

# **Contractual Hazard, Political Hazard and FDI Ownership Structure in Joint-venture Enterprises in China**

*Yuxiao Zhang, Mingyue Fang, Ting Jiang, and Huihua Nie\**

## **Abstract**

This paper investigates how institutional environments, especially the contractual hazard and the political hazard, affect foreign investors' share ratios in joint-venture enterprises in China. We build a model combining Transaction Cost Economics and Property Rights Theory to describe the tradeoff that foreign investors face between choosing a larger share ratio and a smaller one. We argue that when the contractual hazard increases, foreign investors request larger shares to avoid being held up by their domestic partners, and when the political hazard increases, they hold smaller shares to circumvent the local government's grabbing hand. Moreover, the effect of the contractual hazard is channeled through enterprises' asset specificity. These theoretical predictions are verified by studying the relationship between the ownership structure of Chinese manufacturing joint-venture enterprises and the provincial-level institutions they are embedded in.

## **1. Introduction**

Since the opening-up policy in 1978, foreign direct investment (FDI) in China has grown dramatically. An FDI project may take the form of establishing a wholly owned subsidiary or entering into a joint venture with local investors. The choice of ownership structure is a primary decision for foreign investors to make when organizing their business activities since it has significant performance implications (Brouthers, 2002). It is also a complicated choice because the institutional environments of the host country are more unfamiliar to multinational firms than to domestic firms (Henisz and Williamson, 1999). Not only do foreign investors try to choose the right ownership structure when they enter a new market, but they also make necessary adjustments in response to changing incentives in subsequent years following entry. Our data show that during the sample periods more than 70% of joint-venture enterprises (JVEs, hereafter) have changed their foreign share ratios and more than 40% of JVEs have shifted between majority foreign control and minority foreign control after registration. A natural question is, therefore, what can account for the variation in the ownership structure of FDI JVEs in China?

The existing literature has attempted the question from various perspectives. The learning perspective (Barkema and Vermeulen, 1998) treats JVEs as an instrument

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\*Nie: School of Economics, Renmin University of China, No. 59 Zhongguancun Street, 100872, Beijing, China. Tel: +86-1082500210; Fax: +86-1082500256; E-mail: niehuihua@vip.163.com. Zhang and Jiang: School of Economics, Renmin University of China, Beijing, China. Fang: School of Economics, Capital University of Economics and Business, Beijing, China. The authors wish to thank the participants of the CFOS 2014 Conference, the IEFS 2014 Conference and the Henan Symposium 2014 for their insightful comments. Additionally, they wish to thank the anonymous referee for his helpful suggestions. Financial support is provided by the Outstanding Innovative Talents Cultivation Funded Programs 2014 of Renmin University of China for Yuxiao Zhang and the National Program for Support of Top-notch Young Professionals for Huihua Nie.

of organizational learning and argues that foreign investors choose joint ventures rather than wholly owned enterprises in order to transfer knowledge from their partners. The corporate strategy perspective (Cui and Jiang, 2009) claims that foreign investors choose the control mode that best serves their strategic motivations, e.g. acquiring foreign assets, building global competitiveness, etc.

The transaction cost framework suggests that the optimal ownership structure is the outcome of the tradeoff between costs and benefits of control rights (Anderson and Gatignon, 1986; Hennart, 1988). With more control, foreign investors are less vulnerable to opportunistic appropriation by other partners and can obtain a higher return on investment. At the same time, they have to assume more responsibilities, commit more resources and undertake more risk that they might not be willing to. This strand of research usually focuses on investor- or firm-specific characteristics.

The institutional theory perspective borrows insights from New Institutional Economics and approaches this question from a macro view, emphasizing the role of institutional environments as they reflect the “rule of game” that JVEs abide by (Brouthers and Hennart, 2007). Host country factors include features of the country that FDI goes to (Gatignon and Anderson, 1988; Sekkat and Veganzones-Varoudakis, 2007) and home country factors refer to the cultural and economic background of the country that FDI comes from (Pan, 2002; Brada et al., 2012).

