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Does the Market Care about Investor Protection Practices in China?

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Abstract: This study develops a scorecard with which to measure the investor protection practices of major listed firms in China during 2007–2010. We use time-series data to examine the relationship between the change in firm investor protection practices and market performance. Results show that firms exhibiting improvements in investor protection practices manifest a subsequent increase in buy-and-hold abnormal returns. Results further indicate that the changes in the sub-index have different effects on a firm's future performance. Shareholder rights to be rewarded seem to have the most significant and positive effect on a firm's future performance for both local and international investors. Moreover, international investors pay attention to their rights to information. Results provide evidence in support of the notion that the market does care about firm's investor protection practices. Our results are robust to othermeasures of firm performance.

Keywords:investor protection, firm performance, China
JEL classification: G34; G38; L25

1. Introduction

After the seminal research by Berle and Means (1932), the agency problem between shareholders and managers has become a central topic in the corporate governance literature. Different mechanisms are used to align manager and shareholder interests (Jensen and Meckling, 1976; Fama, 1980; Fama and Jensen, 1983; Jensen, 1986; Holmstrom and Milgrom, 1991). In Asia, the agency problem is different. Most Asian businesses are dominated by a family or a majority shareholder. In the case of China, a significant proportion of listed firms is controlled by the state sector. In addition, a separation between the manager and the controlling shareholder seldom exists, and the chief executive officer is also considered the chairman of the board. Thus, the agency problem in Asia refers to the conflict of interest between the majority and minority shareholders (La Porta et al., 1999; Claessens et al., 2000 and 2002). Consequently, protecting the interests of small shareholders from tunneling[1] and self-dealing by large shareholders is a pressing issue in these markets (Djankov et al., 2008). La Porta et al. (2002) suggest that the improved protection of minority investors by law can limit expropriation, which in turn, raises the security price in the market given that outside investors are willing to pay more for these financial assets. Thus, firms with higher investor protection are expected to have better firm performance in the stock market. However, most studies on investor protection are based on the country level[2]. Yet, evidence still lacks on how firm-level investor protection affects firm performance. The

[1]According to Investopedia (www.investopedia.com), tunneling is defined as "an illegal business practice in which a majority shareholder or high-level company insider directs company assets or future business to themselves for personal gain."

[2]See, for example, La Porta et al. (1997, 2000, and 2002),Leuz et al. (2003),Djankov et al.(2008),Mclean et al. (2012), etc.

preset study contributes to the literature by examining the relationship between the investor protection of a firm and its performance.

As the country with largest emerging and transition economy, China provides a good setting to (1) assess the relationship between large and minority shareholders and (2) examine the effects of investor protection on the market performance of the firms. Since the introduction of the economic reform in 1978, China has gradually reduced its reliance on the state sector, which currently accounts for less than 50% of the industrial output, down from more than 75% before the reform. In the early 1990s, the government started to introduce a wide range of reforms into the state sector, including the listing of many state-owned enterprises(SOEs) on the two stock exchanges in Shanghai and Shenzhen.[3]Investor protection affects the capability of firms to raise funds needed in the future. Without a proper investor protection framework, investors will stay away from the equity markets.The Chinese government has introduced policies to create Western-style oversight mechanisms and corporate governance, in an effort to gain public confidence in Chinese equity markets. Despite all efforts, the Chinese government still remains the major shareholder of SOEs. The market may have a concern about the possibility of conflicts between the state and minority shareholder interests and how management would navigate this situation. Succinctly put, the issue is how minority shareholders' interests are protected in China. Thus, China provides a unique opportunity, with which to assess the relationship between controlling shareholders and minority shareholders.

[3]China's two stock exchanges, the Shanghai Stock Exchange and Shenzhen Stock Exchange, were established in November 1990 and December 1990, respectively. Chinese listed firms have multiple classes of outstanding shares: shares listed in mainland China and traded in RMB (A shares), shares listed in mainland China and traded in foreign currencies (B shares), and shares listed or cross-listed overseas (e.g., H shares listed on the Hong Kong stock exchange; ADRs if listed in the US).

This study attempts to address the question of whether the market cares about a firm's investor protection practices in China. Investor protection in Chinese firms has a distinct characteristic from developed economies with Anglo-Saxon traditions. Several studies examine the evolution and situation of investor protection in China. Allen et al. (2005) examine the relationship between the reform of the legal and financial systems over the past two decades. They argue that alternative mechanisms and institutions exist, such as those based on reputation and relationships, which support growth in the private sector, and that these are good substitutes for standard corporate governance mechanisms and financing channels. Qian et al. (2011) find that the expropriation behavior by controlling shareholders through tunneling or self-dealing is far more severe in politically connected firms than it is in nonpolitically connected firms in China. Xiao and You (2009) find that the level of investor protection increases with the decrease in control structure opacity and increases in growth opportunities. Cheung, Jiang, and Tan (2010) reveal that a positive and significant relationship between firm transparency and market valuation exists in China.

We propose to measure the overall quality of investor protection practices of Chinese listed firms by constructing a comprehensive investor protection index (IPI)[4]. The index is derived from a set of OECD corporate governance principles, which contains 20 criteria organized into three sections: A) rights to information, B)rights to participate in corporate governance, and C) rights to be rewarded. The full list of criteria

[4]The investor protection scorecard study was first conducted in 2007 under the sponsorship of the Committee of Minority Shareholder Right Protection of China and the China Research Center for Minority Shareholder Protection. The original scorecard was designed according to OECD Principles of Corporate Governance (2004) and the official rules or laws in China concerning shareholder protection. A steering committee, consisting of representatives from regional stock exchanges, regulators, watchdog groups, and international consultants, dictated the content and format of the questions in the scorecard.

can be found in the Appendix. A detailed discussion of the index can be found in Section 3.1. This newly constructed measurement allows a systematic assessment of investor protection practices among major listed firms in China. Furthermore, this study uses time-series data to examine the effect of investor protection practices on firm performance during 2007–2010, which enables us to investigate whether the market rewards (penalizes) a firm for improvement (deterioration) in investor protection practices. The results should shed light on the progress of Chinese listed firms, especially in relation to the adoption of internationally accepted investor protection practices.

The empirical results indicate that investor protection practices of Chinese listed firms experience some fluctuations during the sample period. Our findings offer compelling evidence that a firm with better investor protection practices is associated with higher future market valuation in China. We also find that a positive and significant correlation exists between the changes in investor protection practices, as measured by the IPI, and the firm's one-year buy-and-hold abnormal return (BHAR). Specifically, firms with an improving IPI show an average BHAR of 0.361, whereas those with a deteriorating IPI exhibit an average BHAR of 0.172. The results are robust even after controlling firm characteristics. Among the three sub-indexes, the shareholders' rights to be rewarded seem to have the most positive effect on BHAR for both overseas dually listed and non-overseas dually listed firms. The analysis of sub-indexes shows that international investors reward Chinese listed firms for their more expanded disclosure. Our results are robust to other measures of firm performance, such as Tobin's Q, market-to-book ratio, and stock price crash risk. We also employ 2SLS with instrumental variable to address possible endogeneity problem.

The remainder of this paper is organized as follows. Section 2 presents a literature review and identifies our contribution, and Section 3 describes the data and methodology used in the study. Section 4 illustrates the results, whereas Section 5 presents the robustness tests. The last section concludes the whole study.

2. Literature Review

The problem in investor protection research refers to the problem of measuring investor protection practices. Generally, investor protection has two levels: the national and firm levels.

At the national level, investor protection refers to laws and regulations for all firms in the economy. The legal framework is an effective resort through which shareholders can claim their rights. However, the legal system varies across different countries, such that each market provides a different degree of protection to investors, and this often becomes an important factor for investors in determining their overseas investment. La Porta et al. (1997) show that countries with poorer investor protections—measured by both the character of legal rules and the quality of law enforcement—have smaller and narrower capital markets. The difference in laws and the effectiveness of their enforcement across countries leads to different consequences. First, the average firm-level governance is lower in countries with weaker legal systems (Klapper and Love, 2004). Second, firms located in countries with better protection of minority shareholders tend to show higher valuation (La Porta et al., 2002). Third, firms from countries with inferior investor protection tend to cross-list in the US to increase protection of their minority shareholders (Reese Jr. et al., 2002).Finally, in countries with better investor

protection, firms have fewer incentives for insiders to acquire private control benefits; thus,earning management is less likely to happen (Leuz et al., 2003).

