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AGENCY THEORY AND CORPORATE GOVERNANCE IN CHINA:

A META-ANALYSIS

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Abstract

Do agency theory-based "good corporate governance" principles indeed apply to China? A straightforward answer to this question is lacking, because evidence is inconclusive across studies. We endeavor to fill this gap by conducting the first meta-analysis on the China literature with two focuses. First, we assess the impact of (i) board independence, (ii) board leadership structure, and (iii) managerial incentives on firm performance, as these elements have been central to both agency theory as well as to Chinese corporate governance reforms. Second, we extend current theorizing by showing support for the temporal hypothesis, which states that over time, with the improvement in the quality of market institutions and development of financial markets, the monitoring mechanisms become more important whereas the incentive mechanisms lose their significance. In conclusion, in the world's second largest economy, agency theory is not only applicable, but is also found to be more strongly supported than in its original context.

Key Words: Agency theory, China, corporate governance, financial market development, institutional change, meta-analysis.

Although China has recently become the second largest economy in the world, debates on whether theories that originate from a Western context would apply in China continue to rage (Peng, 2004; Tsui, 2007). In the area of corporate governance, while its importance is increasingly recognized, two key questions remain. (i) How do agency theory-prescribed internal monitoring and alignment mechanisms affect firm performance in China? (ii) How do these relationships change as China's market institutions develop? Agency theory offers board independence and managerial incentives as key internal monitoring and alignment mechanisms (Eisenhardt, 1989; Nyberg et al., 2010). However, despite relatively efficient market institutions in developed economies, meta-analyses in agency theory's original context—developed economies in the West—find little evidence of a significant positive effect of board independence and CEO duality (Dalton et al., 1998; Dalton and Dalton, 2011; Wagner et al., 1998) on firm performance. Meta-analyses also report inconclusive relationship between CEO pay and firm performance (Tosi et al., 2000; Van Essen et al., 2012a). Yet at the same time, emerging economies such as China have imported agency theory-based principles from developed economies in an effort to improve corporate governance with the ultimate goal of enhancing firm performance.

Despite the widespread adoption of agency theory-based governance mechanisms, some critics claim that agency theory may be limited to the Anglo-American context (Bruce et al., 2005). Specifically, agency theory is criticized for its assumptions of self-orientation (Davis, 2005) and market maturity (Young et al., 2008), which may not be consistent with economies characterized by relationship-based regimes and underdeveloped market institutions (Sundaramurthy and Lewis, 2003). Given these concerns, scholars increasingly recommend taking institutional factors into account, alongside an agency theoretic lens, to better understand the contextual nature of agency problems (Aguilera and Jackson, 2003; Aguilera et al., 2008). Such research has led to an institution-based view (Kim et al., 2010; Meyer and Peng, 2016; Peng and Jiang, 2010).

The underlying reason behind complementing an agency theory lens with an institution-based view relies on the argument that firms embedded in more advanced institutions are likely to develop more standard corporate governance mechanisms that aid more efficient resource allocation processes, which

ultimately help firm performance (Kim et al., 2010). However, the institution-based view focuses not only on how institutions affect firm behaviour, but also on how changes in institutions over time shape firm strategic choices and performance (North, 1990; Peng, 2003). This temporal dimension thus warrants a dynamic lens to explore the impact of changing institutions on the importance of corporate governance mechanisms across firms (Banalieva et al., 2014; Kim et al., 2010). The purpose of this study is therefore to extend the corporate governance literature by examining the validity of agency theory-prescribed monitoring and alignment mechanisms—otherwise known as standard corporate governance mechanisms—in the dynamic institutional context of China.[1]

China provides new insights for two reasons. First, given its size, its context cannot be regarded as an outlier (Bruce et al., 2005). If supported in China, agency theory can enhance its global validity. If not supported, the boundaries of the applicability of agency theory will need to be more clearly specified (Gomez-Mejia et al., 2005). In the absence of conclusive evidence, the adoption of agency theory-based corporate governance mechanisms has been central to China's establishment of modern enterprise systems (Chen et al., 2011b; Cheung et al., 2010; Peng, 2004; Tenev and Zhang, 2002). However, because the country is still characterized by the fundamentals of a relationship-based society (Chua et al., 2009; Luen et al., 2013), the applicability of agency theory, which highlights arm's-length monitoring and alignment, has been questionable. For example, despite the agency theory logic in favour of outside directors and splitting the CEO and board chair positions, some studies fail to support such views (Peng, 2004; Peng et al., 2007). Overall, China has still provided an "important counterexample to the findings in the law, institutions, finance, and growth literature" (Allen et al., 2005: 57) by accomplishing strong economic growth despite relatively underdeveloped institutions. Since agency theory underpins much of this literature (Shleifer and Vishny, 1997), whether (and how) agency theory-prescribed corporate governance mechanisms indeed play a role in China remains to be clarified.