To our knowledge, none of the extant studies on FDI ownership structure has yet formulated a theoretical model that explicitly delineates foreign investors’ choice of control rights and that can develop empirical predictions in a rigorous manner. As pointed out by Brouthers and Hennart (2007), studies of international entry mode tend to lack a theoretical basis on which factors to include in each study and how these factors work. This paper aims to fill the gap. We build a stylized model that incorporates key elements of transaction cost economics and property rights theory to investigate how institutional environments, specifically the contractual hazard and the political hazard, affect foreign investors’ share ratios in JVEs. To preview our theoretical results, we prove that foreign investors’ share ratios are increasing in asset specificity and the contractual hazard, and decreasing in the political hazard. Moreover, the marginal influence of the contractual hazard increases as the degree of asset specificity increases. Intuitively, when the contractual hazard increases, foreign investors request larger shares to avoid being held up by their domestic partners, and when the political hazard increases, they hold smaller shares to circumvent the local government’s grabbing hand. The model’s predictions are tested and verified using a large panel dataset that merges firm-level data on Chinese non-state-owned manufacturing JVEs with provincial-level data on local institutional environments.

Our study contributes to the literature on FDI ownership structure both theoretically and empirically. Transaction cost economics recognizes the importance of non-contractible relation-specific investment and the hold-up problem it brings about, in which the party that has not invested may expropriate the value of the investment by threatening to break off the relationship, resulting in underinvestment and higher economic costs to both parties (Williamson, 1985, 1996). The theory proposes (vertical) integration as the preferred governance that internalizes the value of relation-specific investment and alleviates the hold-up problem via *ex-post* adaptations, but it does not offer a rationale for why the *ex-ante* allocation of property rights among the integrated parties has to matter. Modern property rights theory (Grossman and Hart, 1986; Hart, 1995), in contrast, asserts that the integration of business activities *per se* does not reduce transaction

costs and suggests the design of ownership structure as a means to balance the incentives of involved parties and curb opportunism. Our theoretical model is a first attempt to bring both theories together in a unified framework that enables us to analyze the effects of contractual incompleteness and regulatory frictions on the extent of transaction costs incurred by an FDI JVE and discuss how the internal arrangements of ownership vary with changes in the external environments to minimize inefficiencies. Our model provides a theoretical underpinning for many empirical studies on FDI ownership structure, especially Henisz (2000), Delios and Henisz (2003) and Demirbag et al. (2007).

Our study enriches the empirical literature on the subject by employing a large-scale panel dataset of FDI JVEs in China. As far as we are aware, all existing empirical studies rely on a cross-sectional setting, having difficulty in isolating the causal influence of institutional factors on ownership structure from unobservable time-invariant regional heterogeneities that might be intrinsically intertwined with measures of institutional environments. By contrast, the identification of key parameters in our study is based on within-firm variation across years net of common temporal trends and is thus less susceptible to endogeneity concerns.

The paper is organized as follows. Section 2 develops a simplified model to formulate foreign investors' tradeoff in choosing different share ratios when operating a JVE under the exposure of both the contractual hazard and the political hazard, and lays out our hypotheses. Section 3 describes the data and section 4 presents main empirical results. Section 5 reports several robustness checks while section 6 concludes.

## **2. Model**

We begin by describing the decision problem faced by a foreign investor who wants to invest in a productive project in China, possibly cooperating with a domestic firm to establish a JVE.

The foreign investor is subject to both political and contractual hazards. Henisz (2000) defines the political hazard as "the feasibility of policy change by the host-country government" either directly or indirectly. Even in the same jurisdiction, different enterprises will be affected by the political hazard differently. If the local government tends to seize more from foreign investors, enterprises with larger foreign share ratios will suffer more from a given level of political hazard. In this case, foreign investors are willing to cooperate with domestic partners to avoid government interference. To put it another way, domestic partners can communicate and bargain with the local government at a lower cost. If the bargaining process is not observable or verifiable, domestic partners can hardly get compensation for their bargaining efforts. Only with sufficiently large shares in the joint venture will domestic partners pay due efforts to maintain a good relationship with the local government. Therefore, the political hazard will reduce foreign investors' incentive to hold large shares.