At the firm level, investor protection refers to mechanisms through which firms balance the interests of the shareholders, managers, directors, and other stakeholders. Himmelberg et al.(2002) show that agency costs are somewhat determined by the scope and strength of investor protection.

However, until recently, studies related to investor protection are mostly based on a cross-country sample. Most measures of investor protection about laws and legal enforcement are at the country level (La Porta et al., 1997, 2000, and 2002; Leuz et al., 2003; Djankov et al., 2008; Mclean et al., 2012), and the same legal environment still lacks a firm-level measure of investor protection practices. The recent literature on corporate governance evaluations provide implications by which to measure the quality of investor protection at the firm level (Gompers et al., 2003; Klapper and Love, 2004; Black, 2001; Black et al., 2006a, 2006b; Cheung et al., 2010). In these studies, a scorecard method is developed to examine the quality of corporate governance at the firm level, and investor protection is naturally included in the overall evaluation system. For the scorecards, the OECD principles of corporate governance (1999, 2004) comprise a benchmark that covers the following: 1) the rights of shareholders, 2) equitable treatment of (minority) shareholders, 3) role of stakeholders, 4) disclosure and transparency, and 5) board responsibilities. As widely acknowledged, Parts I, II, and IV of the OECD principles on corporate governance are interrelated with investor protection. Thus, this study proposes to measure the overall quality of investor protection practices of Chinese

listed firms by constructing a comprehensive IPI, which is derived from a set of OECD corporate governance principles with a focus on investor protection.

This study contributes to the literature by addressing the market reactions of investor protection at the firm level using an evaluation scorecard developed from the OECD principles of corporate governance. First, this study provides new evidence on the relationship between investor protection and firm market performance, thus expanding the literature on corporate governance and firm performance. Second, the significance of the data from China is that the sample contains firms that exhibit increases and decreases in the quality of investor protection practices in the study period. Third, our scorecard includes 20 criteria and is different from the previous studies, which only focus on specific aspects of investor protection (e.g., transparency or shareholder rights) or from the perspective of multi-national comparisons. This scorecard is not a "point system" that only reveals whether a certain aspect of investor protection is present or absent. Instead of awarding one or zero point for the presence or absence of an item, we use 0, 1, and 2 to rate each criterion. Specifically, for each criterion, if the firm cannot meet the minimum regulatory requirement, then it is rated 0. If the firm meets (goes beyond) the minimum regulatory requirement, then it is rated 1 (2). Thus, the final investor protection index better represents the quality of investor protection practices. Finally, the data in this study are collected from public documents disseminated by firms and regulators instead of other sources, such as responses from firms, which may result in reporting bias. Hence, the levels of quality of investor protection can be clearly assessed and can serve as benchmarks for further empirical analysis.

3. Data and Methodology

3.1 Construction of the investor protection index

The OECD principles of corporate governance include five categories: 1) the rights of shareholders, 2) equitable treatment of shareholders, 3) role of stakeholders, 4) disclosure and transparency, and 5) board responsibilities. This research makes reference to the OECD principles of corporate governance, but focuses on investor protection especially minority shareholder protection. Thus, we design the scorecard mainly from the perspective of investor protection and select the criteria based on the relevant principles of OECD (2004), which are mainly from three categories: 1) the rights of shareholders, 2) equitable treatment of shareholders, and 3) disclosure and transparency. We further refine these criteria according to the national laws in China, such as Companies Law, Law of the People's Public of China on Securities, regulatory rules issued by the China Securities Regulatory Commission (CSRC), and Codes of Best Practices formulated by the Shanghai and Shenzhen stock exchanges.

These criteria aim to measure how well a firm does in investor protection. The template was endorsed by an expert group before final adoption.[5] The criteria are grouped into the following three sections: 1) rights to information, 2)rights to participate in corporate governance, and 3) rights to be rewarded.

The first section of the scorecard assesses shareholders' rights to information. La Porta et al. (1998) posit that firms should have a transparent governance structure so that

[5]The scorecard was developed through an intensive process of appraisal by experts from mainland China and Hong Kong. The authors worked closely with China Securities Regulatory Commission, McKinsey & Company, and the World Bank to formulate the questions. The scorecard was then examined by a Steering Committee consisting of representatives from the practitioners' associations (e.g., auditor, small investors, venture capital, listed companies, and rating agencies) to ensure the validity and relevance of the items.

investors can readily obtain information about the firms and thus make investment decisions. The first and fourth categories of the OECD principles consist of the rights of shareholders and disclosure and transparency, respectively, stating that shareholders should have the rights to obtain relevant and material information on the firm, including the financial situation, performance, ownership, and governance on a timely and regular basis. Moreover, channels for disseminating information should be equal, timely, and cost-efficient. Thus, we look at the capability of investors to obtain relevant and material information regarding the firm through annual general meeting notices, websites, investor relations management systems, annual reports, or investor hotlines. The questions are refined according to the laws, rules, and regulations of China. For example, we examine the proper disclosure of information before voting in the general shareholder meeting during the process of appointing new directors and auditors. Article 17 of the Rules of General Shareholder Meeting of Listed Companies by CSRC requires that, when appointing new directors, their backgrounds should be announced publicly, including (a) education background, working experience, and part-time job situation; (b) whether they have association with the firm, the controlling shareholder or the actual controller; (c) the number of shares held by the director; and (d) whether they have been punished, criticized, or condemned by the CSRC or the two stock exchanges. In accordance with these rules, we design Criterion A.1.a as it is in the scorecard. Similarly, when we evaluate the quality of an annual report, in addition to the general information on financial and governance matters, we also look at the capability of a firm to discuss the potential business risk that the firm faces and the competitiveness of the product market in its annual report, as required by the *Standards Concerning the Contents and Formats*

of Information Disclosure by Companies Offering Securities to the Public No.2 — Contents and Formats of Annual Reports by the CSRC. In this way, we design Question A.3 as it is in the scorecard. Other questions are designed similarly, and we will not discuss them individually due to space constraint. The relevant OECD (2004) principles and the corresponding laws, rules, and regulations in China used to design the criteria are shown in the Appendix.

The second section of the scorecard covers shareholder's rights to participate in corporate governance. According to the first category of corporate governance principles advocated by the OECD, shareholders have rights to participate and vote in general shareholder meetings, to elect and remove members of the board, and to make decisions concerning fundamental corporate changes. The second category of the OECD (2004) principles deals with the equitable treatment of shareholders, and states that companies should not make casting of votes by minority shareholders difficult or expensive. Furthermore, the minority shareholders should be protected from abusive actions by the controlling shareholders. In practice, only large shareholders can participate in a more active manner in the firm's operation. Small shareholders may not be able to play an active role in the firm's decision-making process. However, the firm should try all means to facilitate shareholders' participation especially from the minority shareholders. For example, firms should facilitate proxy voting, online voting, and category voting mechanisms. Moreover, small shareholders should be encouraged to nominate directors, supervisors, and independent directors. Thus, the second section of our IPI aims to evaluate the capability of firms to provide convenience for minority shareholders in

participating in corporate operation. Once again, the criteria are refined according to the laws, rules, and regulations in China.

The final section of the scorecard addresses shareholder rights to be rewarded. The first category of the OECD (2004) principles states that shareholders have the right to have a share in the profits of the corporation. The reward for small shareholders includes dividend payment and share-price appreciation. Thus, we design questions in Section C with regard to dividend payment and capital gains in the scorecard. Dividend payment seems to be more popular among small shareholders at all times, whereas stock-price appreciation is sometimes uncertain. However, many Chinese firms are not prone to pay dividends to investors even when firms are making good profits. Therefore, investors are not interested in holding stock for a long period. Investors' short-term behavior may be the result of unfavorable investor protection.

We assess the quality of investor protection practice from the perspective of outside shareholders based on publicly available information. The data sources include annual reports, articles of association, memoranda of association, notices to call shareholders' meetings, annual general meeting minutes, company websites, analyst reports, and other sources available to the general public.[6] We rate the investor protection practices of major Chinese listed firms during the four-year sample period. The procedure used in this study to measure protection practices represents an improvement from methods commonly found in past studies. Specifically, instead of awarding one point for the presence and zero for the absence of an item of information from annual reports, the

[6]A group of post-graduate students who do not have any investment in stocks are carefully selected and trained to be raters. After intensive training, raters are assigned to rate firms on the chosen topics. All scores are audited and cross-checked for consistency and correctness by other raters and the supervisors.

method used in this study adds a qualitative element to governance practices, and assesses the amount and quality of information for some criteria. For evaluation, we use 0, 1, and 2 to rate each criterion. Specifically, for each criterion, if the firm cannot meet (or meets) the minimum regulatory requirement, then it is rated 0 (1). If the firm goes beyond the minimum regulatory requirement, then it is rated 2. Consequently, the final IPI scores are more comprehensive and representative of the quality of investor protection practices, after taking into account the quantity and quality of the information disclosed by firms.

