, free markets, and export-led growth, the presence of the government in the economy remains large. Banks are almost entirely state-owned. Central, state, and local governments or their agencies typically retain stakes in privatized companies that are listed on China's stock markets. While the contribution of state-owned enterprises (SOEs) to GDP is falling and the government is attempting to "harden" SOE budgets, the banking system remains under pressure to continue to extend credit to SOEs since they account for a great deal of employment, even if they are not profitable [Zhang (2000)]. While state control of prices has been reduced, certain critical retail and wholesale prices remain subject to state regulation [Gao and Chi (1995), Australia East Asia Analytical Unit (1997)].

The extent of government participation in the Chinese economy presents many opportunities for corruption and misbehavior. Classic examples include the purchase of products at controlled prices for resale at free market prices by officials [Zhang (2000)], commodity futures trading by organizations with ties to the government ministry that regulates supplies or prices

⁴One could argue that the decline of the Chinese state began in the late Ming or early Qing periods in the mid seventeenth century.

of spot commodities,⁵ and a massive smuggling scandal involving government officials in Hainan. Anticipating government policy or getting advance notice of forthcoming government decisions have been seen as critical activities for Shanghai stock market participants, and this so-called “policy analysis” (*zhengce fenxi*) is accorded more weight than conventional fundamental or technical analysis [Hertz (1998)]. More generally, businesses may cultivate ties with government officials to influence the course of political decisions⁶ that affect their firm’s prospects or the economy generally.

For our experiment, it is not helpful to classify PRC firms on government ownership as virtually all PRC firms have a significant degree of government ownership (typically about 30%). Therefore, we classify Chinese firms according to state regulation of output prices. As discussed in the previous paragraph, many corruption episodes in the PRC have revolved around the pricing and control of wholesale and retail prices that remain regulated. Following Gao and Chi (1995) and Australia East Asia Analytical Unit (1997), we designate firms as “government regulated” if PRC stock exchanges classify them as oil, water, agriculture, aircraft, airline, coal, “new material”⁷, publishing, power, or telecommunications. Source of classification is China Chengxin Securities Rating Company. We predict that evidence of informed insider trading prior to earnings releases is strongest for firms with government regulation of their product market. However, we also note that the Chinese government continues to pursue anti-corruption initiatives and, at times, has also attempted to manipulate the stock market to “diminish as much as possible the shock to society” [Hertz (1998)]. Our tests will suggest whether corruption in the form of trading on private information flourishes for those firms that seem most vulnerable.

2.2. Indonesia

Indonesia has a history of state intervention in the economy derived from the Dutch colonial system and from the post-colonial reaction against capitalism led by Sukarno, Hatta, and other founders of the modern Indonesian state. Emerging from the economic and political chaos of the late Sukarno era, a military-led government was formed by General Suharto in 1966 and persisted until Suharto’s “abdication” in May 1998. There are many examples of good economic policies and accomplishments during the Suharto era. The standard of living of the poorest Indonesians, on aver-

⁵Far Eastern Economic Review 26th May 1994, p. 80.

⁶Zhang (2000) quotes an “anti-reform” essay that warns “... the bourgeois class will actively interfere in the internal struggles of the Communist Party, attacking those reformers adhering to the socialist road while supporting those adhering to the capitalist road.”

⁷There is only one firm in this category, Changchun Heat-Shrinkable Materials, a subsidiary of Chinese Academy of Sciences/Changchun Institute of Applied Chemistry.

age, increased during the Suharto era. The government took many steps to liberalize the economy, such as the early partial removal of barriers to outward capital controls in April 1970. The government managed the vast influx of oil and gas revenues in the early 1980s successfully relative to other energy-exporting developing countries.

However, Indonesia's economy has been plagued by bad loans from state banks to business cronies of the Suharto family, manipulation of taxes, tariffs, and trade barriers to favor Suharto family and crony-controlled businesses, special access to subsidized credit and state granted monopolies and concessions for cronies, and other blatant examples of "KKN" in the small circle of political and business leaders that dominated the economy.⁸ The Suharto family is reputed to have amassed several tens of billions of dollars during the course of Suharto's rule, and is the subject of continuing investigation and legal action. Tolerance of the rampant, large-scale corruption of the Suharto years may originate from a traditional Javanese political culture in which personal economic gain is one of the "spoils of office" and serves to signal and reinforce the leader's power.⁹

For the purpose of our study, we classify firms according to their ownership ties to Suharto family members or businessmen closely associated with Suharto or his family members.

Specifically, we designate as "Suharto related firms" those firms owned, controlled, or influenced by a Suharto family member or having Salim, Ga-jah Tunggal, Astra, Sinar Mas, Bakrie, Dharmala, Lippo, or other known individual crony or crony business groups as a substantial owner indicated by annual reports, WorldScope, Asian Company Handbook, Kompass Indonesia (1996), and Toyo Keizai's Asian Company Handbook. These firms enjoyed extraordinary access to preferential government-granted monopolies and other privileges during the Suharto era. We predict that evidence of stock trading around earnings announcements motivated by private information will be particularly strong for these firms.

2.3. Singapore

Singapore emerged from the Second World War with its economy and political future in doubt. War, revolution, nationalism, and changes in the global economic regime threatened Singapore's traditional role as trading entrepôt for the region, channel for trade between East and West, and Great Britain's principal military outpost "East of Suez". Originally a socialist party, the Peoples Action Party (PAP) evolved towards pragmatic solutions to further economic development and maintain employment during a period of political turmoil and labor unrest in the 1950s and early

⁸See MacIntyre (1993, 1994), Woo (1995), Cole and Slade (1996), and Sharma (2001) for descriptions of Indonesia's economy and politics through the late Suharto years.

⁹See Anderson (1990) and Schwarz (1994).

1960s.¹⁰ Successive PAP governments have succeeded in attracting foreign investment, upgrading the education and skills of local workers, and boosting the economy to the point where GDP per capita is comparable to that of highly developed economies.

The PAP government has created an environment in which highly qualified and well-paid bureaucrats oversee an economy that is friendly to business and offers a predictable legal and regulatory environment. Free trade is the norm and foreign direct investment has continued to flow into the country. However, Singapore's economy cannot be characterized as laissez-faire in any sense. Classic "infant industry" protection, for example, has been offered to the local banking industry in an effort to nurture local firms. The government's push for a high technology economy has included government-founded firms such as the Singapore Technologies Group in which the government maintains a controlling stake. Other large groups ranging from banking to shipping to engineering trade on the stock exchange, but the government retains controlling ownership.

For the purpose of our tests, we partition Singaporean firms by the degree of government ownership (MND Holdings, Temasek, other government entity, or another government-owned corporation as a substantial owner) indicated by annual reports, WorldScope, and Toyo Keizai's Asian Company Handbook. In contrast to the Indonesian case, we predict that "politically connected" firms do not display price and volume activity around earnings events that differs substantially from other firms, given Singapore's perceived high quality legal and regulatory environment.

Singapore is a particularly interesting case for study because the close ties between business and government might lead naturally to "KKN" of the sort plainly evident in Indonesia and other East and Southeast Asian states [Hamilton-Hart (2000)]. Elite Singaporeans move freely between government and private sector jobs, business leaders sit on the boards of government-linked corporations, and family members of the country's first leader, Lee Kuan Yew, are active in business, law, and government. It will be interesting to see if our experiment confirms the country's image as fair, uncorrupt, and competitive.

2.4. Other considerations

It is possible that earnings releases and other corporate information are of little value in these countries. Bhattacharya, Daouk, Jorgenson, and Kehr (2000) find few significant responses to corporate news in Mexico. Ball, Kothari, and Robin (2000) find that the timeliness of accounting income varies across legal and governance environments. For Asia in particular, Ball, Robin, and Wu (2000) states "public debt and equity finance tend to

¹⁰See Rodan (1989) for an excellent description of the origins of modern Singapore.

be replaced by family ownership and private banking relationships, thereby reducing the demand for timely public disclosure". Their empirical results show little association between annual changes in accounting income and annual stock returns in Hong Kong, Malaysia, Singapore, and Thailand. Ordinary investors might view trading around earnings announcements as uninteresting or even dangerous in such an environment. Thus, we may find no market reactions around earnings announcements in our sample countries, if traders believe that earnings information is irrelevant or that informed insiders have already incorporated private information into prices prior to earnings announcement.