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[1] For the purposes of this article, China refers to mainland China and does not include Hong Kong, Macau, and Taiwan.

Second, due to the gradual improvement of market institutions, China can be considered in a "hybrid" state (1) between central planning and market competition (Allen et al., 2005) and (2) between relationship-based and rule-based regimes (Luen et al., 2013; Peng, 2003). Gradual market reforms play a crucial role as they alter the institutional framework of a country to improve the functioning of its financial, product, and labor markets. The improvements in these external governance mechanisms in turn help the functioning of internal corporate governance mechanisms through emphasizing arm's-length monitoring that reduces agency costs, and ultimately helps firm performance (Cuervo-Cazurra and Dau, 2009). In other words, institutional transitions enable transformation towards rule-based regime by gradually adjusting the context suitable for arm's-length transactions. Given this institutional dynamism, we explore whether agency theory predictions of internal corporate governance mechanisms become more effective as China's market institutions come of age (Fan et al., Young, 2007a; Peng, 2003).

We endeavor to make two contributions. First, we provide the first meta-analysis for monitoring and alignment mechanisms and their relationships to firm performance in China. While there are meta-analyses on the effectiveness of agency theory-prescribed governance mechanisms in developed economies (Dalton et al., 1998; Van Essen et al., 2015) and in Asia (Heugens et al., 2009; Van Essen et al., 2012b), there has been *none* on China prior to our work. The literature on corporate governance in China has only generated a few narrative reviews (Clarke, 2003; Guo et al., 2013; Yang et al., 2011).[2] Although helpful, narrative reviews are vulnerable to biased representations of a body of literature (Drees and Heugens, 2013). Thus, meta-analytic techniques play an important role in providing a rigorous assessment of the literature (Eden, 2002; Miller and Cardinal, 1994).

Second, we extend the corporate governance literature by exploring the temporal effect of internal corporate governance mechanisms on firm performance rather than reporting a static perspective or a snapshot. By focusing on how the effect changes over time along with institutional transitions, we also

[2] Globerman et al. (2011) review the literature on corporate governance in Asia, and Young et al. (2008) review the literature on corporate governance in emerging economies in general.

contribute to the dynamic institution-based view (Banalieva et al., 2014; Kim et al., 2010; Peng, 2004). Specifically, we underscore the role of changing institutions on the link between corporate governance mechanisms and firm performance.

Amassing a database of 81 studies, 272 effect sizes, 200,739 firm observations, and 636,713 firm-year observations, we undertake the first meta-analysis in the China literature. Our findings indicate that with the improvement in the quality of market institutions and development of financial markets, the monitoring mechanisms of the board become more important whereas the incentive mechanisms lose their significance. Overall, our findings contribute to the corporate governance literature by showing that agency theory-prescribed monitoring and alignment mechanisms can be "good" governance practices in China and their significance improve in parallel to improvements market institutions.

EVOLUTION OF CORPORATE GOVERNANCE MECHANISMS IN CHINA

Since the early 1980s, the development of corporate governance in China has started with the decentralization of state-owned enterprises (SOEs) and the empowerment of managers. The major goal of institutional transitions was to supplement direct state control by economic incentives for managers (Groves et al., 1994). New rules and amendments dictating the role of senior management and the board of directors, and outlining shareholder rights, were gradually implemented. Most importantly, institutional reforms provided the groundwork that elevated the status of the non-state-owned firms and removed institutional obstacles that limited their growth (OECD, 2011). Specifically, since 1990, firms could be listed on the Shanghai and Shenzhen Stock Exchanges, calling for the rise of modern enterprise systems (Peng, 2004). As publicly listed firms became more visible, their governance has become a critical issue leading to further reforms that laid the groundwork for firms' internal governance mechanisms (Clarke, 2003). Summarized in Table 1, monitoring and alignment mechanisms have been subject to continuous reforms in an effort to improve firm performance (Tam, 2000).

(Insert Table 1 here)

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During this transformation, the principal-agent model upheld by developed (primarily Anglo-American) economies was imported and embraced as the blueprint to which the Chinese system aspired towards (Kang et al., 2008; Peng, 2004). However, there are two reasons why the transfer of such a governance model may pose applicability problems in the case of China. First, agency theory-prescribed internal governance structures assume effective external governance mechanisms—namely, competitive product and labor markets and strong shareholder protection (Young et al., 2008). In China, since these conditions are not fully developed, the execution of agency theory-prescribed governance structures may thus prove to be problematic (Allen et al., 2005). Second, a key critique of agency theory is that it is under-socialized and thus unable to account for certain cross-country differences (Bruce et al., 2005; Gomez-Mejia et al., 2005). The key assumptions of agency theory regarding self-interested agents and goal conflicts, for example, may not hold under conditions characterized by relationship-based governance regimes (Luen et al., 2013). China is a prime example: the critical role of *guanxi* (connections) in helping firms secure critical resources and overcome institutional disadvantages has been highlighted in multiple studies (Park and Luo, 2001). As a result, policy prescriptions embedded in codes of "good" corporate governance often need to be adapted to the local institutional contexts (Chen et al., 2011b; Filatotchev and Allcock, 2010).