The overall IPI is calculated as the weighted score of all 20 criteria. The three sections comprise10, 8, and 2 criteria, respectively. The weightings assigned to the three sections are 50%, 40%, and 10%, respectively,which are proportional to the number of criteria in these sections.[7] The final score is transformed to range from 0 (poor) to 100 (excellent).

3.2 Sample Selection

The sample is composed of the top 300 largest listed firms in China during the period 2007–2010. The ranking is based on the market capitalization of firms on the last trading day of June during the sample period. All sample firms are listed in mainland China, either on the Shanghai Stock Exchange or Shenzhen Stock Exchange, whereas some are dually listed on overseas exchanges, such as Hong Kong, Singapore, the UK, and the USA. The total 1200 firm-year sample consists of firms from almost all industries. The overall sample represents 84%, 82%, 83%, and 72% of the total market capitalization during each year in the four-year sample period, respectively. Each sample firm is

[7]Debates exist on the weights assigned to these questions. The weighting scheme used in this study is based on the number of questions in each section. Determination of questions that are more important and should carry more weight is difficult. We repeat our analysis by assigning equal weights to the three sections. The results are similar to those reported in this paper.

assessed by the investor protection criteria for each year during the sample period, which generates a time series of IPI for the sample firms. This study excludes financial firms from our overall sample, because firm-level variables, such as capital expenditures and leverage can be very different for these firms than for nonfinancial firms. After excluding financial companies, we obtain a sample of 1088 firms for further analysis, containing 274, 274, 273, and 267 companies in 2007, 2008, 2009, and 2010, respectively. Moreover, some firms in one year's sample may not repeat in the following year's sample.Thus, the sample sizes of changing investor protection index (△IPI) are 223, 225, and 223 in 2008, 2009, and 2010, respectively.

3.3 Research Methodology

This study aims to examine the relationship between the quality of investor protection practices and firm market performance. The practice of investor protection is measured by IPI. The firm market performance is measured by the one-year BHAR adjusted by the market return.BHAR for firm iis defined as

$$\mathrm{BHAR_i}(t, 12) = \prod_{t=1 \text{ to } 12}\left(1 + \mathrm{R_{i,t}}\right) - \prod_{t=1 \text{ to } 12}\left(1 + \mathrm{R_{m,t}}\right), \qquad (1)$$

where $R_{i,t}$ and $R_{m,t}$ are the monthly returns of firm i and the market index, respectively.

In terms of research method, we first use a subsample comparison to examine whether a firm's investor protection practices make a difference in subsequent market performance. Specifically, we split the whole sample into two groups based on whether a firm exhibits an increase or a decrease in the IPI score from the previous period. Then, we compare the subsequent firm performance of the subsamples. We further form a 2*2 matrix based on investor protection and BHAR prior to conducting the subsample

comparisons. In addition, we form another 2*2 matrix based on investor protection and overseas listings to compare whether investors in different markets react differently to investor protection practices.

We also investigate whether the change in investor protection practice leads to a change in subsequent market performance. The issue of missing variables is always a concern when dealing with the correlation between corporate governance practices and firm market performances. For example, a firm that has good investor protection practice may also be a more profitable firm. As such, higher market performance is associated with higher profits rather than with good practice in investor protection. To avoid misspecification of the association between investor protection and market performance, a comprehensive set of control variables is included to mitigate the omitted-variable bias. The control variables are basically the same as those used by Cheung et al. (2010), and includes SIZE (the natural logarithm of total assets), ROA (income before extraordinary items and discontinued operations and preferred dividends divided by total assets), LEVERAGE (total interest bearing debt divided by total assets), GROWTH (arithmetic average of the annual growth rate in sales over the preceding three years), CASH (the balance sheet value of cash and equivalents divided by total assets), CAPEX(the ratio of capital expenditures divided by total assets), TOP1 (the proportion of share controlled by the largest shareholder), and STATE (the nature or background of the largest shareholder; it equals one if the largest shareholder is a state-owner and 0 otherwise). These variables are included,because they can potentially affect the firms' market performance. One additional dummy variable, OVERSEAS, is also included in the analysis, indicating whether the firm is dually listed on an overseas exchange. For example, Chinese firms

that are listed in Hong Kong have to comply with the more stringent Hong Kong regulatory requirements.

Our model specification for regression is given below.

$$\begin{aligned} \mathrm{BHAR}_{i,t} = {} & \alpha_i + \beta_1 \Delta \mathrm{IPI}_{i,t-1} + \beta_2 \Delta \mathrm{ROA}_{i,t} + \beta_3 \mathrm{SIZE}_{i,t} + \beta_4 \mathrm{LEVERGE}_{i,t} + \beta_5 \mathrm{GROWTH}_{i,t} \\ & + \beta_6 \mathrm{CASH}_{i,t} + \beta_7 \mathrm{CAPEX}_{i,t} + \beta_8 \mathrm{TOP1}_{i,t} + \beta_9 \mathrm{STATE}_{i,t} \\ & + \text{Firm fixed effect} + \text{Year fixed effect} + \epsilon_{i,t} \end{aligned} \quad (2)$$

To ensure the robustness of the findings, we change control variables to check for variations. In the study, accounting information, firm performance, corporate governance variables, and other statistics are obtained from the China Stock Market and the Accounting Research Database. All data are matched according to each sample firm's fiscal year. Other firm data are obtained from annual reports, stock exchanges, and regulatory filings. To reduce the influences of extreme values, all continuous variables are winsorized at the 1% level.

4. Results

Table 1 definesthe key variables used in the study and the descriptive statistics of these variables are shown in Table 2. From Table 2, we can observe that the average firm's abnormal return (BHAR) is 0.274. The average return on asset (ROA) is 9.1%, indicating the largest listed firms in China are profitable. The average leverage ratio is 52.4% with an average growth rate of 57.6%. The results reveal that these Chinese firms experienced a growth trend during the sample period. The average board size is about 10.23 with 37% being independent director.The average cash ratio is 16% and

capital expenditure accounts for 7.4% of total assets. The summary statistics on firm statistics are comparable to those in Jiang and Kim (2015) which shows the average firm leverage of all listed Chinese firms ranges from 0.50 to 0.54 during 2007-2010. Our sample has a larger board size than those in Jiang and Kim (2015) which report that the average board size is 9 and independent directors account for around 36% of the board. This is mainly because that our sample includes the largest 300 listed firms in China thus the board size is a little bit larger. This also confirms our sample is representative of the Chinese listed firms.

<Tables 1 and 2 here>

The descriptive statistics of IPI and the three sub-indices are presented in Table 3which showsthat the average IPI in each year ranges from 44.66 to 54.32, with an average of 50.34. From 2008 to 2010, the average quality of investor protection practice among the largest 300 firms has a downward trend, with IPI declining from 54.32 to 51.87 and then to 50.5. The fluctuation in IPI is attributed to the global financial crisis in 2008 that affected the market capitalization of the global equity markets including Chinese listed firms. The compositions of top 300 listed firms in 2008 and 2009 have been affected and some firms were not included in sample because of the drop in market capitalization. In addition, the financial crisis affected firms' earnings that resulted in dividends cut and price depreciation. These affected the overall firm performance in section C that eventually resulted in decline in IPI. Table 3 shows that the yearly differences between firms with good investor protection and those with poor investor protection are large. For example, in 2007 the highest IPI and the lowest IPI are 67.63 and 26.13 respectively, with the gap being 41.50. In the following years, the gap becomes

wider (58.13, 58, 49.13, respectively), indicating a large variation among the sample firms.

<Table 3 here>

We further analysis the heterogeneity among firms in investor protection. Specifically, we divide our sample into 2*2 subsamples based on whether it is listed overseas and its firm size. Table 4 shows the summary statistics of change in the quality of investor protection practices (ΔIPI) of the 4 subsamples. It can be shown that the largest improvement of investor protection is from large firms which are also listed overseas. Among oversea listed firms, ΔIPI of large firms are 10% greater than that of small firms. It may imply that the foreign orientation of the largest Chinese companies to be a significant driver for improved investor protection.