Alternative methods for classifying firms deserve mention. We construct classifications based on common perceptions from books and articles in the fields of economics, politics, and history, and anecdotes from the press. We then test whether our "government connection" classifications are justified by the empirical evidence. Other authors (such as Fan and Wong 2000) focus on family ownership and control indicated in corporate annual reports.

However, there are limitations to such classification schemes given the poor quality of information available. For example, the identity of owners indicated in corporate annual reports is clouded by the use of holding companies, street names, and other dodges. The identity of those trading shares at any given time is impossible to discern: stock exchanges and brokerages do not supply this information for research purposes. Furthermore, there is no strict requirement to report "insider trades" as in the U.S. and, even if there was, inside traders can easily conceal their identity.

3. EXPERIMENTAL DESIGN

3.1. Data

The Pacific Basin Capital Markets Research Center (PACAP) at the University of Rhode Island is the source of most market and company data for Indonesia and Singapore. CD-ROMs contain data that is comparable to the sum of CRSP and COMPUSTAT. The sample period is 1990 to 1997 for Indonesia to span the Suharto years. The sample period is 1990 to 1998 for Singapore, the maximum available from our data source. We obtain daily stock returns and trading volumes, market index returns, interest rates, and balance sheet variables. I/B/E/S is the source of data on earnings forecasts and earnings announcements.

For China, we obtained most data from the Taiwan Economic Journal's Great China Database.¹¹ The sample period is 1996 to 2000 and is determined by the limited availability and quality of data for China. The

¹¹<http://www.tei.com.tw>

data include daily stock returns and trading volume, market index returns, balance sheet items, actual earnings announced, and management earnings forecasts. We must rely on management earnings forecasts to generate earnings surprises because I/B/E/S has only very limited data on PRC firms, typically only for those firms that maintain a “B share” or other security legally available to foreign investors.¹² We construct a domestic Chinese stock index by combining the capitalization-weighted A-share indexes of the Shanghai and Shenzhen stock exchanges. We also obtain an annualized monthly 3-month deposit rate from DataStream to serve as the riskless rate for China.

For all three countries, we study the absolute value of returns (rather than signed returns) and abnormal volume. As Beaver (1968) notes, price change reflects the average change in trader beliefs due to an announcement while trading volume reflects the sum of their idiosyncratic reactions. Therefore, volume reflects the sum of differences in trader reactions while the change in price measures only the average reaction. More recently, the works of Kim and Verrecchia (1994, 1997) ascribe a central role to return volatility in their theoretical results on stock trading and information flow.

For Indonesia and Singapore, the earnings surprise is defined as the actual announced earnings minus the mean of most recent analysts' forecasts reported by I/B/E/S, then normalized by the absolute value of the forecast mean. For China, the earnings surprise is defined as the actual announced earnings minus the management forecast, then normalized by the absolute value of the management forecast.¹³ As described below, we use the absolute value of the earnings surprise as an explanatory variable in cross-sectional regressions to explain the absolute returns.

3.2. Methodology

Event study. Classic event-study methodology is used to examine the information contents of earnings announcements. We define the announcement date as day 0, the event window as day -10 to day +20, and the estimation period as day -200 to day -11. Any event without market information at day 0 is excluded from the sample. We conduct event studies on both absolute returns and trading volumes.

Research on U.S. stock markets typically finds that return volatility and trading volume respond to earnings shocks and revert back to normal immediately afterwards.¹⁴ For our sample of three non U.S. markets, observing the event residuals in the pre announcement period is important to de-

¹²See Bailey, Chung, and Kang (1999) for descriptions of China's “B” and “H” share listings directed at non-Chinese investors. See Chen and Xiong (2001) for descriptions of other classes of Chinese shares.

¹³We found that the management forecasts are unbiased.

¹⁴See Kothari (2001) for a summary of research results.

tect the pre-announcement activity of traders with access to the nexus of politicians, government officials, and cronies.¹⁵ Of course, abnormal pre-announcement activity does not necessarily imply insider trading: markets may respond to voluntary disclosure by firms or financial analyst opinions prior to the formal release. Abnormal activity in the event period may represent another force. In Kim and Verrecchia (1994, 1997), some traders process corporate news releases into private, possibly diverse information at a cost. Such information stimulates trading activity if investors have different information processing skills and develop different opinions [Wang (1994) and Kim and Verrecchia (1994)].

We follow Brown and Warner (1985) and calculate three different measures of abnormal daily returns, mean adjusted (return minus estimation period average), market adjusted (return minus value weighted¹⁶ local market return), and market model (prediction error from fitting a one-factor market model with estimation period beta). We find that all three methods yield similar results and, therefore, report only the market model evidence. To combat the potential impact of infrequent trading, we adopt the “trade-to-trade” return approach of Maynes and Rumsey (1993) to compute returns and to calculate means and betas in the estimation period. Since absolute return is non-negative and not normally distributed, a non-parametric rank test described in Corrado (1989) is used for testing the significance of the rank of the absolute abnormal return around day 0. The statistic test is adjusted to accommodate infrequent trading according to Corrado and Zivney (1992).

To examine changes in trading volume around times of earnings announcements, abnormal daily trading volume is calculated as the difference between trading volume and the mean daily volume for that stock over the entire window $(-200, +20)$ normalized by the mean volume. Following Brown and Warner (1985) and Corrado (1989), a T-test is applied to examine the significance of the mean standardized abnormal trading volume around day 0.¹⁷

Given our event study procedure and the inevitable problem of missing observations in emerging market data, a few slight differences in the number of observations of return volatility and abnormal trading volume emerge.

¹⁵It is possible that pre-announcement private information can yield a pre-announcement volume reaction without a pre-announcement price reaction. In the model of He and Wang (1995), trading volume can occur as traders with “existing private information” unwind their positions against each other but do not alter their expectations. Thus, volume can arise without a price change at a news release, as has been documented in Kandel and Pearson (1995) for U.S. earnings announcements.

¹⁶Using an equally weighted market return gives very similar results.

¹⁷The sign of abnormal trading volume is not restricted to positive, and it could be normally distributed. A T-test is appropriate for testing its significance.

Cross sectional regressions. We regress event period return volatility and event period abnormal trading volume on firm characteristics to further explore our hypotheses.¹⁸ For return volatility, the dependent variable is the absolute value of the abnormal return (computed from the market model) cumulated over a three-day period (day -1, 0 and 1). For trading volume, the dependent variable is cumulative mean-adjusted trading volume. Previous research [Morse (1981) and others] suggests that, although the bulk of the trading volume reaction occurs on day -1 and 0, abnormally high trading persists up to five days after the announcement. On the other hand, any directional aspect of the price response to the earnings announcement may end by the end of day +1, so the use of cumulative abnormal trading volume up to day 5 may add noise to our results. Therefore, a four-day window (day -1, 0, 1, and 2) is chosen to cumulate abnormal trading volume for cross-sectional analysis. For regressions to explain trading volume reactions, we include the absolute value of the cumulative abnormal return over the same four-day window as an explanatory variable. Previous authors have documented a significant positive relationship between trading volume and the magnitude of returns at corporate announcements using U.S. data [Atiase and Bamber (1994), Kim, Krinsky, and Lee (1997)].