Henisz (2000) defines the contractual hazard that foreign investors are exposed to as the risky situation when the net present return on the sunk investment is devalued or expropriated by their partners. We, however, define the contractual hazard as the contract enforcement power of local governments. According to transaction cost economics (Williamson, 1985, 1996), a foreign investor who makes relation-specific investment will face the risk of being held up by its partners. If contracts are inherently incomplete and cannot always be perfectly verified and

enforced by the court, whether hold up can succeed depends on the maturity of the legal system. Higher control rights can help foreign investors better control the JVEs and avoid hold-up problems (Hart, 1995). Then higher contractual hazard (lower enforcement level) or higher proportion of relation-specific assets will lead foreign investors to demand more shareholdings. As a further matter, higher degrees of asset specificity will magnify the positive effect of the contractual hazard on FDI share ratios. Consistent with his definition, Henisz (2000) uses asset specificity as the measure of the contractual hazard. However, we believe that asset specificity is a firm-specific characteristic and is more or less technologically determined. It is the channel through which the contractual hazard has an impact on the ownership structure of JVEs, rather than the contractual hazard *per se*, which we formulate as an institutional factor.

We denote the foreign investor by  $F$ , and the domestic investor by  $D$ . In period 1, the foreign and the domestic investor sign a contract to establish a JVE. The total amount of investment is normalized to 1. The foreign investor invests  $f \in (0, 1)$  and the domestic investor makes up the discrepancy  $1 - f$ . A  $\lambda$  portion of the total investment is relation specific and is shared between the two investors proportionally. The enterprise generates total profit  $B$ .

In period 2, the local government levies a lump-sum tax  $t_0$  on the profit ( $t_0 < B$ ).  $t_0$  is our model's counterpart of the political hazard. The domestic investor then makes lobbying effort  $e_D$  to negotiate with the local government in the hope of reducing  $t_0$ . The cost of lobbying takes a standard quadratic form,  $c_D = \frac{1}{2}\gamma e_D^2$ . The lobbying effort is unverifiable and the cost is undertaken solely by the domestic investor. The effective tax after negotiation is  $t = t_0(1 - e_D)$ , which is diminishing in the lobbying effort. The after-tax net profit of the enterprise,  $\pi = B - t_0(1 - e_D)$ , is divided between the two investors according to their investment proportions.

In period 3, the foreign investor sells its share of the JVE to the domestic investor.<sup>1</sup> As part of the asset is relation specific, the domestic investor has an incentive to offer a lower price, possibly equal to its reservation value outside this special relationship. The foreign investor's bargaining power over the asset increases with its share ratio  $f$ . For simplicity, we assume that with probability  $f$ , the foreign investor successfully negotiates with the domestic investor and reclaims all its investment; with probability  $1 - f$ , the domestic investor holds up the foreign investor and purchases the foreign shares at a lower price. If being held up, the foreign investor turns to the court for a ruling. With probability  $1 - \rho$ , the court uncovers the fair value of the relation-specific assets and supports the foreign investor in retrieving all its investment; with probability  $\rho$ , the court fails to evaluate the investment value correctly and the foreign investor can only get back a discounted portion,  $1 - \delta$ , of its original investment on the relation-specific assets. The probability  $\rho$  therefore reflects the acuteness of the contractual hazard. To summarize, with probability  $f + (1 - f)(1 - \rho)$ , the foreign investor's revenue from the sale  $\varphi_F = f$ , and with probability  $(1 - f)\rho$ ,  $\varphi_F = (1 - \delta)\lambda f + (1 - \lambda)f$ . The expected value of  $\varphi_F$ ,  $E(\varphi_F) = f - \delta\lambda\rho f + \delta\lambda\rho f^2$ .

In period 4, payoffs are realized and the game ends.

We solve the model backwardly. In this game, each party makes one move. In period 1, the foreign investor chooses its investment  $f$ . In period 2, the domestic investor determines its lobbying effort  $e_D$ . We begin with the domestic investor's decision to maximize its profit share  $\pi_D$  and get the optimal the effort level  $e_D$  in period 2

$$\max_{e_D} \pi_D = (1-f)\pi - c_D = (1-f)[B - t_0(1 - e_D)] - \frac{1}{2}\gamma e_D^2$$

$$e_D^* = \frac{(1-f)t_0}{\gamma}.$$

The foreign investor's payoff in this period,  $\pi_F$ , is simply

$$\pi_F = f\pi = f[B - t_0(1 - e_D^*)] = (B - t_0)f + \frac{t_0^2}{\gamma}f(1-f).$$