<Table 4 here>

Table 5 shows the correlations between IPI and its sub-indices. As expected, the results indicate that the three sub-indexes are strongly correlated with the general index. However, these sub-indexes are not strongly correlated among themselves. For example, sub-index C is negatively related with sub-index A and sub-index B. This implies that one firm may perform well in one section but not well in other sections. This is consistent with the findings in overall corporate governance index measurement literature (see, for example, Balasubramanian, Black andKhanna, 2010) where the sub-indices are not always highly correlated.

<Table 5 here>

Table 6 provides the distributions of industry for the full sample. Of all the 1200 firm-year observations, the number of firm-years from the manufacturing industry is 524, with a percentage of 43.67%. The following are two industries; mining (126) and finance (112) being10.5% and 9.33%, respectively. Except for these three industries, the others contain relatively fewer firm-year observations in the sample, with a total of 36.5%. After removing financial services firms, we obtain 1088 firm-year observations with a four year sample. To examine the impacts of the change in investor protection practices on firm market performance, the rate of percentage changes in IPI between the adjacent two years is then computed. Therefore, we have a total of 671 observations in the final sample yielding 223, 225, and 223 observations in 2008, 2009, and 2010, respectively.

<Table 6 here>

Table 7 presents the relationship between the change in the investor protection practices and firm market performance in subsample analysis. The sample is split into two groups based on whether a firm exhibits an increase or a decrease in the IPI score from the previous period. The results are displayed in three panels.

Table 7 Panel A shows that firms with an improving IPI exhibit a higher average BHAR than firms with a deteriorating IPI. The difference between the two groups is 0.189, which is statistically significant at the 1% level. Meanwhile, firms that display an improving IPI have a median BHAR value of 0.212, in comparison with 0.168 for firms exhibiting a deteriorating IPI. The difference is also statistically significant at the 1% level.

In Panel B of Table 7, firms are split by the median value of BHAR averaged over the four-year study period into two groups: low and high BHAR. The 2*2 matrix contains

the BHAR in the subsequent period (t+1) after the change in IPI for each group of firms. It shows that a firm with a low average BHAR value tends to have a negative BHAR in the following period when the quality of investor protection practices deteriorates. The average BHAR for this group of firms is -0.061, in contrast to 0.055 for firms with a low average BHAR with improving protection practices. In contrast, firms with a high BHAR present little difference when the quality of investor protection improves or deteriorates that the average BHAR of the following year for the two groups of firms is 1.14 and 1.081, respectively.

Table 7 Panel C focuses on the dually listed and non-dually listed Chinese firms. It appears that dually listed firms are penalized when the quality of investor protection practices deteriorates. The non-dually listed Chinese firms exhibit a BHAR of 0.414 with an improvement in investor protection practices versus a BHAR of 0.2 with a deterioration in investor protection practices. The results in Panel C show that local investors are more concerned about the quality of investor protection than overseas investors. This can be explained by investors relying on the more stringent regulatory framework of overseas exchanges. Thus, local investors tend to reward firms with better investor protection practices.

<Table 7 here>

We further use firm fixed effect regression analysis with control variables to examine the relationship between changes in the quality of investor protection practices and firm performance based on Equation (1). The regression results between changes in the quality of investor protection practices (△IPI) and market performance of Chinese largest listed firms are presented in Table 8. The subsequent abnormal returns (BHAR) is the

dependent variable that proxies for firm performance. In Table 8, model 1 is the basic regression without any control variables. It shows that the coefficient for ΔIPI is 0.697, which is statistically significant at the 1% level. After controlling for various firm characteristics, the positive relation between ΔIPI and BHAR is at 0.695, statistically significant at conventional levels, as shown in model 2. In terms of economic significance, a 1% increase in investor protection index leads to a subsequent 0.695% buy and hold abnormal return based on model 2. Generally, the results indicate that improving the quality of investor protection practices is positively related to subsequent improvements in firm market performance.

To investigate the different effects of improving or deteriorating investor protection practices on BHAR, we replace changes in IPI (ΔIPI) by N_ΔIPI and P_ΔIPI in model 3. The results show that when investor protection practices are deteriorating, the coefficient on a changing IPI is 1.286,which is higher than when investor protection practices is improving 0.429. Both coefficients are statistically significant at the 1% level. This asymmetric relation indicates that investors penalize firms with deteriorating investor protection practices more than rewarding firms with improving practices. This also implies that investors are more concerned about firms with deterioration in investor protection practices. Models4 and5 are regressions based on subsamples. Model 4 contains firms which are dually listed in mainland and overseas exchanges, while model 5 is based on firms listed only at mainland China. The results of both models show that the coefficients on ΔIPI for both dually-listed and non-dually listed firms are significant at the 1% level.

<Table 8 here>

The above findings are consistent with the implications of La Porta et al. (2002) which suggests better investor protection leads to higher market valuation. Our results also contribute to the debate on corporate governance and firm valuation. A large literature has examined the relation between specific aspects of corporate governance and firm performance in both developed countries and emerging markets. The aspects of corporate governance include ownership structure (Morck, Shleifer and Vishny, 1988; Himmelberg, Hubbard and Palia, 1999), board of directors (Bhagat and Black, 2002; Hermalin and Weisbach, 2003), institutional investor (Chen, Harford and Li, 2007), executive compensation (Murphy, 1985, 1986; Jensen and Murphy, 1990). However, empirical evidence regarding the effects of corporate governance on firm performance has been mixed. Another stand of literature starts to use a comprehensive index to measure overall corporate governance practice and most paper find a consistent and positive relationship between overall corporate governance and firm performance (Gompers, Ishii and Metrick, 2003; Bebchuk, Cohen and Ferrell, 2009; Durnev and Kim, 2005; Klapper and Love, 2004; Black, Jang and Kim, 2006). This strand of literature highlights the importance of evaluating corporate governance from an overall perspective. In this paper, we construct a comprehensive investor protection index to measure the overall quality of investor protection and find the overall investor protection index is positively related with subsequent firm performance. The results are consistent with the strand of literature on overall corporate governance research.

There are three sections in the IPI construction that includes 1) rights to information, 2) rights to participate in corporate governance, and 3) rights to be rewarded. We examine the impacts of each of these sections on firm market performance. We perform

firm fixed effect regressions based on Equation (1) with ΔIPI replace by ΔIPI_sub. Regression results are presented in Table 9. For each of the three sub-indices, three regressions are carried out that the first model examine the relationship between the changing sub-index and BHAR, the second and third models are based on the dually listed and non-dually listed firm sub-samples. Among the three sub-indices, it is found that there is no significant association between the change of the first two sub-indexes and the firm performance in most regressions. However, the change in the third sub-index is significantly associated with firm performance. For the dually listed firms, we find that the first and the third sub-indexes are positive and significant associated with the firm performance. However, the third sub-index is found to be positive and significantly linked to the firm performance of the non-dually listed firms as well. The result shows that investors pay the most attention to the changes in the rights to be rewarded among the three sub-indexes. This is particularly important to firms that are only listed in the mainland exchanges and mainland investor concerns about the rights to be rewarded. For the dually listed firms, the result shows that investor pays attention to the rights to information and rights to be rewarded. We understand that only mainland investors are allowed to invest in mainland exchanges under the regulatory framework. The evidence seems to suggest that mainland investors are more concerned about the rights to be rewarded. In addition, the international investor also cares about the rights to information. This may be due to the information asymmetry that international investor faces in investment. The literature has shown that information asymmetry plays an important role in investment decisions of international investors. Faruqee et al. (2004) find that market size, transaction cost, and information asymmetry are major determinants of cross-border

portfolio choice. Ahearneet al. (2004) show that the more important barrier to international investors is information asymmetry which are caused by poor quality and low credibility of financial information in some countries. Our findings are consistent with the literature and confirm that information is important to international investors.

<Table 9 here>

5. Robustness tests

To check the robustness of our findings, we perform four additional empirical tests. First, we repeat the regression models in Tables 8 and 9 with the addition of board size (BOARD) and the proportion of independent directors (INDEPEN) as control variables. These two control variables control for the board characteristics of Chinese listed firms. The obtained results are similar to those reported in Tables 8 and 9.[8] This implies that the board characteristics of firms do not impact on our findings.