We construct explanatory variables for the cross-sectional regressions following Yoon and Starks (1994), Atiase and Bamber (1994), and others. The **absolute earnings surprise** is defined as the absolute value of the difference between actual earnings and forecast earnings, divided by the absolute value of earnings forecast, and is used to explain absolute abnormal returns. It is a standard explanatory variable in the earnings announcements literature. **Firm size** equals the natural logarithm of the month-end market value of common shares outstanding. It proxies for the amount of information available about the firm, market liquidity, average precision of investors' private pre-disclosure information, or other basic cross-sectional differences in information environment across firms.¹⁹ The number of **analysts** following each company proxies for the amount of research devoted to the firm.²⁰ Pre-disclosure information asymmetry is estimated with the **dispersion** in analyst earnings forecasts, which is the standard deviation of forecasts normalized by the absolute value of the mean forecast. Additionally, the event period abnormal return is used as an explanatory variable in regressions to explain abnormal volume. Furthermore, specifications for

¹⁸As indicated in the tables, all event study and regression tests use variables that have been "winsorized" at the 1% and 99% levels as is standard practice in the empirical accounting literature to control for the potential impact of outliers on our results. This adjustment has virtually no impact on our results and interpretation.

¹⁹See Bailey and Jagtiani (1994). The idea is that large firms tend to draw more press and analyst coverage.

²⁰The I/B/E/S database contains earnings estimates from a variety of local and global brokerage houses.

both abnormal return and abnormal volume include intercept and slope dummies to distinguish government owned or regulated firms from other firms.

Our cross-sectional regression specification may also allow us to distinguish between the different types of information at work around an earnings announcement. In the model of Kim and Verrecchia (1997), pre-announcement private information leads to a significant positive correlation between trading volume and the absolute value of the price change at the time of a public announcement. When there is only event-period information processing, event period trading volume is independent of event period return volatility.

4. EMPIRICAL RESULTS

4.1. Overview of the data

Table 1 gives a brief summary of the events and firms in our three-country sample. For China, typical government-regulated firms have a market cap of about US\$400 million while other firms are slightly smaller, averaging about US\$250 million. There are 35 government-regulated firms with a total of 35 events and 281 other firms with a total of 283 events. The number of events per firm per year is small because our source of managerial earnings forecasts (needed to compute the earnings surprise) is sparse. Typical Singapore firms have a market cap of just under US\$1 billion if government owned and about half that otherwise. There are 36 government owned firms with a total of 260 earnings events and 170 other firms with a total of 1100 earnings events. Indonesian firms are much smaller, with an average capitalization of about US\$ 400 million for Suharto-related firms and about US\$150 million for other firms. There are 104 Suharto-related firms with a total of 255 earnings events and 20 other firms with a total of 50 earnings events.

TABLE 1.

Summary statistics on the sample of firms and earnings releases

Variable	Definition	China				Indonesia				Singapore			
		Government regulated	Others related	Suharto related	Others owned	Government	Others	Suharto	Others	Government	Others	Suharto	Others
Number of sample firms		35	281	104	20	36	36	170	170				
Size (million US\$)	Common shares outstanding times month-end restricted share price	392 [260]	253 [199]	399 [172]	143 [79]	940 [333]	425 [171]						
Number of earnings events		35	283	255	50	260	1100						
Absolute earnings surprise	Absolute value of: the announced earnings minus mean of most recent forecasts reported by I/B/E/S normalized by absolute value of forecast mean. For China, I/B/E/S mean is unavailable and is replaced by managerial forecast.	0.1054 [0.1429]	0.0876 [0.0339]	0.189 [0.095]	0.221 [0.140]	0.236 [0.127]	0.435 [0.169]						
Forecast dispersion	Standard deviation of forecasts normalized by the absolute value of forecast mean earnings	—	—	0.194 [0.144]	0.607 [0.204]	0.239 [0.174]	0.421 [0.197]						
Mean [median] number of analysts per earnings event	Mean number of analysts who have forecasts outstanding for the firm at end of year. For China, it is unavailable.	—	—	16 [13]	11 [9]	37 [36]	24 [20]						
Mean [median] trading volume (thousand shares), event month	Number of shares traded in a month when an event occurs	33708 [20186]	31048 [22850]	8387 [2818]	5297 [1040]	8433 [3232]	5927 [1978]						
Mean [median] trading volume (thousand shares), entire sample	Monthly trading volume over the entire sample period	29843 [16198]	25373 [16080]	7227 [2258]	4318 [667]	7648 [3025]	5876 [1925]						

Time period is 1996 to 2000 for China, 1990 to 1997 for Indonesia, and 1990 to 1998 for Singapore. There is no forecast dispersion or number of analysts for Chinese firms as IBES coverage of China is limited and, therefore, we use company forecasts of earnings rather than IBES forecasts.

For Indonesia, there are about 16 analysts per Suharto-related firm-event and 11 analysts for others. Singapore averages 37 analysts per government owned firm-event and 24 for others. These numbers are broadly comparable to those reported in U.S. earnings announcement studies. Das, Levine, and Sivaramakrishnan (1998) report a mean number of analysts following a firm of 23 for the sample period of 1989 to 1993, and Barron and Stuerke (1998) report that the mean number of analysts for time period of 1990-1994 is 16. For both Indonesia and Singapore, the mean forecast dispersion for “other” firms is much larger than for Suharto-related or government owned firms. Recall that, for China, we do not have I/B/E/S data and must rely on management forecasts. Therefore, we cannot report any statistics on the number of analysts or forecast dispersion for Chinese firms.

Raw trading volume for Chinese firms is roughly similar for government-regulated versus other firms and appears higher in months when there is an earnings event. Raw trading volume for Suharto-related Indonesian firms and for Singapore government-owned firms appears higher than for “other” firms. Interestingly, trading volume seems similar in comparing Indonesia to Singapore while the Singapore firms are larger, suggesting much more rapid turnover in the Indonesian market. Based on the medians, it appears that there is no obvious difference in event and non-event month trading in Indonesia and Singapore.

4.2. China

Table 2 presents event study results for the absolute value of returns (left-hand columns) and trading volume (right-hand columns) around times of earnings announcements. We present residuals back to day -20 so as to capture the potential pre-announcement reaction due to private information. The table also breaks the event study down into two groups of firms. There are over 300 earnings events, ten percent of which represent “government regulated firms” while the balance represent “other firms.”

TABLE 2.
China abnormal stock return and abnormal trading volume around earnings
announcements