Transitioning between central planning and market competition and between relationship-based and rule-based regimes, China offers a unique institutional context to understand the dynamic effects of agency-theory prescribed corporate governance mechanisms over time. It is therefore imperative to understand whether (and how) market reforms and financial development over time raise the significance of internal governance mechanisms and increase the explanatory power of agency theory in China—a perspective we further develop next.

MONITORING MECHANISMS

Board Independence

As part of broader governance reforms, China as of 2001 required publicly listed firms to appoint outside directors on corporate boards and mandated at least one third of the board to be independent. Such a decision was directly motivated by the agency theory view on board independence (Jensen and Meckling, 1976). Agency theorists propose a positive link between the proportion of outside directors (as a proxy for board independence) and firm performance for two main reasons. First, outside directors are likely to be motivated to monitor the CEO because they have higher sensitivity for personal reputation and credibility in the market for directors. Second, outside directors are believed to bring more diversity and greater objectivity to board decision-making, and are consequently a better representation of shareholders' interests (Fama and Jensen, 1983). However, some scholars have stressed that China's relationship-based culture continues to explain board dynamics (Liang et al., 2013b). One of the leading arguments suggests that many Chinese managers tend to view outside directors as "newcomers" and refuse to cooperate with them (Tian and Lau, 2001).

Accordingly, the literature on China is at best mixed in the overall effects of outside directors. For example, Peng (2004) finds that outside directors have insignificant effects on firm performance, indicating a "bandwagon effect" in appointing outside directors. However, agency theory asserts that outside directors are more likely to be concerned with shareholder interests and this effect may be particularly heightened in China given the importance of personal relations and credibility in the society. Moreover, unlike many developed economies, China requires the disclosure of director voting behavior in securities filings (Jiang et al., 2013). This adds an additional level of sensitivity to outside directors' concern for better monitoring and oversight. As a result, Chen et al. (2006) report that outside directors actually help minimize corporate frauds in Chinese firms. Ma and Khanna (2013) further find that outside directors tend to be more vocal when firm performance suffers, because they are concerned about being associated with poor performance. In sum, we argue that the importance of personal relations and credibility in the society coupled with regulatory disclosure requirements about director voting behavior may increase outside directors' career and reputation concerns and enable them to be aligned with shareholders rather than the managers in China.

Hypothesis 1a. Board independence is positively related to firm performance.

With the unfolding of institutional reforms, Chinese firms have been actively involved in the implementation of new corporate governance requirements regarding stronger board independence and greater transparency (Cheung et al., 2010). Consequently, the ratio of outside directors on Chinese boards increased from 6% in 2001 to 34% in 2005 (Conyon and He, 2011). Recent amendments further expanded the role and effectiveness of outside directors through election mechanisms, terms of reference, and responsibility investigation (OECD, 2011). For example, in terms of transparency requirements, listed firms have begun reporting key board activities such as logging outside directors' dissent during board meetings (Ma and Khanna, 2013).

As transitions progress, the effectiveness of outside directors may increase for two reasons. First, as market institutions become more advanced, the role of relationship-based structures may decline, decreasing the value of personal connections in transactions and thus the potential collusion between outside directors and the management (Peng, 2003). Second, as labor markets become more efficient, the sensitivity of outside directors for personal reputation and credibility may also increase. As a result, Jiang et al. (2013) report that outside directors' more sensitive monitoring is actually rewarded in the market place in the form of more outside career opportunities and the avoidance of regulatory sanctions in China. Therefore, we argue that over time, as the institutions develop better standards and converge towards their counterparts in developed markets, the link between board independence and firm performance becomes stronger in China.

Hypothesis 1b. The relationship between board independence and firm performance becomes
more positive over time.

CEO Duality

CEO duality—the situation when the CEO also holds the position of the chairman of the board— has been one of the most controversial constructs in corporate governance research (Finkelstein and D'Aveni, 1994; Krause et al., 2013). On the one hand, CEO duality may reduce the checks and balances in the top management of the firm (Chen et al., 2006). On the other hand, proponents of CEO duality argue that this

structure leads to unity of command that enables more efficient decision making (Finkelstein and D'Aveni, 1994). Not surprisingly, similar to the inconclusive evidence on the effects of CEO duality from developed economies (Dalton and Dalton, 2011; Krause et al., 2013), the findings based on Chinese firms are also largely inconclusive (Chen et al., 2011b; Peng et al., 2007, 2010).