Secondly, we use alternative measures to measure firm's market performance. This checks whether alternative firm performance measures affect the result. The previous analysis use the firm's one year BHAR to measure firm's market performance. We have replaced one-year BHAR by three-year BHAR and the new result is broadly consistent with that of one-year BHAR.[9]To examine the relationship between the changes in investor protection practices and firm performance, two other performance measures are used: Tobin's Q and Market-to-book ratio. These two measures are widely used in the literature. The results are shown in Table 10 that are consistent with the previous findings

[8]The results are not shown in this paper, but are available upon request.

[9]The results are not shown in this paper, but are available upon request.

with the exception that the change in ROA and size are found to be related to the performance measures. The new findings support the evidence that the change in investor protection practices and firm performance are positive related among the major Chinese listed firms.

<Table 10 here>

The third test looks at the spillover effects of investor protection practice[10]. We choose stock price crash risk as a measure of possible spillover effect and propose to test if better investor protection leads to lower stock price crash risk.

We define the firm-specific weekly return, denoted by $W_{i,t}$, as the natural log of one plus the residual return from the expanded market model regression

$$r_{i,t} = \alpha_i + \beta_{1,i} \times r_{m,t-2} + \beta_{2,i} \times r_{m,t-1} + \beta_{3,i} \times r_{m,t} + \beta_{4,i} \times r_{m,t+1} + \beta_{5,i} \times r_{m,t+2} + \varepsilon_{i,t}$$

Where $r_{i,t}$ is the return on stock i in week t, and $r_{m,t}$ is the average return on the value-weighted market index in week t, we include the lead and lag terms for the market index return to allow for nonsynchronous trading(Dimson, 1979). The firm-specific weekly return for firm i in week t, $W_{i,t,}$ is measured by the natural log of one plus the residual return in the above equation, that is, $W_{i,t} = \ln(1 + \varepsilon_{i,t})$.

The measure of crash risk is the negative conditional return skewness (*NCSKEW*) measure of Chen et al. (2001). Specifically, we calculate *NCSKEW* for a given firm in a

[10]We thank one anonymous referee for pointing this out.

fiscal year by taking the negative of the third moment of firm-specific weekly returns for each sample year and dividing it by the standard deviation of firm-specific weekly returns raised to the third power. Specifically, for each firm i in year *t*, we compute *NCSKEW* as

$$NCSKEW_{i,t} = -[n(n-1)^{3/2}\sum W_{i,t}^3]/[(n-1)(n-2)(\sum W_{i,t}^2)^{3/2}]$$

The correlation between IPI_t and $NCSKEW_{t+1}$is -0.308, which signifies the negative relationship between investor protection and stock price crash. Table 11 shows that the crash risk is lower for firms with improved investor protection.

<Table 11 here>

Finally, we examine the validity of the regression model between IPI and firm performance. One problem troubling all corporate governance studies is the potential of endogeneity. We have used firm fixed effect regressions to control for omitted variable bias and unobservable firm specific characteristics. In addition, we use BHAR at time t as dependent variable while the independent variable (ΔIPI) is measured at time t-1 to address possible reverse causality concern. To furthertest for the validity of the regression model between the IPI and firm performance, we use the instrumental variable approach to test for the potential of endogeneity. We acknowledge the difficulty to identify the instrumental variables that are highly correlated with the variable of interest but uncorrelated with the error term of the true structural model. We propose to use the overseas listing variable and the level of IPI as the instrumental variables. There are differential requirements in regulatory framework between Chinese and overseas equity markets that Chinese dually-listed firms have to comply with more stringent corporate

governance requirements. For example, these dually-listed firms have to comply with more demanding disclosure requirements in the overseas markets. It is noted that investors will treat firms with low IPI score differently from those with high IPI score for change in investor protection practices. Firms with poor performance in IPI may have to spend a greater effort for improvement than firms with good performance in IPI. Table 12 reports the results of the two stage least square regression with the overseas listing and the level of IPI as instrumental variables. Three firm performance measures are used as the dependent variable and results are presented in columns 1-2, 3-4, and 5-6 respectively. The results are consistent for all firm performance measures that the change in IPI is positively related to firm performance. The last two rows of Table 12 show the model passes the test of exogeneity (Davidson and MacKinnon) and over-identification (Sargan-Hansen statistic).

<Table 12 here>

6. Conclusions

It is widely accepted that good corporate governance means solving the agency conflicts as well as protecting the basic rights of investors. Investor protection includes national level and firm level. National level refers to laws and regulation systems in a country, and firm level refers to practices and enforcements by firms to safeguard the rights of investors. Although investor protection at national level has been analyzed comprehensively by multi-national studies, the characters and influences of investor protection at firms in the same country is still an open question. A common phenomenon is that different firms in the same country exert different efforts to protect the interests of investors, literature needs to clarify that why they are different and whether they lead to

different firm market performance. China, as an emerging market economy, provides a good setting to understand the relationship between firm level investor protection practices and firm market performance.

This study develops a scorecard to measure the investor protection practices of major listed firms in China. The scorecard is based on OECD Principles of Corporate Governance. Specifically, the scorecard contains 20 criteria in three sections: 1) shareholders' rights to information, 2) shareholders' rights to participate in corporate governance, and 3) shareholders' rights to be rewarded.

The results indicate that investor protection practices of China listed companies have, on average, fluctuated during the sample period. More importantly, the empirical findings offer compelling evidence that good investor protection practices is associated with firm's better future market performances in China. Specifically, we find that there is a positive and significant correlation between the changes of investor protection practices and the subsequent abnormal returns as well as market to book ratio and Tobin's Q in the market. Moreover, firms with improved investor protection have a lower stock price crash risk. The results further show that the changes in the sub-index have different impact on firm's future performance. Shareholders' rights to be rewarded seems to have the most significant and positive impact on firm's future performance for both local and international investors. Moreover, international investor also pays attention to their rights to information. The relation between changes in the quality of investor protection practices and firm future market performance holds when control variables are introduced in the regression models and the results are robust to endogeneity issue.

In summary, the contributions of this study are twofold. First, the scorecard based on the international acceptable standard can provide a benchmark to evaluate the quality of investor protection practices among Chinese listed firm. This enables the international investment community to acquire an understanding on the investor protection practices of Chinese listed firms. Second, the results confirm that changes in the quality of investor protection practices can predict firm market performance. Therefore, this study is supportive to the notion that markets will provide premiums for firms with good investor protection practices, and investor protection is not only indispensable at national level, but also has significance at firm level.

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Appendix:Scorecard for Minority Shareholder's Right Protection in Mainland China

Below is the investor protection survey created based on the OECD Corporate Governance Principles (2004). The survey was administered to publicly traded nonfinancial firms in China during 2007-2010. The survey contains a total of 20 criteria across three subsections: 1) Shareholder's rights to information, 2) Shareholder's rights to participate in corporate governance, 3) Shareholder's rights to be rewarded.

Question number	Scorecard questions	Reference
Section A: Shareholder's rights to information		
A.1	The quality of convening notice of general shareholder meeting A.1a. When appointing new directors, their backgrounds should be announced publicly. Including (a) education background, working experience, part-time job situation; (b) whether they have association with the firm, controlling shareholder or actual controller; (c) the number of shares held by the directors; (d) whether they have been punished, criticized or condemned by China Securities Regulatory Commission (CSRC) or stock exchanges?	The first and fourth categories of OECD (2004), i.e., the rights of shareholders and disclosure and transparency; Article 29 of *Best Codes of Corporate Governance* by CSRC; Article 17 of the *Rules of General Shareholder Meeting of Listed Companies* by CSRC etc.
	A.1b. When appointing Certified Public Accountants, their names and fees should be announced in advance.	The fourth category of OECD (2004), i.e., disclosure and transparency
A.2	Management of investor relations A.2a. Whether the web of investor relation has detailed information about the governance of the firm? A.2b. Whether the investor relations management system is public and downloadable? A.2c. Whether the firm communicates with investors actively?	The fourth category of OECD (2004), i.e., disclosure and transparency; Article 3.2 of *Provisions onStrengthening the Protection of the Rights and Interests of the General Public Shareholders*by CSRC; Article 3.4 of *Provisions onStrengthening the Protection of the Rights and Interests of the General Public Shareholders*by CSRC etc.
A.3	The quality of annual report A.3a. Whether the report of financial performance is clear, comprehensive, In-depth, and specific? A.3b. Whether the report of operation and competitiveness is clear, comprehensive and meaningful? A.3c. Whether the report of background of directors is clear, comprehensive and meaningful? A.3d. Whether the risk analysis is clear, comprehensive, and in-depth and has actual predictions?	The fourth category of OECD (2004), i.e., disclosure and transparency; *Self Regulatory Rules on Investor Relations*by Shanghai Stock Exchange; Article 66 of *the Law of the People's Republic of China on Securities; Standards Concerning the Contents and Formats of Information Disclosure by Companies Offering Securities to the Public No.2 — Contents and Formats of Annual Reports* by CSRC etc.
A.4	Whether the firm has special hotlines for investors and functions well?	The fourth category of OECD (2004), i.e., disclosure and transparency; Article 3.2 of *Provisions onStrengthening the Protection of the Rights and Interests of the General Public Shareholders*by CSRC; Article 3.4 of *Provisions onStrengthening the Protection of the Rights and Interests of the General*

*Public Shareholders*by CSRC etc.