Window	Absolute value of abnormal stock return						Abnormal trading volume									
	Full sample		Government- regulated firms		Other firms		Full sample		Government- regulated firms		Other firms					
Nobs	Median	R-Statistic	Nobs	Median	R-Statistic	Median	R-Statistic	Nobs	Mean	T-Statistic	Nobs	Mean	T-Statistic	Mean	T-Statistic	
-20	316	0.01318	0.14195	35	0.01491	0.15589	0.01297	0.12638	317	-0.20089	-4.04318	35	-0.20984	-1.55369	-0.19977	-3.73939
-19	318	0.01108	-1.07752	35	0.01284	-0.73074	0.01101	-1.05488	318	-0.22547	-4.53472	35	-0.15781	-1.15423	-0.23384	-4.40105
-18	318	0.01172	-1.00551	35	0.01226	-0.41248	0.01169	-1.04104	318	-0.19160	-3.80022	35	-0.20279	-1.33662	-0.19022	-3.55831
-17	318	0.01172	-0.76313	35	0.01242	-1.26034	0.01169	-0.59090	318	-0.19044	-3.71852	35	-0.22492	-1.38843	-0.18617	-3.45348
-16	317	0.01319	-0.20142	35	0.01836	0.96568	0.01291	-0.42937	317	-0.15097	-2.89309	35	-0.16817	-0.96825	-0.14883	-2.72626
-15	317	0.01184	-0.85642	35	0.01123	-0.62930	0.01205	-0.82819	317	-0.22288	-4.29285	35	-0.23342	-1.42978	-0.22158	-4.04775
-14	317	0.01150	-0.88156	35	0.01122	-0.76700	0.01160	-0.82738	317	-0.18367	-3.56085	35	-0.27412	-1.66027	-0.17245	-3.19045
-13	318	0.01188	-0.80786	35	0.01122	-1.18487	0.01211	-0.65694	318	-0.18838	-3.71478	35	-0.35347	-2.21927	-0.16796	-3.15734
-12	318	0.01266	-0.37124	35	0.01088	-0.44581	0.01321	-0.32264	318	-0.15907	-2.98334	35	-0.32962	-2.04358	-0.13798	-2.44377
-11	318	0.01333	-0.23361	35	0.01142	-1.17699	0.01388	-0.01452	318	-0.16728	-3.24501	35	-0.21657	-1.43378	-0.16119	-2.93560
-10	318	0.01272	-0.41654	35	0.01538	0.07371	0.01269	-0.48269	318	-0.14719	-2.77430	35	-0.06609	-0.43421	-0.15723	-2.78816
-9	318	0.01369	-0.13482	35	0.01184	-0.97355	0.01401	0.05350	318	-0.15200	-2.82859	35	-0.18382	-1.08664	-0.14806	-2.61626
-8	317	0.01272	-0.32052	35	0.01401	0.10523	0.01270	-0.38173	317	-0.17292	-3.41858	35	-0.21514	-1.34445	-0.16768	-3.15088
-7	317	0.01266	-0.45271	35	0.01127	-0.02644	0.01284	-0.50229	317	-0.17060	-3.38284	35	-0.23475	-1.57877	-0.16263	-3.03044
-6	318	0.01424	0.02430	35	0.01518	0.24613	0.01422	-0.02450	318	-0.14926	-2.86009	35	-0.28724	-1.74956	-0.13219	-2.41652
-5	318	0.01203	-0.86309	35	0.01269	-0.92291	0.01199	-0.77397	318	-0.21497	-4.19953	35	-0.35351	-2.22286	-0.19784	-3.66992
-4	318	0.01285	-0.20831	35	0.01670	0.87781	0.01256	-0.41822	318	-0.18863	-3.73188	35	-0.29630	-1.72153	-0.17531	-3.35050
-3	318	0.01435	0.01066	35	0.01594	0.29778	0.01426	-0.05066	318	-0.11272	-2.25088	35	-0.25354	-1.39128	-0.09530	-1.89674
-2	317	0.01437	0.58629	35	0.01357	0.67394	0.01450	0.51574	317	-0.03693	-0.66853	35	-0.19172	-0.94957	-0.01772	-0.37428
-1	316	0.01516	1.26573	35	0.01432	0.57829	0.01517	1.29816	316	-0.02748	-0.30564	35	-0.33881	-2.06728	0.01130	0.40547
0	260	0.03018	5.35033	30	0.02282	1.41438	0.03360	5.71349	260	0.55533	10.41643	30	-0.03070	-0.06953	0.63177	11.0005
1	316	0.01837	2.49461	35	0.02114	1.47486	0.01832	2.48780	316	0.35419	7.47800	35	0.00839	0.31898	0.39726	7.81747
2	318	0.01506	0.61491	35	0.01597	0.66101	0.01460	0.55069	318	0.12102	2.77979	35	-0.12840	-0.63188	0.15187	3.16890
3	318	0.01255	-0.09397	35	0.01172	-0.94137	0.01293	0.09255	318	0.00716	0.38245	35	-0.18727	-1.08420	0.03121	0.78669
4	318	0.01284	-0.30218	35	0.00931	-0.59604	0.01311	-0.21359	318	-0.05408	-0.95761	35	-0.19148	-1.16258	-0.03709	-0.60625
5	317	0.01159	-1.06498	35	0.00992	-1.65819	0.01197	-0.84541	317	-0.09322	-1.78552	35	-0.25461	-1.54711	-0.07319	-1.34804
6	317	0.01368	-0.20535	35	0.01458	0.46219	0.01332	-0.32773	317	-0.06890	-1.20048	35	-0.22711	-1.29537	-0.04927	-0.81644
7	317	0.01261	-0.36529	35	0.01261	0.11469	0.01284	-0.43395	317	-0.09327	-1.71731	35	-0.22315	-1.29970	-0.07715	-1.36288
8	318	0.01199	-1.25365	35	0.00948	-1.95294	0.01245	-0.99543	318	-0.06310	-0.94482	35	-0.13909	-0.65880	-0.05370	-0.76986
9	318	0.01315	-0.25255	35	0.01456	0.31798	0.01305	-0.35012	318	-0.05733	-0.76709	35	-0.31794	-1.91093	-0.02510	-0.14111
10	318	0.01163	-0.84013	35	0.01110	-1.10399	0.01171	-0.71014	318	-0.07315	-1.17927	35	-0.33843	-1.98854	-0.04035	-0.55075

This table reports event study results on absolute value of abnormal returns and abnormal trading volume. Sample is restricted to those events with trading activity at day 0. Abnormal stock returns are generated using one-factor market model residuals. A non-parametric rank test described in Corrado (1989) is used for testing the significance of the rank of the abnormal return. Abnormal trading volumes are generated as the differences between trading volume and the mean of daily volume for that stock over the entire window (-200, +20) normalized by the mean volume. Following Brown and Warner (1985) and Corrado (1989), a T-test is applied to examine the significance of the standardized mean abnormal trading volume. Government regulated industries are those firms the PRC stock exchanges classify as oil, water, agriculture, aircraft, airline, coal, "new material", publishing, power, and telecoms. Following standard practice in the empirical accounting literature, all variables that have been "winsorized" at the 1% and 99% levels.

We observe no pre announcement reaction of absolute return in either the full sample or the sub samples. Significant increases in absolute returns are observed only at days 0 and +1, and are due exclusively to “other firms”, that is, firms that are not regulated by the government. The trading volume evidence mirrors the absolute returns around earnings announcements in that reactions are much more prominent for “other firms”. There is a significant increase in trading volume in the event period (0 to +2). We also observe that there is a significant contraction of pre-announcement trading volume (−20 to −4). There is also some spotty (−13, −12, −5) and less significant evidence of pre-announcement trading volume contraction for “government regulated” firms.

The contrast between “government regulated” and “other” market reactions may reflect private information from the government that informed insiders have incorporated into prices prior to the announcement, effectively hiding their trades so that they do not induce many significant changes in return volatility and trading volume. Furthermore, we have only 35 observations for government-regulated firms and cannot rule out the possibility that we do not have enough statistical power to detect pre announcement reactions. Of course, the contrast in market reaction across the two groups of firms is also consistent with irrelevant disclosures from “government regulated” firms along with relevance for the disclosures of “other” firms.

Table 3 presents estimated coefficients, their adjusted p-values based on White’s (1980) heteroskedasticity-corrected covariance estimates, and adjusted R^2 for cross-sectional regressions. Event period absolute returns (Panel A, cumulated over a three-day (−1, 0, and +1) window) and event period abnormal trading volume (Panel B, cumulated over a four-day (−1, 0, +1, and +2) window) are regressed on several explanatory variables as previously discussed. The regressions pool observations for “government regulated firms” and “other firms”, and the coefficients are allowed to differ between the two groups by using intercept and slope dummies. The dummy variable equals one for “government regulated firms”, zero otherwise. Each regression observation represents the reaction of one firm’s equity trading to a particular earnings announcement. The regressions do not identify all possible factors that could explain return and volume around earnings announcements but only variables that proxy for the state of the information environment.

TABLE 3.
Cross-sectional regressions to explain China abnormal behavior at earnings announcements

	Panel A: Absolute abnormal return from day -1 to day $+1$			Panel B: Abnormal trading volume from day -1 to day $+2$				
	1	2	3	4	1	2	3	4
Intercept	0.04575	0.04309	0.20648	0.26467	1.04096	-0.0302	0.24095	-6.05152
< .0001	< .0001	< .0001	< .0001	< .0001	< .0001	0.9126	0.9738	0.4169
Dummy	-0.01129	-0.0069	-0.14989	-0.15064	-1.40358	-0.44784	1.1283	7.27482
Absolute earnings surprise	0.0174	0.2748	0.3295	0.3282	0.0008	0.5655	0.9266	0.5603
Absolute earnings slope dummy		0.007614		0.00921		0.0119		
Absolute return		0.0191						
Absolute return slope dummy		-0.01374		-0.0142				
Absolute return		0.149		0.1579				
Abnormal Return								
Abnormal Return slope dummy								
Size								
Size slope dummy								
Adjusted R^2	0.007	0.0177	0.036	0.0504	0.015	0.0729	0.0086	0.0613

This table reports cross-sectional regressions intended to explain abnormal return volatility and abnormal trading volume around earnings announcements. Sample is restricted to those events with trading activity at day 0. In Panel A, absolute value of the cumulative abnormal return (derived from a market model) over a three-day window (day -1 , 0, and 1) is regressed cross-sectionally on explanatory variables. In Panel B, cumulative firm-specific mean-adjusted trading volume over a four-day window (day -1 , 0, 1 and 2) is regressed cross-sectionally on explanatory variables. White-adjusted P-values are reported in parentheses beneath each coefficient estimate. The dummy variable equals 1 for government-regulated firms (listed in the previous table), 0 otherwise. Following standard practice in the empirical accounting literature, all variables that have been “winsorized” at the 1% and 99% levels.