In period 1, the foreign investor chooses its investment  $f$  to maximize the total payoff, which is equal to the sum of the payoff in period 2,  $\pi_F$ , and the expected revenue in period 3,  $E(\varphi_F)$ , minus its original investment  $f$

$$\max_f \pi_F + E(\varphi_F) - f = (B - t_0)f + \frac{t_0^2}{\gamma}f(1-f) - \delta\lambda\rho f + \delta\lambda\rho f^2$$

$$f^* = \frac{B - t_0}{\frac{2t_0^2}{\gamma} - 2\delta\lambda\rho} + \frac{1}{2}.$$

**PROPOSITION.** *The foreign investor's optimal share ratio in a two-party joint venture under the exposure of political and contractual hazards is  $f^* = \frac{B-t_0}{\frac{2t_0^2}{\gamma} - 2\delta\lambda\rho} + \frac{1}{2}$ . In addition,  $f^*$  has the following comparative statics properties:*

- (1)  $\frac{\partial f^*}{\partial t_0} < 0, \frac{\partial f^*}{\partial \rho} > 0, \frac{\partial f^*}{\partial \lambda} > 0;$
- (2)  $\frac{\partial^2 f^*}{\partial \rho \partial \lambda} > 0.$

This proposition gives rise to the following hypotheses:

*H1:* Other things being equal, a foreign investor is more likely to hold a small share in a JVE when the political hazard is high, and is more likely to hold a large share when the contractual hazard is high or when asset specificity is high.

*H2:* The contractual hazard's marginal influence on the foreign investor's share ratio will increase as asset specificity increases.

### 3. Data

We construct a panel dataset spanning from 1999 to 2007 that contains information on Chinese manufacturing JVEs, provincial institutional qualities, as well as other provincial and industrial characteristics.

Firm-level data come from Chinese Industrial Enterprises Database, collected and maintained by National Bureau of Statistics of China. The original sample includes all state-owned industrial enterprises and above-scale non-state-owned industrial enterprises with annual sales revenue above 5 million RMB. This database is also used to compute aggregate measures of industrial characteristics.

For our purpose, we keep only observations for non-state-owned manufacturing enterprises with non-zero Hong Kong, Macao, Taiwan or foreign ownership.

Data on provincial institutional qualities are excerpted from a previous study (Fan et al., 2007). Other provincial-level data are collected from various sources, including China Statistical Yearbooks and CEInet Statistics Database.

#### *FDI Majority Control Dummy and Foreign Share Ratio*

We have two main dependent variables. The foreign share ratio is measured by the proportion of an enterprise's foreign capital in its total paid-up capital. The FDI majority control dummy equals 1 if the foreign share ratio is no less than 50%, and 0 otherwise. According to the Law of the People's Republic of China on Chinese-Foreign Equity Joint Ventures, the minimum proportion of the registered capital of an equity joint venture contributed by foreign parties is 25%. Observations with the foreign share ratio less than 25% are thus dropped from the sample (they account for 10.8% of all enterprise-year observations). The mean of the FDI majority control dummy is 0.497, and the mean of the foreign share ratio is 51.476%.

#### *Asset Specificity*

We measure an enterprise's asset specificity by the net value of its fixed assets used in production and management per worker. The investment of durable assets (or capital intensity) is an important way to measure asset specificity (Demsetz, 1988; Williamson, 1996).

#### *Contractual Hazard*

The provincial-level contractual hazard is measured by the number of patent approvals per scientist in each province. It has been argued in the literature that the number of patents reflects the degree of property protection in an economy (Zhao, 2006; Lerner, 1994). Its plausibility as a measure of the contractual hazard relies on the underlying assumption that the strength of patent protection of the government is highly correlated with its ability of contract enforcement. The data come from Fan et al. (2007). Since larger number of patent approvals implies less contractual hazard, we use the negative of it as the measure of the contractual hazard.

#### *Political Hazard*

Our measure of the provincial-level political hazard is an index of government intervention on enterprises, also sourced from Fan et al. (2007). They use the proportion of time that the management of a firm spends on dealing with the local government and the total working hours of responsible officers to approximate the magnitude of the local government's intervention on firms. This index has been widely used to proxy regional political institutions in China. Again larger intervention index indicates better political institutions and less political hazard, so we use the negative of the original index as the measure of the political hazard.