Agency theory proposes that the board's role would be limited in the absence of separate decision-making and control mechanisms (Fama and Jensen, 1983). This adverse effect on monitoring may be heightened in China as inadequate oversight by the board may contribute to the misalignment of the CEO and shareholder interests, which eventually may lead to poor firm performance. For example, some recent studies show that CEO duality may have negative effects such as CEO entrenchment despite declining firm performance (Firth et al., 2014). Other negative consequences of CEO duality include excessive managerial discretion and risk taking (Li and Tang, 2010) and CEOs acting as the stewards of the state or of their political connections rather than working in the best interest of shareholders (Tian and Lau, 2001). As a result, Bai et al. (2004) emphasize the negative impact of CEO duality on firm market valuation in China. Therefore, CEO duality may result in excessive power, thus reducing the effectiveness of board monitoring in Chinese firms. Specifically:

Hypothesis 2a. CEO duality is negatively related to firm performance.

Despite the seeming convergence to rule-based structures—at least on the surface—the relationship-based, highly political, and state controlled nature of the Chinese corporate environment has continued to be identified as a potential obstacle (Markoczy et al., 2013). However, institutional transitions may over time diminish the potential value of relationship-based strategies (Khanna and Palepu, 2000). Specifically, the gradual decline of the state's influence and the increasing influence of capital markets and related financial development have increasingly led managers to be accountable to external market forces rather than to the state or political connections (Firth et al., 2007). Fan et al. (2007b) show that Chinese firms with politically connected CEOs underperform those without politically connected CEOs. Such findings indeed support the view that the performance effects of personal and political relations may diminish as market institutions gradually prevail (Peng, 2003). This shift illustrates

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a transformation from a relationship-based to a rule-based governance regime that may further increase the ineffectiveness of CEO duality, which may represent excessive managerial power and relatively high reliance on personal and political connections. Thus, we argue that as China transforms into a rule-based society with better market institutions:

Hypothesis 2b. The relationship between CEO duality and firm performance becomes more negative over time.

ALIGNMENT MECHANISMS

Agency theory prescribes the use of extrinsic managerial incentives to minimize moral hazard problems that result from the self-interested actions of managers (Laffont and Martimort, 2002). Accordingly, well-designed incentive systems help mitigate agency costs by aligning the interests of the CEO and top management with those of the shareholders. However, since institutions matter in the link between firm performance and managerial pay (Van Essen et al., 2012a), the implications of this mechanism have been a source of debate in the corporate governance literature on China (Buck et al., 2008; Markoczy et al., 2013; Peng et al., 2015).

Some studies argue that CEO pay is not an effective alignment mechanism in China because the country's politically-oriented institutional environment and relationship-based governance regime limits the effectiveness of remuneration systems that prevail in developed economies (Liang et al., 2013b). Three specific features of China's institutional environment may play a role. First, despite overseeing large international companies, Chinese managers are nevertheless paid far less than their Western counterparts (Peng et al., 2015). Conyon and He (2011) find that CEO pay in the United States is about seventeen times higher than CEO pay in China—a ratio that excludes equity pay. Gomez-Mejia et al. (2010: 187) report that "U.S. CEOs made 23 times as much as CEOs in mainland China."[3] Second,

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[3] Chinese CEO pay is likely to be among the *lowest* in the world. In addition to the 23 times between U.S. and Chinese CEO pay, Gomez et al.'s (2010: 187) comprehensive survey reports that U.S. CEOs made

boards—specifically compensation committees—are usually considered to have symbolic value because setting up a compensation committee signals that "a firm is willing to 'go the extra mile' in order to ensure that its corporate control of CEO compensation is seen as scrupulous" (Markoczy et al., 2013: 1368). Finally, managerial pay may not necessarily be linked to the CEO performance but may be linked to his/her political ties and status (Liang et al., 2013b).

Despite these problems, recent studies report that the drivers of managerial incentives are becoming more like those of Anglo-American economies and institutional reforms have been helpful in aligning managerial interests with shareholders in China (Conyon and He, 2011). For example, until the 1980s, all executive appointments and pay structures were regulated based on civil service seniority (Adithipyangkul et al., 2011; Buck et al., 2008). However, from the early 1980s onwards, the contract-based responsibility system was introduced that promoted the separation of government from firms and provided managers with greater autonomy and incentives (Groves et al., 1994). In the light of these influential reforms, some recent studies report a positive relationship between executive pay and firm performance in China (Chen et al., 2011a; Conyon and He, 2011; Firth et al., 2007; Kato and Long, 2006). Buck et al. (2008) further demonstrate the two-way relationship between executive pay and firm performance. The rationale is that, in line with agency perspective of aligning goals (and despite relatively inefficient markets), executives are indeed motivated to attain certain targets such as sale figures and market share that would lead to increased share prices and eventually higher remuneration.