Panel A seeks to explain event period absolute abnormal returns. The significant negative slope on the dummy variable in some specifications indicates that the absolute return reaction is significantly lower for “government regulated firms” than “other firms”. This is consistent with the absence of significant absolute returns for government-regulated firms reported in Table 2. There is a significant positive association between absolute returns and earnings surprises. The negative (though insignificant) coefficients on the earnings surprise slope dummy suggests that the association between return volatility and earnings volatility is lower for government-regulated firms. A test (unreported in the table) of the significance of the sum of the coefficient on earnings and the coefficient on the earnings slope dummy suggests that the association between absolute returns and earnings shocks is insignificant for government-regulated firms. It confirms our observation from the event study that the market is not responsive to earnings shocks for “government-regulated firms”. There is also a strong negative association between return volatility and size. This may be due to less pre-disclosure of earnings information by smaller firms, thereby leading to larger surprises at the time of the formal earnings release. A test (unreported) of the sum of coefficients suggests the negative association between absolute return and firm size is significant only for “other” firms.

Panel B seeks to explain abnormal trading volume in the event window. The slope coefficient on the government-regulated dummy is significantly negative in one specification, echoing the finding in Table 2 of no significant abnormal trading volume for “government regulated firms.” There is a universally strong positive association with the corresponding return volatility for “other firms”. However, the association between event period trading volume and event period return volatility is insignificant for government-regulated firms.

On balance, our findings for China are interesting. We do not observe any pre announcement increases of absolute return for either “government-regulated firms” or “other firms”. We find a significant increase in absolute return and trading volume at earnings announcements for “other firms”, but not for “government regulated firms”. Furthermore, “other firms” display an intriguing contraction in pre announcement volume. The significant contrast between these two groups of firms is consistent with selling or directly exploiting privileged access to information about government-regulated firms. As in Bhattacharya, Daouk, Jorgenson, and Kehr (2000), private information may be incorporated into prices far prior to the earnings announcements or information-motivated trades may be well hidden, yielding little or no observable market reactions. As suggested previously [Ball, Kothari, and Robin (2000), Ball, Robin, and Wu (2000)], it is also plausible that investors ignore earnings announcements because they are

uninformative and untimely, that is, they are worthless. This problem may be particularly severe for the “government-regulated firms”. Thus, irrelevant disclosures by government-regulated Chinese firms are also consistent with our evidence.²¹

A final issue with our PRC regressions is that, in contrast to Indonesia and Singapore, we do not have the number of analysts available for use as an explanatory variable. Thus, our ability to control for different degrees of information and information gathering across firms is especially limited.

4.3. Indonesia

Table 4 presents event study results for the absolute value of returns and trading volume around times of earnings announcements in Indonesia. There are about 260 earnings events for “Suharto related firms” and about 60 for “other firms.” There are statistically significant increases in return volatility for two pre-announcement days ($-3, -2$) and decreases in return volatility on post announcement day (+4), but no other evidence of changes in return volatility around earnings announcements. The pre announcement reaction of return volatility is only present in “other firms”, not in “Suharto related firms”.

²¹See, for example, “China No. 1 Pencil Draws Bead on Big Problem of Such Stocks: They Lack Even a Jot of Data” *The Wall Street Journal*, 4th September 1992, p. C2. More recent anecdotes of accounting errors and abuses by PRC firms can be found on Chinese-language websites such as www.cnstock.com. Abuses range from falsifying documents that justify balance sheet and income statement items to exaggerating bank deposits and leaving loans to closely related firms and individuals unreported.

TABLE 4.
Indonesia abnormal stock return and abnormal trading volume around
earnings announcements

Window	Absolute value of abnormal stock return				Abnormal trading volume											
	Full sample		Suharto-related firms		Other firms		Full sample		Suharto-related firms		Other firms					
Nobs	Median	R-Statistic	Nobs	Median	R-Statistic	Nobs	Mean	T-Statistic	Nobs	Mean	T-Statistic	Nobs	Mean	T-Statistic		
-20	307	0.01106	-1.28598	251	0.01104	-1.82225	0.01439	0.61058	336	-0.04655	-0.8533	276	-0.02613	-0.4346	-0.13147	-1.0872
-19	301	0.01220	-0.14146	247	0.01135	-0.46587	0.01401	0.61098	335	0.01219	0.2231	277	0.01205	-0.5847	0.74476	1.8141
-18	293	0.01249	0.14455	242	0.01202	-0.01245	0.01336	0.3799	315	-0.04863	-0.863	259	-0.08751	-0.8262	0.18826	-0.2702
-17	285	0.01214	0.34762	233	0.01304	0.85296	0.00998	-0.89405	336	-0.01749	-0.3206	275	-0.01495	0.0442	-0.08153	-0.8462
-16	302	0.01335	-0.35423	243	0.01329	-0.3013	0.00961	-0.23444	346	-0.02303	-0.4284	281	0.00467	-0.4593	-0.04216	-0.0334
-15	310	0.01383	0.79986	252	0.01459	1.1711	0.01091	-0.44357	345	0.00596	0.1107	281	0.06989	-0.0968	0.19227	0.4598
-14	312	0.01319	-0.05001	256	0.01298	0.30977	0.01077	-0.75358	345	0.00551	0.1024	281	0.10348	0.7932	-0.18708	-1.4243
-13	309	0.01445	-0.14385	256	0.01446	0.17996	0.01016	-0.73286	341	0.04983	0.9201	284	0.00454	0.4575	0.59212	1.2293
-12	310	0.01186	-1.03486	255	0.01230	-0.26938	0.00774	-1.95584	347	0.08833	1.6454	283	0.19264	1.8938	0.05627	-0.151
-11	314	0.01339	0.00474	254	0.01198	0.01681	0.01388	-0.02198	346	0.10034	1.8664	284	0.12542	1.9718	0.18196	0.189
-10	311	0.01374	0.93182	256	0.01327	1.0505	0.01211	0.09793	341	0.37625	6.9479	280	0.31394	7.9598	-0.00744	-0.6264
-9	306	0.01390	1.35149	248	0.01453	1.41643	0.01228	0.3725	342	0.21185	3.9178	280	0.28059	4.3195	0.12445	0.0221
-8	312	0.01269	-0.1156	255	0.01328	0.75204	0.00736	-1.89305	347	0.02252	0.4196	285	0.02748	0.708	0.09788	-0.5255
-7	321	0.01344	1.25724	264	0.01400	1.6489	0.01264	-0.34305	350	0.08707	1.629	289	0.01785	0.8654	0.5526	2.0184
-6	316	0.01329	0.81737	261	0.01461	0.98702	0.01281	-0.05312	349	0.08042	1.5024	288	0.00475	0.8423	0.37898	1.7635
-5	318	0.01339	0.83657	262	0.01184	0.44966	0.01400	1.10727	348	0.25951	4.8412	285	0.21319	4.4881	0.20867	1.8323
-4	318	0.01106	0.07209	263	0.01153	-0.98934	0.01814	2.24465	350	0.32017	5.9898	287	0.23422	6.4989	0.08018	0.2468
-3	321	0.01450	2.29878	265	0.01485	1.82414	0.01409	2.13082	356	0.17988	3.3939	294	0.01194	2.6906	0.27676	2.2734
-2	332	0.01355	2.56775	277	0.01431	1.76219	0.01750	2.66554	359	0.63388	12.0104	298	0.23013	11.6233	0.45447	3.4461
-1	356	0.01442	1.29028	296	0.01481	1.55915	0.01237	-0.09846	391	0.69054	13.6545	319	0.18314	12.8204	0.57852	4.8344
0	389	0.01247	-0.07647	318	0.01147	-0.58038	0.01504	0.99097	391	0.39087	7.7289	319	0.16621	8.0681	-0.0415	1.0286
1	351	0.01125	-0.52093	293	0.01044	-1.0057	0.01253	0.85093	356	0.48358	9.1242	298	0.21167	9.1857	0.15915	1.7839
2	324	0.01232	0.62431	273	0.01348	0.6815	0.01183	0.10085	351	0.29045	5.4416	291	0.19131	5.4998	0.11236	1.0495
3	323	0.01263	0.23337	267	0.01295	0.33398	0.01180	-0.12431	355	0.29598	5.5767	293	0.20635	5.6776	0.1683	1.0016
4	319	0.01169	-2.25417	264	0.01146	-1.9747	0.00864	-1.41192	346	0.11945	2.2218	285	0.14554	3.0778	-0.21737	-1.3613
5	321	0.01260	-0.31219	268	0.01398	0.32151	0.00911	-1.47592	351	0.1315	2.4637	291	0.16681	3.23338	-0.22402	-1.1619
6	311	0.01033	-1.872	261	0.01077	-1.76405	0.01005	-0.9183	343	0.14047	2.6016	286	0.17904	3.3667	-0.18351	-1.1595
7	310	0.01118	-0.37218	257	0.01137	-0.92368	0.01466	1.02422	349	0.06002	1.1213	288	0.0361	1.59675	-0.08036	-0.7874
8	318	0.01259	0.62421	265	0.01335	0.60244	0.01182	0.27479	348	0.19794	3.6924	288	0.27675	4.84344	-0.31514	-1.7189
9	311	0.01247	0.67975	259	0.01300	0.82695	0.01055	-0.06532	336	0.33246	6.094	278	0.32154	6.29181	0.15656	0.8928
10	309	0.01343	0.51413	255	0.01264	0.16694	0.01280	0.90984	343	0.21524	3.9864	281	0.25698	4.40468	-0.14018	-0.001