Question number	Scorecard questions	Reference
Section B: Shareholder's rights to participate in corporate governance		
B.1	Whether the firm provides convenience for proxy voting?	The first category of OECD (2004),i.e., rights of shareholders; Article 28 of the *Best Codes of Corporate Governance* by CSRC; Article 107 *of the Companies Law of the People's Republic of China* etc.
B.2	Whether the firm has online voting mechanism for general shareholder meeting?	The second category of OECD (2004),i.e., equitable treatment of shareholders; *Rules Governing Operations of Listing Firms* by Shenzhen Stock Exchange(Articles 2.2.7 and 2.2.10) etc.
B.3	Situation of proposed conditions of extraordinary general meeting.	The first category of OECD (2004),i.e., rights of shareholders; Article 101*of the Companies Law of the People's Republic of China etc.*
B.4	Whether the firm has categories voting mechanism?	The second category of OECD (2004),i.e., equitable treatment of shareholders; Article 1.1 of *theProvisions on Strengthening the Protection of the Rights and Interests of the General Public ShareholdersRules*by CSRC etc.
B.5	Nomination of directors, supervisors and independent directors B.5a. Proposed conditions of director and supervisor candidates for shareholders. B.5b. Proposed conditions of independent director candidates for shareholders.	The first category of OECD (2004),i.e., rights of shareholders; Article 28 of the *Best Codes of Corporate Governance* by CSRC etc.
B.6	Special vote for important issues B.6a. The ratio of buying or selling assets to total assets which is classified as important issues. B.6b. The ratio of guarantee amount to total assets which is classified as important issues.	The first category of OECD (2004),i.e., rights of shareholders; Article 122 *of the Companies Law of the People's Republic of China*etc.
Section C: Shareholder's rights to be rewarded		
C.1	The ratio of cash dividends to average annual profits available for distribution in the last 3 years.	The first category of OECD (2004),i.e., rights of shareholders; *Standards Concerning the Contents and Formats of Information Disclosure by Companies Offering Securities to the Public No.2 — Contents and Formats of Annual Reports* by CSRC etc.
C.2	Whether the stock price performed better than Hushen 300?	

Table 1 Definition of variables

This table presents the definitions of the variables used in the study. The sample is composed of the top 300 largest listed firms in China during the period 2007- 2010. The ranking is based on the market capitalization of firm on the last trading day of each June during the sample period. We further exclude financial firms and require data available for change in investor protection index, this leads to a final sample of 671 observations.

Variables	Definitions
Dependent Variable	
BHAR	One year buy and hold stock return adjusted by the market return.
ΔTobin's Q	change in Tobin's Q
ΔMTBV	change in Market-to-book value ratio (MTBV)
NCSKEW	negative conditional return skewness, defined as $NCSKEW_{i,t} = -[n(n-1)^{3/2}\sum W_{i,t}^3] / [(n-1)(n-2)(\sum W_{i,t}^2)^{3/2}]$
Independent Variables	
IPI	Investor Protection Index
ΔIPI	Percentage change between the IPI between the current survey year and the preceding survey year.
N_ΔIPI	ΔIPI times NEGATIVE dummy, which is equal to one if ΔIPI is negative and 0 otherwise.
P_ΔIPI	ΔIPI times POSITIVE dummy, which is equal to one if ΔIPI is positive and 0 otherwise.
IPI_A	The first sub index of IPI, represents investors' rights to information
IPI_B	The second sub index of IPI, represents investors' rights to participate in corporate governance
IPI_C	The third sub index of IPI, represents investors' rights to be rewarded
ΔIPI_sub	Percentage change between the IPI sub indices between the current survey year and the preceding survey year.
Control Variables	
ROA	Return on assets is defined as income before extraordinary items and discontinued operations and preferred dividends divided by total assets
ΔROA	Change in ROA; the difference between the ROA value of year t+1 and year t.
SIZE	Natural logarithm of total assets in millions of Chinese Yuan.
LEVERAGE	Debt ratio; total interest-bearing debt divided by total assets.
GROWTH	Arithmetic average of the annual growth rate in sales over the preceding three years.
CASH	Cash to assets ratio; the balance sheet value of cash and equivalents divided by total assets.
CAPEX	Capital expenditures divided by total assets.
TOP1	The proportion of share controlled by the largest shareholder
STATE	The nature of the largest shareholder.1, if the shareholder is state-owner; 0, otherwise.
OVERSEAES	A dummy variable which equals one if the firm is dually listed overseas and 0 otherwise.
BOARD	Number of directors on the board.
INDEPEN	The proportion of independent directors in the board of directors.

Table 2 Descriptivestatistics for main variables

This table reports the descriptive statistics of the listed companies included in the sample. Variable definitions can be found in Table 1. The sample is composed of the top 300 largest listed firms in China during the period 2007-2010. The ranking is based on the market capitalization of firm on the last trading day of each June during the sample period. We further exclude financial firms and require data available for change in investor protection index, this leads to a final sample of 671 observations.

Variable	N	Mean	SD	Min	Q1	Median	Q3	Max
BHAR	671	0.274	0.625	-0.637	-0.09	0.074	0.445	5.145
ROA	671	0.091	0.070	-0.053	0.046	0.074	0.121	0.325
ΔROA	670	-0.007	0.049	-0.191	-0.027	-0.007	0.010	0.224
SIZE	671	9.809	1.147	7.140	9.034	9.670	10.410	14.320
LEVERAGE	671	0.524	0.182	0.081	0.396	0.533	0.66	0.957
GROWTH	583	0.576	2.353	-0.524	-0.043	0.075	0.282	19.440
CASH	670	0.160	0.117	0.01	0.071	0.134	0.212	0.641
CAPEX	671	0.074	0.057	0	0.031	0.061	0.107	0.262
BOARD	667	10.23	2.377	4	9	9	11	18
INDEPEN	667	0.37	0.066	0.091	0.333	0.357	0.375	0.8

Table 3 Descriptive statistics of the overall index and sub indices by year

This table presents the descriptive statistics of the overall index and sub indices by year. The sample is composed of the top 300 largest listed firms in China during the period 2007- 2010. The ranking is based on the market capitalization of firm on the last trading day of each June during the sample period. We further exclude financial firms and require data available for change in investor protection index, this leads to a final sample of 671 observations. IPI_A, IPI_B, IPI_C represents the three sections in the scorecard, rights to information, rights to participate, and rights to be rewarded, respectively.