Another major alignment mechanism is managerial ownership, which is considered to increase shareholder value and firm performance (Jensen and Meckling, 1976; Morck et al., 1988; Wright et al., 1996). Agency theory offers managerial ownership as a bonding mechanism because it aligns managers' interest with firm performance (Sundaramurthy and Lewis, 2003). Despite concerns about managerial

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"ten times as much as CEOs in India, nine times as much as CEOs in Taiwan, five times as much as CEOs in Japan, and two to four times as much as their counterparts in Spain, the United Kingdom, France, Italy, the Netherlands, Germany, and Switzerland."

entrenchment (Davies et al., 2005; Firth et al., 2006), studies that examine the relationship between managerial ownership and firm value in emerging economies report a positive relationship (Lins, 2003; Wei et al., 2005). Specifically, studies conducted in China underscore the motivational power of managerial ownership and argue that internal incentives matter more than external incentives during institutional transitions (Hu and Zhou, 2008; Wang and Judge, 2012).

In sum, as a result of the decentralization of SOEs and the adoption of new incentive mechanisms, Chinese firms have embraced certain "good" corporate governance practices aimed at enhancing the overall quality of alignment mechanisms (Chen et al., 2011b; Kato and Long, 2006). Managerial incentives, therefore, act as instruments to motivate managers towards increasing firm performance and pursuing shareholder interests in China.

Hypothesis 3a. Managerial incentives are positively related to firm performance.

China's gradual transitions to a market competition has introduced executive compensation mechanisms that are benchmarked on the compensation principles (if not the scale) of the Anglo-American model (Firth et al., 2006). For example, the contract responsibility system mandated the payment of managerial bonuses if the firm generated profits (Groves et al., 1994). In terms of transparency, by 2005, it became mandatory for publicly traded firms to report the total compensation of each executive and board member individually (Conyon and He, 2011). Such reforms were then a reflection of the new autonomy and incentive system in Chinese firms (Firth et al., 2007). In other words, Chinese reforms "introduced incentive mechanisms to induce managers to change from passive command-driven behavior to having a corporate mentality" (Bai and Xu, 2005: 525). The new incentive system has thus increasingly highlighted accountability towards shareholder and firm interests rather than personal or political connections (Adithipyangkul et al., 2011).

Another factor that may strengthen the relationship between managerial incentives and firm performance is the development of capital markets and the related financial development. Specifically, efficient capital and labor markets act as information mechanisms that help control the self-serving behavior of managers (Eisenhardt, 1989). As capital markets and related financial reforms become more

influential in China (OECD, 2011), empirical studies indicate a stronger effect of alignment mechanisms on firm outcomes over time. For example, Groves et al. (1994) and Li (1997) demonstrate how the institutional and financial reforms have helped the effectiveness of the incentive mechanisms and heightened the overall productivity of Chinese firms. Similarly, the ratio of corporate boards with a compensation committee has increased from 8% in 2000 to 62% in 2006, indicating the increasing emphasis placed on managerial incentives (Markoczy et al., 2013: 1373). Buck et al. (2008) also show that managerial incentives and firm performance mutually affect each other through both reward and motivation.

In sum, agency theory predictions about the role of extrinsic incentives on managerial behavior may work in China as market-oriented governance structures are adopted (Buck et al., 2008). Specifically, parallel to China's transitions from a relationship-based to a rule-based society, publicly listed firms may become increasingly accountable to shareholders (Adithipyangkul et al., 2011). Therefore, we argue that as market institutions evolve, the effects of managerial incentives on firm performance grow stronger over time.

Hypothesis 3b. The relationship between managerial incentives and firm performance becomes more positive over time.

METHODS

Sample and Coding

To effectively conduct our meta-analysis, we employed four search strategies to identify relevant studies. First, we consulted prior review articles (Claessens and Fan, 2002; Clarke, 2003; Globerman et al., 2011; Kang et al., 2008; Liang et al., 2013a; Tam, 2000; Yang et al., 2011; Young et al., 2008). Second, we explored five electronic databases: (1) ABI/INFORM Global, (2) EconLit, (3) Google Scholar, (4) JSTOR, and (5) SSRN, using the following search terms: 'CEO duality,' 'pay,' 'board size,' 'board independence,' 'executive directors,' 'non-executive directors,' 'independent directors,' 'inside ownership,' 'CEO ownership,' 'top executive ownership,' and 'board ownership.' Third, we manually searched 25 leading

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economics, finance, and management journals. Fourth, we searched all references of the retrieved studies, as well as all articles citing them using Google Scholar and ISI Web of Knowledge. Combined, these strategies yielded a final sample of 81 primary studies. Table 2 provides a description of the variables harvested from these studies that are included in our meta-analyses. One author coded all effect sizes. To assess interrater agreement, a second rater coded a subsample of 100 randomly selected effect sizes, after which we computed a chance agreement-corrected measure of interrater reliability (Cohen's kappa coefficient; Cohen, 1960). With a value of 0.98, kappa signified high interrater agreement.