This table reports event study results on absolute value of abnormal returns and abnormal trading volume. Sample is restricted to those events with trading activity at day 0. Abnormal stock returns are generated using one-factor market model residuals. A non-parametric rank test described in Corrado (1989) is used for testing the significance of the rank of the abnormal return. Abnormal trading volumes are generated as the differences between trading volume and the mean of daily volume for that stock over the entire window (-200, +20) normalized by the mean volume. Following Brown and Warner (1985) and Corrado (1989), a T-test is applied to examine the significance of the standardized mean abnormal trading volume. Following standard practice in the empirical accounting literature, all variables that have been “winzorized” at the 1% and 99% levels.

There is much evidence of significant abnormal trading volume. We observe significant increases in trading volume in the pre-announcement period (-10, -9, -5 to -1) that persist for days through and beyond the announcement event period. This suggests a considerable amount of private information in the market. The substantial pre announcement trading volume reaction for Suharto-related firms in the virtual absence of a return reaction is consistent with pre announcement private information as in He and Wang (1995). "Other firms" demonstrate substantially less abnormal volume, only limited to days -3, -2 and -1 and coinciding with significant abnormal return volatility. These results provide strong evidence that the information environment for "KKN" firms is quite different from that of "other" firms. The substantial amount of pre-announcement abnormal trading in "Suharto related firms" is consistent with the "government presence fosters corrupt insider trading" hypothesis. While we do not have a prediction about post-announcement abnormal trading volume but again note the substantial difference in this indicator in comparing "Suharto related" firms to "other" firms.

Table 5 presents cross-sectional regressions to explain event period absolute returns and event period abnormal volume. The dummy variable equals one for "Suharto related firms", zero otherwise. In Panel A, the dependent variable is the absolute value of return in the window around the earnings release. In one specification, absolute return is positively related to the absolute earnings surprise. This is sensible, suggesting that there is a larger stock return reaction for a larger earnings surprise. Also in this specification, the absolute earnings surprise slope dummy term is strongly negative and of approximately the same size as the absolute earnings surprise coefficient. This suggests that the reaction of the stock return to the size of the earnings shock is significant only for "other firms". The market does not seem to care about the size of earnings surprises announced by "Suharto related firms", which is consistent with the event-study reactions of Table 4. Perhaps the market believes that insider trading has already taken advantage of the information or the information does not matter since reporting is not transparent or useful for "KKN" firms.

TABLE 5.
 Cross-sectional regressions to explain Indonesia abnormal behavior at
 earnings announcements

	Panel A: Absolute value of abnormal stock return from day -1 to +1							Panel B: Abnormal trading volume from day -1 to +2						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Intercept	0.01222	0.00865	0.02908	0.01305	0.01127	0.0221	0.00953	0.01494	-0.3482	0.6597	0.04828	0.03098	-0.13063	0.3348
Dummy	(< .0001)	(0.0009)	(0.0035)	(< .0001)	(< .0001)	(0.0216)	(0.0008)	(0.9141)	(0.0220)	(0.3983)	(0.7989)	(0.8291)	(0.8908)	(0.1595)
Abs. earnings surprise	-0.00285	0.000637	-0.01078	-0.00407	-0.00225	-0.00411	-0.0008430	0.19295	0.19368	-0.83699	0.05966	0.36374	-0.47641	0.28076
Abs. Earnings slope dummy	(0.0954)	(0.8127)	(0.3503)	(0.1762)	(0.3162)	(0.7158)	(0.7821)	(0.2467)	(0.3362)	(0.4584)	(0.8183)	(0.0613)	(0.7128)	(0.3948)
Abs. abnormal return														
Abs. Return slope dummy														
Size														
Number of analysts														
Analysts slope dummy														
Forecast Dispersion														
Dispersion slope dummy														
Adjusted R^2	0.0082	0.0319	0.0200	0.0023	0.0332	0.0370	0.0239	0.0082	0.0319	0.0200	0.0023	0.0332	0.0370	0.0239

This table reports cross-sectional regressions intended to explain abnormal return volatility and abnormal trading volume around earnings announcements. Sample is restricted to those events with trading activity at day 0. In Panel A, absolute value of the cumulative abnormal return (derived from a market model) over a three-day window (day -1, 0, and 1) is regressed cross-sectionally on explanatory variables. In Panel B, cumulative firm-specific mean-adjusted trading volume over a four-day window (day -1, 0, 1 and 2) is regressed cross-sectionally on explanatory variables. White-adjusted P-values are reported in parentheses beneath each coefficient estimate. The dummy variable equals 1 for Suharto-related firms and conglomerate-related firms, 0 otherwise. Following standard practice in the empirical accounting literature, all variables that have been “winzorized” at the 1% and 99% levels.

In Panel B, the dependent variable is the abnormal trading volume in the window around the earnings release. The most notable result is the uniformly strong positive slope coefficient on abnormal return. The strong association between the return and volume reactions in the event period suggests private information in the pre announcement period as in Kim and Verrecchia (1997). Furthermore, the slope dummy for abnormal return is positive (though not significant), suggesting that private information is at least as important for "Suharto related firms" as for "other firms". Additionally, the negative slope on forecast dispersion suggests that there is less event-period trading of firms that analysts have trouble forming earnings forecasts for. Furthermore, strongly negative slope coefficients on the forecast dispersion slope dummy term that this effect is particularly strong for "Suharto related firms", suggesting that analyst disagreement tends to dampen trading activity in these firms.

It appears that pre announcement activity is particularly significant in Indonesia's capital market, especially for "Suharto related firms". The results suggest private information accumulates in the pre announcement period and affects market activity both before and at the time of earnings announcements.