*Enterprise-level Characteristics*

Control variables at the most disaggregate level include debt asset ratio, return on assets (ROA), size and export volume of the JVEs. The debt asset ratio is the ratio of total debts to total assets. Return on assets is the ratio of net profit to total assets. Enterprise size is measured by the natural logarithm of the number of employees, total assets and sales revenue. We use  $\ln(1 + \text{export volume})$  in the regressions to accommodate non-exporters.

*Industrial Characteristics*

Two industrial-level control variables are constructed and employed. One is the Hirschman–Herfindahl Index (HHI) of market competition, calculated from the sales revenue of all manufacturing enterprises within an industry. The other is the FDI rate of an industry, calculated as the proportion of FDI volume in the industry's total registered capital.

*Provincial Characteristics*

Provincial-level control variables consist of GDP per capita and highway mileage per capita that capture the level of economic development, and total balance of loans as a ratio of provincial GDP that represents the level of financial development.

**4. Empirical Strategy and Baseline Results**

The proposition in section 2 states that the probability of FDI majority control and the FDI share ratio are an increasing function of asset specificity and the contractual hazard, and a decreasing function of the political hazard. In addition, the effects of asset specificity and the contractual hazard reinforce each other. These results motivate an estimating equation of the following form:

$$d\_fgn_{it} \text{ (or } fgn\_rate_{it}) = \beta_1 AS_{it} + \beta_2 CH_{pt} + \beta_3 AS_{it} \times CH_{pt} + \beta_4 PH_{pt} + \zeta Z_{it} + \alpha_i + \gamma_t + \varepsilon_{it} \quad (1)$$

where  $d\_fgn_{it}$  is the FDI majority control dummy,  $fgn\_rate_{it}$  is the FDI share ratio,  $AS_{it}$  is the asset specificity of the enterprise,  $CH_{pt}$  and  $PH_{pt}$  are respectively the provincial-level contractual and political hazards.  $Z_{it}$  is a vector of control variables. Enterprise-specific fixed effects  $\alpha_i$  absorb omitted enterprise-level characteristics that are invariant over time. Year fixed effects  $\gamma_t$  control for common macroeconomic trends. To be consistent with our theoretical model, the main coefficients of interest must satisfy the following criteria:  $\beta_1 > 0$ ,  $\beta_2 > 0$ ,  $\beta_3 > 0$ ,  $\beta_4 < 0$ .

The estimation results are reported in Table 1. In columns (1) and (2) the dependent variable is the FDI majority control dummy, and in columns (3) and (4) the dependent variable is the foreign share ratio. The results are strongly supportive of our theoretical predictions. From columns (1) and (3), we can see that higher asset specificity or higher contractual hazard not only increases the probability that foreign investors choose majority control in a joint venture, but also increases their share ratios. Higher political hazard acts in an opposite

Table 1. FDI Ownership Structure and Institutional Environments

Dependent variable	FDI majority control dummy		Foreign share ratio (%)	
	(1)	(2)	(3)	(4)
<i>Asset specificity</i>	0.7933** (2.24)	1.7433*** (3.42)	21.923* (2.01)	37.493** (2.55)
<i>Contractual hazard</i>	0.0011** (2.14)	0.0010** (2.04)	0.0450** (2.14)	0.0443** (2.08)
<i>Asset specificity</i> × <i>Contractual hazard</i>		0.0733** (2.30)		1.2014** (2.24)
<i>Political hazard</i>	-0.0040*** (-3.95)	-0.0041*** (-3.98)	-0.1704*** (-4.90)	-0.1709*** (-4.91)
<i>Two-way fixed effects</i>	Y	Y	Y	Y
Observations	144,527	144,527	144,527	144,527

Note: Enterprise-level, industrial, and provincial characteristics are controlled in all specifications. *t*-values are reported in parentheses. They are based on the standard error estimates that are clustered at the provincial level. \*, \*\*, \*\*\* Denotes significance at 10%, 5% and 1%, respectively.

direction. When we include the interaction term of asset specificity and the contractual hazard in columns (2) and (4), the coefficient estimates indeed appear positive and statistically significant.

## 5. Robustness Checks

We subject the baseline results to a number of robustness checks. Given that the FDI majority control dummy is a binary variable, we can model it with a probit specification. The result is shown in column (1) of Table 2. Coefficient estimates of all the key independent variables have the expected signs and are statistically significant.