<div align="center">(Insert Table 2 here)</div>

Hedges and Olkin Meta-Analysis (HOMA) Procedure

We used Hedges and Olkin (1985) meta-analysis (HOMA) to test Hypotheses 1a, 2a, and 3a. HOMA calculates the meta-analytic mean correlation between two variables and the corresponding confidence interval (Lipsey and Wilson, 2001). The data used are effect sizes such as the Pearson product-moment correlation r or the partial correlation coefficient $r_{xy.z}$. We employed both r and $r_{xy.z}$. We used r because it offers a scale-free measure of linear association. Yet r is a bivariate measure, which ignores the effect of other variables researchers may use as controls in multivariate tests. We therefore also used $r_{xy.z}$., which is a unitless measure that can be computed from regression results. This makes partial correlations from one study readily comparable to partial correlations in another study (Doucouliagos and Ulubaşoğlu, 2008).[4] In our case, $r_{xy.z}$ captures the association between board independence, CEO duality and managerial incentives (x) and firm performance (Y), given a set of n controlling variables (z).

When multiple measurements of the focal effect were reported, we included all of them. Monte Carlo simulations showed that procedures using the complete set of measurements outperform those representing each study by a single value in areas like parameter significance testing and parameter

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[4] The partial correlation coefficient is calculated as follows: $\sqrt{t^2/(t^2+df)}$, where t is the t-statistic and df represents the degrees of freedom. Note that this formula will always produce positive numbers, so it is necessary to convert it to negative numbers if the regression coefficients are negative (see Greene, 2008).

<div align="center">14</div>

estimation accuracy (Bijmolt and Pieters, 2001). We used the random-effects HOMA for combining study

estimates (Raudenbush and Bryk, 2002). To account for differences in precision across effect sizes, we

weighted effect sizes by their inverse variance weight w (Hedges and Olkin, 1985).[5] We also used these

weights to calculate the standard error of the mean effect size and its confidence interval.[6]

Meta-Analytical Regression Analysis (MARA) Procedure

We tested Hypothesis 1b, 2b, and 3b using meta-analytical regression analysis (MARA; Lipsey and

Wilson, 2001). In our MARA, the dependent variable was neither corporate governance variable nor firm

performance, but an estimate of the associational strength of the focal relationship (i.e., the relationship

between internal corporate governance mechanisms and firm performance) in a given sample. We used

partial correlation coefficients ($r_{xy.z}$) as our effect size estimates for the MARA procedure, which in this

case capture the association between firm performance and corporate governance given a set of n control

variables. Similar to conventional multiple regression approaches, MARA analyzes a linear regression

model involving a set of predictors, in this case board independence, CEO duality, and managerial

incentives-firm performance relationship (i.e., measurement and study characteristics), on the dependent

variable (i.e., the effect size). We weighted these effect sizes by their inverse variance weight in order to

account for differences in the precision of the information contained in them (Aguinis et al., 2011). In

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[5] w is calculated as follows: $w_i = \dfrac{1}{se_i^2 + \hat{v}_\theta}$, where SE is the standard error of the effect size and $\hat{v}_\theta$ is the

random effects variance component, which is in turn calculated as: $s.e.(z_r) = \dfrac{1}{\sqrt{n-3}}$, and the formula of

random effect variance is: $\hat{v}_\theta = \dfrac{Q_T - k - 1}{\sum w - \left(\dfrac{\sum w^2}{\sum w}\right)}$.

[6] The meta-analytic mean is calculated as follows: $\overline{ES} = \dfrac{\sum (w \times ES)}{\sum w}$, with its standard error:

$se_{\overline{ES}} = \sqrt{\dfrac{1}{\sum w}}$, and with its 95% confidence interval computed as: $Lower = \overline{ES} - 1.96(se_{\overline{ES}})$,

$Upper = \overline{ES} + 1.96(se_{\overline{ES}})$

other words, the primary-level study effect sizes were regressed onto a set of predictors (moderators) of the relationship between board independence, CEO duality, and managerial incentives on the one hand and firm performance on the other hand (Carney et al., 2011; Doucouliagos and Ulubasoğlu, 2008). Following current standards in the meta-analytic literature (Geyskens et al., 2009), we used random effects estimation methods in our MARA analyses, which are more conservative than conventional fixed effects methods. Specifically, this yielded the following regression equation:

$$R_i = y_0 + y_m D_i + \beta_m S_i + \varphi R_I + u_i$$

where R_i is the partial correlation between internal corporate governance and firm performance, y_0 is the constant term, D is a vector of measurement artifacts, S is a vector of study characteristics, R is the median year of the sample window, and ui is the random component.