4.4. Singapore

Table 6 presents event study results for the absolute value of returns and trading volume around times of earnings announcements in Singapore. There are slightly more than 1000 earnings events, with about a quarter of those representing "government owned firms." There is no evidence of significant absolute return reactions at any time for either "government owned firms" or "other firms." There is spotty evidence of pre-announcement increases in trading volume for "government owned firms" at days -17, -16, -9, and -4 and for "other firms" at -7 and -5. This may be caused by insider trading in both government owned and other firms, but is not overwhelming. There is significant event period abnormal volume, but only for "other firms".

TABLE 6.
Singapore abnormal stock return and abnormal trading volume around
earnings announcements

Window	Absolute value of abnormal stock return						Abnormal trading volume									
	Full sample		Government owned firms		Other firms		Full sample		Government owned firms		Other firms					
Nobs	Median	R-Statistic	Nobs	Median	R-Statistic	Median	R-Statistic	Nobs	Mean	T-Statistic	Nobs	Mean	T-Statistic	Mean	T-Statistic	
-20	1082	0.0094	-0.3853	248	0.0087	0.0465	0.0095	-0.5265	1113	-0.0428	-0.3752	253	0.04919	1.26152	-0.06981	-1.11105
-19	1067	0.0095	0.7606	245	0.0086	0.4419	0.0099	0.7586	1109	-0.0314	-0.3814	248	0.00785	0.42731	-0.04266	-0.6623
-18	1061	0.0095	0.4335	241	0.0095	1.1216	0.0096	-0.0229	1118	-0.0470	-0.1169	251	0.01853	1.06007	-0.06591	-0.70338
-17	1075	0.0095	-0.1249	240	0.0095	0.2836	0.0095	-0.3089	1126	0.0318	1.6249	245	0.13463	2.07722	0.00319	0.74129
-16	1081	0.0104	1.0928	241	0.0104	1.5986	0.0104	0.5917	1124	0.0859	2.7132	251	0.23231	3.29175	0.04378	1.31355
-15	1065	0.0097	0.3533	240	0.0094	0.8656	0.0097	0.0086	1106	0.0249	0.9340	246	0.02282	0.65216	0.02555	0.71041
-14	1068	0.0096	0.9694	240	0.0095	0.7188	0.0098	0.8861	1124	0.0776	1.5612	249	-0.0204	0.23575	0.10542	1.6436
-13	1084	0.0094	0.3386	244	0.0095	0.8612	0.0093	-0.0080	1122	0.0524	1.6809	248	0.13436	1.41081	0.02916	1.15307
-12	1075	0.0100	1.6744	237	0.0094	0.9868	0.0102	1.6632	1121	-0.0090	0.4301	245	-0.02282	-0.08426	-0.00518	0.5311
-11	1079	0.0094	0.1352	236	0.0095	1.0912	0.0094	-0.3824	1128	-0.0455	-0.0604	247	-0.04858	-0.15685	-0.04467	0.01466
-10	1079	0.0096	0.7119	237	0.0085	0.9809	0.0100	0.4197	1120	-0.0190	0.6161	245	-0.01032	0.3417	-0.02138	0.51628
-9	1081	0.0093	0.5295	238	0.0098	1.2098	0.0091	0.0656	1119	0.0089	2.6145	246	0.20441	3.34722	-0.0464	1.1832
-8	1070	0.0092	0.2639	237	0.0089	0.2247	0.0093	0.2265	1110	-0.0191	1.4640	246	0.02497	0.57453	-0.03174	1.35275
-7	1063	0.0107	1.9164	238	0.0089	0.7029	0.0112	2.1243	1111	0.0050	2.2983	247	-0.07019	-0.46425	0.02662	2.8545
-6	1052	0.0101	1.4834	233	0.0092	0.7460	0.0104	1.5393	1093	0.0513	3.9035	240	-0.05533	-0.22299	0.08138	4.55698
-5	1055	0.0096	0.3771	231	0.0087	0.2929	0.0097	0.3386	1113	0.0384	3.6063	242	-0.02521	0.58389	0.0561	3.76891
-4	1072	0.0096	0.7744	237	0.0092	0.5035	0.0096	0.7450	1116	-0.0355	1.4646	249	0.09565	2.49789	-0.07331	0.3231
-3	1064	0.0093	-0.1363	235	0.0086	-0.3058	0.0097	-0.0195	1105	-0.0122	1.3816	243	0.03282	1.72615	-0.02494	0.64779
-2	1067	0.0100	1.3496	237	0.0100	1.3933	0.0100	1.0320	1120	-0.0323	1.2171	245	-0.05187	0.05752	-0.02686	1.3466
-1	1066	0.0093	0.4544	236	0.0076	-0.4933	0.0098	0.8431	1104	-0.0488	0.8097	246	-0.15453	-1.1747	-0.01848	1.54752
0	1060	0.0093	1.0651	239	0.0085	0.9792	0.0097	0.8747	1108	0.0614	3.2802	249	-0.01608	1.26147	0.0839	3.0463
1	1060	0.0096	1.1715	234	0.0091	0.7321	0.0099	1.1422	1106	0.0492	3.9826	239	-0.04484	1.32078	0.07514	3.80474
2	1064	0.0096	0.1311	233	0.0098	1.2624	0.0094	-0.4756	1114	0.0445	3.4495	245	0.03165	1.47589	0.0481	3.12193
3	1068	0.0092	0.0242	237	0.0080	-0.0204	0.0096	0.0420	1110	-0.0728	-0.1784	247	-0.01653	1.10156	-0.08898	-0.79163
4	1067	0.0094	-0.2860	238	0.0085	-0.7619	0.0095	0.0228	1114	-0.0328	1.7688	247	-0.02191	1.08554	-0.03588	1.42561
5	1065	0.0089	-0.5019	239	0.0104	1.6102	0.0086	-1.4882	1114	-0.0527	2.1203	248	0.09228	4.10773	-0.09433	0.20667
6	1059	0.0090	-0.4485	239	0.0079	-1.1527	0.0095	0.0176	1102	0.0076	2.6317	248	0.06535	2.57496	-0.00923	1.60159
7	1057	0.0095	0.1692	240	0.0095	1.0191	0.0096	-0.3130	1103	-0.1010	-0.3729	246	-0.02213	0.6988	-0.12368	-0.79752
8	1054	0.0096	0.3369	239	0.0088	-0.2651	0.0098	0.5769	1100	-0.0639	1.4820	243	0.06867	2.4894	-0.10156	0.35343
9	1055	0.0096	0.3938	239	0.0084	0.6272	0.0098	0.1846	1103	-0.1125	-0.2661	246	-0.16498	-1.2145	-0.09745	0.34874
10	1039	0.0099	1.7129	234	0.0099	1.9566	0.0099	1.2081	1090	-0.0996	-0.7730	243	-0.00915	0.51088	-0.12565	-1.1507

This table reports event study results on absolute value of abnormal returns and abnormal trading volume. Sample is restricted to those events with trading activity at day 0. Abnormal stock returns are generated using one-factor market model residuals. A non-parametric rank test described in Corrado (1989) is used for testing the significance of the rank of the abnormal return. Abnormal trading volumes are generated as the differences between trading volume and the mean of daily volume for that stock over the entire window (-200, +20) normalized by the mean volume. Following Brown and Warner (1985) and Corrado (1989), a T-test is applied to examine the significance of the standardized mean abnormal trading volume. Following standard practice in the empirical accounting literature, all variables that have been “winzorized” at the 1% and 99% levels.