A second concern with the construct of the foreign share ratio as the dependent variable is that 11,206 (7.8%) out of the total 144,527 observations in our final sample have it exactly equal to 25%, leading to a data-censoring problem. This problem is due to the special regulatory practice in China. As stipulated in the Law of the People's Republic of China on Chinese-Foreign Equity Joint Ventures, the minimum proportion of the registered capital of an equity joint venture contributed by foreign parties is 25%. Otherwise the joint venture cannot enjoy preferential policies such as lower tax rates. Therefore, foreign investors have the incentive to set their share ratios at 25% even if their original decision was to hold a smaller share. We use the standard tobit model with a left-censoring limit of 25% when the dependent variable is the foreign share ratio and the result is reported in column (2) of Table 2. The estimates echo our baseline findings in column (4) of Table 1 with no qualitative difference.

A related concern is that some of the joint ventures are fake ones in the sense that they are invested by round-tripping capital originally created in China.<sup>2</sup> As a tentative check, we exclude joint ventures with the foreign share ratio exactly equal to 25% and re-estimate equation (1). The reason is that, if transferring funds and assets is not without cost, rational investors who want to fake a joint venture in

Table 2. Robustness Checks

Dependent variable	(1) FDI majority control dummy (Probit)	(2) Foreign share ratio (%) (Tobit)
<i>Asset specificity</i>	39.417*** (6.35)	76.936*** (4.04)
<i>Contractual hazard</i>	0.0351*** (10.61)	0.0727*** (7.66)
<i>Asset specificity</i> × <i>Contractual hazard</i>	1.5220*** (4.24)	2.0135* (1.84)
<i>Political hazard</i>	-0.1310*** (-15.74)	-0.4603*** (-17.74)
Observations	144,527	144,527
$\chi^2$	1,263.74	1,710.93
<i>p</i> -Value	0.0000	0.0000

*Note:* Enterprise-level, industrial and provincial characteristics are controlled in both specifications. *z*-values (or *t*-values) are reported in parentheses. Standard errors are clustered at the provincial level. The *p*-value and the associated  $\chi^2$  report the test of the overall significance of the regression equation. \*, \*\*, \*\*\* Denote significance at 10%, 5% and 1%, respectively.

order to receive preferential policy treatment will most likely set the “foreign” share ratio just at the minimum legally required level. Estimation results are similar to those reported in Table 1 and are thus omitted.

A final note is that we restrict our interest to non-state-owned enterprises because state-owned enterprises in China are very different in their perceptions of the institutional environments. State-owned enterprises are naturally politically connected and are exempt from the expropriation of the government. They also respect and conform to business ethics to a higher extent than non-state-owned enterprises. Government shareholders are less likely to hold up their partners in a JVE. We find that foreign investors’ shareholding decision in a joint venture is conditional on it being state-owned is not affected by the prevalence of political and contractual hazards.

## 6. Conclusion

Allocation of ownership rights is one of the crucial decisions that foreign investors make both when they enter a new market and during their business operation in the incumbent market. We propose an institutional explanation for the variation of FDI share ratios in Chinese JVEs. Foreign investors are exposed to both the political hazard of being intervened by the local government and the contractual hazard of suffering losses from the potential hold-up problem. Since large ownership shares protect foreign investors from being held up while small shares shelter them from government interference, we expect foreign investors to adjust their ownership shares when they perceive a change in the institutional environments over time. We formulate the above intuitions in a stylized model that is built upon key insights from Transaction Cost Economics and Property Rights Theory and test the model predictions empirically.

Although we base our empirical tests on Chinese manufacturing joint ventures, our theoretical model is more generally specified to characterize the decision

problem of foreign investors in establishing a joint venture with domestic partners in an economy with changing institutional environments. Thus we believe our study has sufficient external validity and may apply to other developing countries.

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## **Notes**

1. This should be understood as a modeling technique that introduces the role of asset specificity in a straightforward way rather than as an accurate description of the reality. Still, as suggested by the referee, we provide two real-world examples wherein the foreign investor tried to sell its shares to the domestic partner and the deal was eventually made at a lower price. Please refer to the links (in Chinese) <http://news.sina.com.cn/o/2013-12-05/025028888408.shtml> and [http://money.163.com/economy2003/editor\\_2003/040629/040629\\_213976.html](http://money.163.com/economy2003/editor_2003/040629/040629_213976.html).
2. We thank the referee for making this important point.