To control for the influence of measurement artifacts on effect sizes, we included in the D vector several control variables. Specifically, to test for the moderating effect of focal variable operationalizations, we added dummy variables indicating whether firm performance was measured as accounting (0) or as market (1) performance. To test for the moderating effect of methodological artifacts, we controlled for the "file drawer problem" (Rosenthal, 1979), by including a dummy variable denoting whether a study was published (1) or not (0). Finally, we included a dummy variable indicating whether a given effect size was based on panel (1) or cross-sectional (0) data. To test Hypothesis 1b, 2b, and 3b, we included median year of sample window to test for the possibility that the relationship weakened or strengthened over time. As a robustness check we measured the effect of market institutions on the effectiveness of international corporate governance variables by collecting data on the 'market capitalization of firms to GDP' and 'stock market value to GDP.' One of the unique benefits of MARA is that it allows for the modeling of such heterogeneity with the help of data that were not part of the primary studies involved. In our case, we collected additional stock market variables to explain heterogeneity across effect sizes.

RESULTS

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Tables 3, 4, and 5 show the $r_{xy.z}$-based and r-based HOMA results related to Hypotheses 1a, 2a, and 3a. In addition to the meta-analytic mean, we report the number of samples (K), firm observations (N), the standard error of the mean effect size (SE), the 95 percent confidence interval around the meta-analytic mean, the Hedges and Olkin (1985) chi-square test for heterogeneity (Q), and I^2 scale-free index of heterogeneity. Table 3 shows the relationship between our independent variables and firm performance, in Tables 4 and 5 we distinguish between accounting and market-based performance measures, respectively.

<center>(Insert Tables 3, 4, and 5 here)</center>

Monitoring Mechanisms

Hypothesis 1a predicts a positive relationship between board independence and firm performance. According to the HOMA results in Table 3, the partial linear correlation between board independence and firm performance is highly significant and positive ($r_{xy.z}$-based mean $p = 0.039$, $k = 50$), thus supporting Hypothesis 1a. The significance of the relationship disappears in r-based HOMA results (r-based mean $p = -0.009$, $k = 44$), which may be due to the difference in sample sizes and the influence of control variables used in $r_{xy.z}$-based analysis. We also find different results when we distinguish between accounting-based and market-based measures of firm performance. In Table 4, the relationship between board independence and firm *accounting* performance is positive and significant, thus supporting Hypothesis 1a ($r_{xy.z}$-based mean $p = 0.079$, $k = 30$; and r-based mean $p = 0.028$, $k = 27$). However, as reported in Table 5, there is no significant association between board independence and firm *market* performance. Overall, the mean size effects indicate a modest positive effect of board independence on firm performance.

Following agency theory, Hypothesis 2a predicts a negative association between CEO duality and firm performance. In Table 3, the overall mean $r_{xy.z}$ and r of the focal relationship is, respectively, 0.004 and 0.014, and not significant. Tables 4 and 5 also show no significant relationship between CEO duality and firm *accounting* and *market* performances. Taken together, our results show no empirical support for the relationship between CEO duality and firm performance, and thus fail to support Hypothesis 2a.

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Alignment Mechanisms

Hypothesis 3a predicts a positive relationship between managerial incentives and firm performance. We find support for this effect for overall firm performance as reported in Table 3 ($r_{xy.z}$-based mean $p = 0.031$, $k = 68$; and r-based mean $p = 0.038$, $k = 49$). In Table 4, there is a positive and significant correlation between managerial incentives and firm *accounting* performance ($r_{xy.z}$-based mean $p = 0.031$, $k = 37$; and r-based mean $p = 0.055$, $k = 29$). In Table 5, there is a relatively less significant positive correlation between managerial incentives and firm *market* performance ($r_{xy.z}$-based mean $p = 0.030$, $k = 31$; and no significant results for r-based results).

We further distinguish between CEO pay and managerial ownership to have a more nuanced understanding of the effect of managerial incentives on firm performance. According to our HOMA findings reported in Tables 3, 4, and 5, the results for the relationship between CEO pay and firm performance are both positive and significant. Overall, with respect to CEO pay, we find strong support for Hypothesis 3a.