	Year	Mean	SD	Min	Q1	Median	Q3	Max
IPI	2007	44.66	8.179	26.13	38.63	44.75	50.19	67.63
IPI_A		63.55	13.27	25	55	65	70	95
IPI_B		33.29	10.87	6.250	25	31.25	37.50	68.75
IPI_C		44.75	25.69	0	25	25	75	100
IPI	2008	54.32	9.323	20.25	48.63	55.50	61	78.38
IPI_A		63.15	12.30	30	55	65	70	95
IPI_B		50.10	11.46	12.50	43.75	50	56.25	81.25
IPI_C		51.58	25.86	0	25	62.50	75	100
IPI	2009	51.87	9.520	24.38	45.25	51.50	58.44	82.38
IPI_A		60.75	13.80	25	50	60	70	95
IPI_B		42.13	11.63	12.50	37.50	43.75	50	93.75
IPI_C		62.92	31.71	0	50	50	100	100
IPI	2010	50.50	9.558	24.50	44.63	50.50	57.38	73.63
IPI_A		66.25	14.52	25	55	65	75	95
IPI_B		36.29	10.67	12.50	25	37.50	43.75	62.50
IPI_C		62.42	32.62	0	50	50	100	100
IPI	Total	50.34	9.816	20.25	43.75	50.25	57.50	82.38
IPI_A		63.42	13.62	25	55	65	70	95
IPI_B		40.45	12.86	6.250	31.25	43.75	50	93.75
IPI_C		55.42	30.10	0	25	50	75	100

Table 4 Descriptive statistics: 2*2 matrix of mean △IPI based on firm size and overseas listing

This table presents the descriptive statistics of the change of overall index for subsamples. Our whole sample contains of 671 observations and is divided into four subsamples based on whether the firm is oversea listed and firm size. Large and small firms are grouped by the median of average total assets of every firm in the sample period.***, **, * represent significance at 0.01, 0.05, and 0.1 level, respectively.

		Large Firm	Small Firm	Differences in Group Means
Overseas=1	Mean	0.115	0.014	0.101*
	Std. Dev	(0.296)	(0.276)	
	N	100	6	
Overseas=0	Mean	0.049	0.100	-0.05***
	Std. Dev	(0.268)	(0.306)	
	N	224	341	

Table 5 Correlation matrix

This table presents the correlations between the overall index and sub indices. The sample is composed of the top 300 largest listed firms in China during the period 2007- 2010. The ranking is based on the market capitalization of firm on the last trading day of each June during the sample period. We further exclude financial firms and require data available for change in investor protection index, this leads to a final sample of 671 observations Correlations that are statistically significant at the 10% level are marked with stars.

	IPI	IPI_A	IPI_B	IPI_C
IPI	1			
IPI_A	0.480*	1		
IPI_B	0.654*	0.113*	1	
IPI_C	0.567*	-0.021	-0.096*	1

Table6 Industry distribution

This table presents the industry distribution of firms in the sample.

Industry code	Industry name	Freq.	Percent	Cum.
A	Agriculture, forestry, livestock farming, fishery;	12	1	1
B	Mining	126	10.50	11.50
C	Manufacturing	524	43.67	55.17
D	Electric power, steam and hot water production and supply	56	4.670	59.83
E	Construction	30	2.500	62.33
F	Transportation and Warehousing	90	7.500	69.83
G	Information and Technology	41	3.420	73.25
H	Wholesale and retail trade	54	4.500	77.75
I	Finance and Insurance	112	9.330	87.08
J	Real estate	87	7.250	94.33
K	Social Services	25	2.080	96.42
L	Communication and Cultural Industry	6	0.500	96.92
M	Comprehensive	37	3.080	100
Total		1,200	100	

Table 7 Subsample comparison

This table presents the analyses of the association between changes in IPI scores and firms abnormal returns (BHAR). In panel A, the main classification is whether the firm shows an improvement or deterioration of the investor protection practices, as measured by the change in the investor protection index (ΔIPI). In panel B, firms are further classified as high or low market valuation firms based on the median value of BHAR, averaged over 2007-2010. In panel C, firms are classified into two groups with *Overseas* equals to 0 if firms are listed only in mainland China and *Overseas* equals to 1 if firms are dually listed in mainland China and overseas. Mean values are presented for each grouping with standard deviations shown in parentheses. *N* denotes the sample size for each group. ***, **, * represent significance at 0.01, 0.05, and 0.1 level, respectively.

Panel A: Deteriorated vs. improved investor protection

	Deteriorated Investor Protection	Improved Investor Protection	Differences in Group Means
Mean	0.172	0.361	0.189***
Median	0.168	0.212	0.044***
N	309	362	

Panel B: 2*2 matrix based on investor protection and BHAR

		Deteriorated Investor Protection	Improved Investor Protection	Differences in Group Means
Low BHAR	Mean	-0.061	0.055	0.116***
	Median	(0.243)	(0.195)	
	N	246	260	
High BHAR	Mean	1.081	1.140	0.060
	Median	(0.618)	(0.748)	
	N	63	102	

Panel C: 2*2 matrix based on investor protection and overseas listing

	Deteriorated Investor Protection	Improved Investor Protection	Differences in Group Means
Overseas=1	-0.006	0.107	0.113*
	(0.426)	(0.414)	
	43	63	
Overseas=0	0.200	0.414	0.214***
	(0.596)	(0.678)	
	266	299	

Table 8 Regression results for overall IPI

This table presents the firm fixed effect regression results between changes of firm level investor protection practices and market performance. The dependent variable (BHAR) is the buy and hold abnormal return. The independent variable ∆IPI is the percentage change in the IPI score from the last survey to the current survey. Other variable definitions can be found in Table 1. Models 1-3 are based on the whole sample. Model 4 is based on firms that are dually listed in the mainland China and overseas. Model 5 are based on firms that are listed only in the mainland China. Firm and year fixed effects are controlled. ***, **, * represent significance at 0.01, 0.05, and 0.1 level, respectively. The t-statistics are shown in parentheses.

	(1)	(2)	(3)	(4)	(5)
∆IPI	0.697***	0.695***		0.530***	0.753***
	(6.82)	(6.74)		(3.38)	(6.13)
N_∆IPI			1.286***		
			(4.04)		
P_∆IPI			0.429**		
			(2.52)		
∆ROA		0.354	0.338	0.500	0.531
		(0.54)	(0.52)	(0.37)	(0.68)
SIZE		0.096	0.094	0.773	0.012
		(0.50)	(0.49)	(1.37)	(0.06)
LEVERAGE		0.313	0.257	-2.124	0.636
		(0.52)	(0.43)	(-1.45)	(0.92)
GROWTH		0.003	0.001	-0.362	0.002
		(0.21)	(0.06)	(-0.44)	(0.14)
CASH		0.176	0.107	-3.405**	0.482
		(0.26)	(0.16)	(-2.25)	(0.65)
CAPEX		0.453	0.403	-1.224	0.437
		(0.52)	(0.46)	(-0.56)	(0.45)
TOP1		0.015	0.122	1.623	0.210
		(0.02)	(0.15)	(0.60)	(0.24)
STATE		-0.073	-0.067	-0.010	-0.061
		(-0.77)	(-0.70)	(-0.06)	(-0.54)
Intercept	0.141***	-2.360	-2.240	-18.409	-0.641
	(3.39)	(-0.54)	(-0.51)	(-1.27)	(-0.13)
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes
N	671	670	670	106	564
R-square	0.115	0.120	0.129	0.305	0.129
F	16.148	4.546	4.520	2.111	4.042

Table 9 Regression results for sub indices

This table presents the firm fixed effect regression results for sub indices based on Equation (1) with △IPI replaced by △IPI_sub. The dependent variable (BHAR) is the buy and hold abnormal return. The independent variable △IPI_sub is the percentage change in the IPI sub indices from the last survey to the current survey. Other variable definitions can be found in Table 1. Models 1-3 report regressions results for sub index A, Models 4-6 report regression results for sub index B, and Models 7-9 report regressions results for sub index C. Models 2, 5 and 8 are based on firms that are listing simultaneously at mainland China and Hong Kong. Models 3, 6 and 9 are based on firms that are listing only in mainland China. Firm and year fixed effects are controlled. ***, **, * represent significance at 0.01, 0.05, and 0.1 level, respectively. The t-statistics are shown in parentheses.