TABLE 7.
Cross-sectional regressions to explain Singapore abnormal behavior at
earnings announcements

	Panel A: Absolute value of abnormal stock return from -1 to +1							Panel B: Abnormal trading volume from -1 to +2						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Intercept	0.00867 (0.000)	0.00802 (0.000)	0.01437 (0.000)	0.00999 (0.000)	0.00841 (0.000)	0.01253 (0.000)	0.00920 (0.000)	2.05951 (0.000)	1.09160 (0.000)	5.24300 (0.000)	2.43189 (0.000)	1.93052 (0.000)	2.72020 (0.002)	1.14358 (0.000)
Dummy	-0.00116 (0.044)	-0.00095 (0.115)	-0.00613 (0.021)	-0.00336 (0.001)	-0.00151 (0.002)	-0.00576 (0.035)	-0.00330 (0.003)	0.00743 (0.397)	0.28354 (0.135)	-2.61509 (0.097)	-0.14621 (0.006)	0.11655 (0.455)	-1.17877 (0.344)	0.39116 (0.344)
Abs. Earnings surprise								0.00122 (0.054)	0.00138 (0.028)					
Abs. Earnings slope dummy								-0.00074 (0.543)	-0.00091 (0.451)					
Abs. Abnormal return								129.86389 (0.000)				119.48936 (0.000)	124.21925 (0.000)	
Size slope dummy								-31.17945 (0.567)				-21.28958 (0.576)	-26.31711 (0.571)	
Size								-0.00076 (0.000)				-0.62838 (0.110)		-0.32062 (0.692)
Abs. Return slope dummy								0.00076 (0.006)				0.53459 (0.303)		0.29366 (0.612)
Number of analysts								-0.00005 (0.002)	-0.00004 (0.007)			-0.02688 (0.132)		-0.00930 (0.372)
Analysts slope dummy								0.00087 (0.046)	0.00078 (0.075)			0.01951 (0.405)		0.00423 (0.640)
Forecast dispersion								0.00064 (0.056)	0.00004 (0.890)	0.00003 (0.916)		0.35516 (0.620)	0.20106 (0.788)	0.32752 (0.774)
Dispersion slope dummy								0.00195 (0.005)	0.00208 (0.086)	0.00216 (0.067)		-0.30183 (0.424)	-0.20554 (0.457)	-0.33672 (0.492)
Adjusted R^2	0.002	0.018	0.013	0.01	0.008	0.022	0.003	0.065	0.003	0.002	0.061	0.062		

This table reports cross-sectional regressions intended to explain abnormal return volatility and abnormal trading volume around earnings announcements. Sample is restricted to those events with trading activity at day 0. In Panel A, absolute value of the cumulative abnormal return (derived from a market model) over a three-day window (day -1, 0, and 1) is regressed cross-sectionally on explanatory variables. In Panel B, cumulative firm-specific mean-adjusted trading volume over a four-day window (day -1, 0, 1 and 2) is regressed cross-sectionally on explanatory variables. White-adjusted P-values are reported in parentheses beneath each coefficient estimate. The dummy variable equals 1 for government owned firms, 0 otherwise. Following standard practice in the empirical accounting literature, all variables that have been “winsorized” at the 1% and 99% levels.

Table 7 presents cross-sectional regression results. Panel A seeks to explain absolute abnormal returns in the event window. Significant negative coefficients on the intercept dummy suggest that absolute return reactions are smaller for “government owned firms.” Absolute earnings surprise are associated with return volatility, with no distinction between the two categories of firms. The relationship between size and absolute return reaction is significantly negative for “other firms”, but insignificant for “government owned firms”. Thus, return volatility seems higher for smaller “other” firms, suggesting less pre-disclosure information flow and more difficulty in digesting earnings surprises. There is no evidence of such an association for government-owned firms. A strong negative association between absolute return reaction and number of analysts also holds for “other” firms only. Interestingly, a positive association between absolute returns and forecast dispersion appears to hold only for government owned firms.

Panel B seeks to explain abnormal trading volume in the event window. There is very strong evidence that abnormal volume is strongly positively related to the contemporaneous abnormal return reaction for both classes of firms, and is consistent with some pre-announcement trading based on private information. There are no other significant associations implied by the regressions. On balance, our Singapore results indicate differences between the responses to earnings of government owned versus other firms, but these differences are not as dramatic as for China and Indonesia.

4.5. Comparing China, Indonesia, and Singapore

We have mentioned models in which pre-announcement trading activity, particularly volume, can indicate trading on private information. We also have some specific predictions about our three sample countries. Alternatively, several authors, and common sense, suggest that, if standards of disclosure are poor, traders ascribe little importance to earnings releases, particularly in less developed economies.

With this in mind, we can return to our key empirical findings. For China, there is little evidence of any abnormal market reaction around earnings for government-regulated firms. The results are consistent with the presence of insiders who exploit their private information with effectively hidden trades. Uninformative, meaningless disclosures from government-regulated firms are also consistent with the results for China.²² The attenuation of pre-announcement volume for “other” firms may represent fear of insider trading: Hertz (1998) notes that “...official information,

²²La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) present an “accounting standards” score for a variety of countries. Singapore has a score of 78 (identical to U.K. and slightly higher than 71 for the U.S.) while Indonesia’s score is not available. Their study does not refer to China at all, suggesting that it is difficult to characterize standards in China’s evolving environment.

unsupplemented by unofficial verification and interpretation, was not only insufficient but potentially dangerous...”.

For Indonesia, we find the result that we predicted. The absence of pre-announcement return volatility coupled with substantial pre-announcement abnormal volume suggests pre announcement private information at work in the market for Suharto-related firms. For Singapore, we find little evidence of return volatility reactions and spotty evidence of pre announcement abnormal volume. While this does not unambiguously validate our prediction that government-owned firms are more “clean” than other firms, it is consistent with the general perception that all Singapore firms trade in a good quality environment.

We believe that a simple pattern can be seen in the results across our three sample countries. Where rules, enforcement, and disclosure are relatively strong (Singapore), we find no strong evidence to suggest that trading on private information is more prevalent for government owned firms than for other firms. Where corruption is well established and legal and regulatory practices are weak (Indonesia), we see evidence that is consistent with pre announcement trading activity in politically connected firms. Where political, economic, legal, and accounting systems are weak and evolving rapidly (China), the evidence suggests that government participation may offer opportunities for insiders to exploit private information or may be associated with meaningless accounting disclosures.

5. SUMMARY AND CONCLUSION

We have documented the behavior of stock markets around earnings releases in three widely differing Asian economies to understand part of the impact of government on business. Patterns of behavior across government-related versus other firms vary widely across our sample of three countries. The results seem consistent with our predictions about the nature of the capital market and underlying economic and political environment in each country. In particular, there is evidence that pre announcement trading on private information flourishes in an environment of corruption and poor disclosure. Abnormal market behavior at times of corporate news may be muted or non-existent in a poorly developed environment where the quality of disclosures is poor and the fear of insider trading is high. Using the prism of capital markets, we illustrate an interesting facet of the impact of government on business.

We have a number of suggestions for future work in this area. First, we have confined our study to three specific countries that clearly differ in interesting ways and for which data is readily available. While this gives the reader a tentative sense of differing market behavior across three distinct environments, extending the study to a broader selection of countries

would be more powerful. Second, formal second-pass regressions can be conducted to relate indicators of market behavior to country characteristics if the sample of countries is enlarged. For example, each country's average event-period abnormal volume could be related to the characteristics of the legal, regulatory, and accounting system that La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997, 1998) have collected or constructed for dozens of countries. Third, our framework can be extended to other regularly occurring corporate events, notably dividend announcements. Fourth, more detailed stock market records would permit measuring the amount of trading volume occurring in large blocks while more detailed ownership records would allow identifying the source of a trade as an institution, individual, or foreigner. More generally, our results suggest that a "government participation" factor may be useful in understanding stock returns, examining P/E or book-to-market ratios, or explaining stock market residuals around corporate governance events, particularly in less developed capital markets. Finally, there may be additional firm characteristics beyond government connections and additional information proxies beyond size and analyst coverage that may support or contradict our results.

Our results contribute to the growing literature that highlights the links between capital market conditions and broader characteristics of the economic and political system in a country. Fair and effective disclosure is part of the nexus of legal, regulatory, and reporting characteristics that underpin a well functioning capital market and a successful free market economy led by efficient and profitable corporations. Our results remind us of the significant cost that corruption can impose on capital markets.

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