	Sub index A			Sub index B			Sub index C		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ΔIPI_sub	0.004	0.261*	-0.036	-0.058	0.023	-0.071	0.255***	0.165***	0.273***
	(0.04)	(1.71)	(-0.31)	(-1.12)	(0.26)	(-1.18)	(11.83)	(3.35)	(11.41)
ΔROA	0.478	0.993	0.628	0.448	1.053	0.547	-0.179	0.887	-0.367
	(0.69)	(0.69)	(0.76)	(0.65)	(0.71)	(0.66)	(-0.30)	(0.64)	(-0.54)
SIZE	0.108	0.661	0.031	0.104	0.688	0.036	0.122	1.110	0.043
	(0.53)	(1.09)	(0.13)	(0.51)	(1.10)	(0.16)	(0.71)	(1.65)	(0.22)
LEVERAGE	0.403	-2.155	0.832	0.396	-2.114	0.827	0.345	-2.725	0.560
	(0.64)	(-1.36)	(1.14)	(0.63)	(-1.31)	(1.13)	(0.64)	(-1.66)	(0.94)
GROWTH	0.005	-0.560	0.005	0.004	-0.413	0.002	0.002	-0.758	0.000
	(0.29)	(-0.62)	(0.26)	(0.22)	(-0.45)	(0.14)	(0.13)	(-0.80)	(0.04)
CASH	0.178	-2.885*	0.396	0.165	-2.665	0.321	0.327	-3.441**	0.618
	(0.25)	(-1.77)	(0.50)	(0.23)	(-1.55)	(0.41)	(0.56)	(-2.06)	(0.98)
CAPEX	0.299	0.032	0.116	0.205	-0.005	-0.041	0.156	-0.277	0.015
	(0.32)	(0.01)	(0.11)	(0.22)	(-0.00)	(-0.04)	(0.20)	(-0.12)	(0.02)
TOP1	-0.161	2.327	0.015	-0.188	1.653	-0.039	-0.323	2.823	-0.235
	(-0.19)	(0.79)	(0.02)	(-0.22)	(0.55)	(-0.04)	(-0.46)	(0.88)	(-0.31)
STATE	-0.055	0.007	-0.034	-0.047	-0.035	-0.025	-0.056	0.141	-0.102
	(-0.54)	(0.04)	(-0.29)	(-0.47)	(-0.19)	(-0.21)	(-0.67)	(0.69)	(-1.07)
Intercept	-2.602	-15.991	-1.075	-2.497	-16.392	-1.162	-2.887	-27.156	-1.159
	(-0.56)	(-1.02)	(-0.21)	(-0.54)	(-1.03)	(-0.22)	(-0.73)	(-1.56)	(-0.27)
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	670	106	564	670	106	564	627	94	533
R-square	0.011	0.185	0.020	0.014	0.156	0.024	0.313	0.319	0.343
F	0.369	1.097	0.564	0.484	0.890	0.684	13.723	1.749	13.185

Table 10 Robustness test on the performance of Tobin's Q and market-to-book value ratio

This table presents the firm fixed effect regression results between changes of firm level investor protection practices and firm market performance. The dependent variable is the change in Tobin's Q or the change in Market-to-book value ratio (MTBV). The independent variable ΔIPI is the percentage change in the IPI score from the last survey to the current survey. Other variable definitions can be found in Table 1. Models 1-3 are based on the whole sample. Model 4 is based on firms that are dually listed in the mainland China and overseas. Model 5 are based on firms that are listed only in the mainland China. Firm and year fixed effects are controlled. ***, **, * represent significance at 0.01, 0.05, and 0.1 level, respectively. The t-statistics are shown in parentheses.

	ΔTobin's Q					ΔMTBV				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ΔIPI	0.405***	0.398***		0.425***	0.411***	0.389***	0.383***		0.341***	0.408***
	(6.75)	(6.76)		(3.16)	(6.18)	(6.80)	(6.81)		(3.51)	(6.17)
N_ΔIPI			0.773***					0.740***		
			(4.25)					(4.27)		
P_ΔIPI			0.230**					0.222**		
			(2.36)					(2.40)		
ΔROA		1.078***	1.069***	1.495	0.820*		1.034***	1.025***	1.613*	0.816*
		(2.89)	(2.88)	(1.31)	(1.94)		(2.91)	(2.90)	(1.95)	(1.94)
SIZE		-0.182*	-0.184*	0.509	-0.288**		-0.242**	-0.243**	0.195	-0.317***
		(-1.66)	(-1.69)	(1.05)	(-2.44)		(-2.31)	(-2.34)	(0.55)	(-2.69)
LEVERAGE		0.350	0.316	-0.011	0.331		0.317	0.284	-0.374	0.348
		(1.02)	(0.93)	(-0.01)	(0.88)		(0.97)	(0.87)	(-0.41)	(0.93)
GROWTH		0.006	0.004	-0.050	0.006		0.006	0.005	0.061	0.005
		(0.66)	(0.50)	(-0.07)	(0.62)		(0.70)	(0.54)	(0.12)	(0.62)
CASH		-0.283	-0.325	-1.919	-0.149		-0.162	-0.201	-1.639*	-0.029
		(-0.74)	(-0.85)	(-1.48)	(-0.37)		(-0.44)	(-0.55)	(-1.74)	(-0.07)
CAPEX		0.704	0.672	-1.482	1.039*		0.509	0.479	-1.388	0.767
		(1.41)	(1.35)	(-0.79)	(1.96)		(1.07)	(1.01)	(-1.03)	(1.45)
TOP1		-0.497	-0.429	-0.942	-0.335		-0.421	-0.356	-0.626	-0.284
		(-1.08)	(-0.94)	(-0.41)	(-0.70)		(-0.96)	(-0.81)	(-0.37)	(-0.59)
STATE		-0.060	-0.055	-0.100	-0.046		-0.051	-0.047	-0.017	-0.051
		(-1.09)	(-1.02)	(-0.69)	(-0.75)		(-0.99)	(-0.91)	(-0.17)	(-0.85)
Intercept	-0.108***	4.304*	4.396*	-12.117	6.652**	-0.109***	5.693**	5.781**	-4.252	7.305***
	(-4.44)	(1.71)	(1.75)	(-0.97)	(2.50)	(-4.69)	(2.37)	(2.42)	(-0.47)	(2.75)
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	670	669	669	105	564	670	669	669	105	564
R-square	0.778	0.791	0.793	0.785	0.800	0.798	0.811	0.813	0.881	0.805
F	434.592	125.232	116.368	17.212	109.753	492.545	142.074	131.958	35.124	112.967

Table 11 Investor Protection and Crash Risk

This table presents the relationship between the stock price crash risk and the change of IPI. The measure of crash risk is the negative conditional return skewness (*NCSKEW*) measure of Chen et al. (2001). Specifically, we calculate *NCSKEW* for a given firm in a fiscal year by taking the negative of the third moment of firm-specific weekly returns for each sample year and dividing it by the standard deviation of firm-specific weekly returns raised to the third power. ***, **, * represent significance at 0.01, 0.05, and 0.1 level, respectively.

$NCSKEW_t$	Improved Investor Protection	Deteriorated Investor Protection	Difference in group means (Deteriorated-improved)
Mean	-0.242	-0.289	-0.047**
Std. Dev	0.634	0.699	
N	362	309	

Table 12 Endogeneity problem

This table shows fixed effect two-stage least square regressions of the relationship between change in investor protection and firm market performance. Instrumented variable is ΔIPI. We defined investor protection index and dual-listed dummy as Instrument variables. Dual-listed dummy equals to 1 if the firm is also listed in B-share market or Hong Kong (or other foreign) market and 0 otherwise. Firm and year fixed effects are controlled.***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	BHAR	BHAR	ΔTobin's Q	ΔTobin's Q	ΔMTBV	ΔMTBV
ΔIPI	1.139***	1.125***	0.754***	0.716***	0.707***	0.674***
	(7.73)	(7.63)	(8.56)	(8.38)	(8.44)	(8.30)
ΔROA		0.277		1.022***		0.982***
		(0.41)		(2.64)		(2.67)
SIZE		0.089		-0.188*		-0.247**
		(0.45)		(-1.65)		(-2.28)
LEVERAGE		0.257		0.310		0.280
		(0.42)		(0.87)		(0.83)
GROWTH		0.002		0.005		0.005
		(0.14)		(0.56)		(0.60)
CASH		0.174		-0.283		-0.162
		(0.25)		(-0.71)		(-0.43)
CAPEX		0.548		0.774		0.573
		(0.61)		(1.49)		(1.16)

TOP1		0.125		-0.415		-0.346
		(0.15)		(-0.87)		(-0.76)
STATE		-0.084		-0.068		-0.059
		(-0.86)		(-1.19)		(-1.09)
Intercept	0.137***	-2.212	-0.111***	4.426*	-0.112***	5.805**
	(3.22)	(-0.49)	(-4.37)	(1.69)	(-4.62)	(2.33)
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
N	671	670	670	669	670	669
Instrumented	ΔIPI					
Instrument variables	IPI and Dual-listing dummy					
Davidson-MacKinnon test of exogeneity	20.11***	19.19***	38.13 ***	33.46 ***	34.33***	30.63***
Sargan-Hansen statistic	0.016	0.002	0.100	0.000	0.068	0.015