Our results for managerial ownership, however, are more mixed. Table 3 illustrates a positive and significant relationship based on partial linear correlation results ($r_{xy.z}$-based mean $p = 0.021$, $k = 61$) and an insignificant correlation based on r-based results. Only when looking at firm *accounting* performance (Table 4), we find both correlations to be positive and significant ($r_{xy.z}$-based mean $p = 0.023$, $k = 33$ and r-based mean $p = 0.026$, $k = 25$). With respect to managerial ownership, our results in Tables 3 and 4 modestly support Hypothesis 3a. We have completed separate artifact-corrected meta-analytic methods (ACMA; Hunter and Schmidt, 2004) and used firm year observations instead of firm observation as a robustness test for the HOMA results. Shown in Tables 6 and 7, results of ACMA are similar to those of the Hedges and Olkin-type meta-analysis and thus support our findings.

(Insert Tables 6 and 7 here)

Temporal Effects

In Hypothesis 1b, 2b, and 3b, we predict that the relationship between internal corporate governance mechanisms (i.e. board independence, CEO duality, and managerial incentives) on the one hand and firm

performance on the other hand becomes more strongly positive (board independence and managerial incentives) or more strongly negative (CEO duality) over time. Tables 8, 9, and 10 present the MARA results on the partial correlation between internal corporate governance mechanisms and firm performance. In Table 8, we include median year of sample window to test for the possibility that the relationship weakened or strengthened over time, whereas in Tables 9 and 10 we examine the moderating effect of the level of stock market capitalization and the level of stock market value on the effectiveness of internal governance mechanisms. This way, not only do we examine how the relationship changes over time, but also follow how the development of market institutions impacts this relationship.

(Insert Tables 8, 9, and 10 here)

In Model 1 of Table 8, we examine whether the relationship between *board independence* and firm performance becomes more positive over time. We find support for this effect as the median year of effect size is positive and significant. However, in Table 9 and 10, when we examine the effect of stock market capitalization, we find no significant results. Overall, we see that the relationship between board independence and firm performance becomes more positive over time, supporting Hypothesis 1b. This effect, however, is weakly driven by external market indicators such as stock market capitalization or stock market value.

In Model 2 of Table 8, we test whether the effect of *CEO duality* becomes more negative over time. As the effect size is negative and significant, we find support for Hypothesis 2b. We also find negative and significant results when we examine the effect of stock market capitalization and stock market value in Tables 9 and 10, respectively. Thus, we conclude that the negative correlation between CEO duality and firm performance becomes stronger over time in China, supporting Hypothesis 2b.

In Model 3 of Table 8, we report whether the relationship between *managerial incentives* and firm performance becomes more positive over time. In contrast to our predictions, the median year of the effect size is negative and weakly significant (at a 10% level). We also report negative and significant results for the effect of stock market capitalization and stock market value in Tables 9 and 10,

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respectively. These findings fail to support Hypothesis 3b. In fact, the relationship between managerial incentives and firm performance becomes *weaker* over time.

In sum, we find partial support for our temporal hypotheses. Figure 1 further illustrates the trend of the three internal corporate governance mechanisms based on their effect sizes and the time period of our studies. Specifically, we observe that the predicted positive significant correlation between board independence and firm performance and the predicted negative correlation between CEO duality and firm performance prevails over time. However, in contrast to our predictions, we find significant negative results for managerial incentives in our temporal analyses. The managerial incentive line is downward slopping yet still positive, indicating a positive relationship, albeit one that is less effective over time.

(Insert Figure 1 here)

DISCUSSION

Theory and Context

Eisenhardt (1989) recommends that agency theory be expanded to richer and more complex contexts and that agency theory be complemented with other theoretical views. China emerges as a compelling context given the adoption of agency theory-prescribed corporate governance reforms during institutional transitions. Thus, a dynamic institutional angle complements agency theory to provide a more comprehensive theoretical account of the link between internal corporate governance mechanisms and firm performance (Banalieva et al., 2014; Peng, 2004).

Although China offers an interesting context, there is often a suspicion that these reforms are merely window-dressing or ineffective (Conyon and He, 2011). Despite these suspicions and conflicting theoretical and empirical results, the overall conclusion of our meta-analysis is that monitoring and alignment mechanisms are positively associated with firm performance in China. In particular, our findings are consistent with the notion of partial, rather than full-fledged, convergence of corporate governance mechanisms in China. Over time, the temporal effects of monitoring become stronger, whereas the effects of alignment mechanisms become weaker.

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We can think of two possible explanations for our findings. First, existing research on the value effects of monitoring and alignment mechanisms, in the aggregate, finds inconclusive results even in developed economies such as the United States (Dalton and Dalton, 2011; Erkens, Hung, and Matos, 2012). For example, Dalton et al. (1998) find no evidence of a substantive relationship based on 54 empirical studies of board composition (inside/outside ratio) and 31 empirical studies of CEO duality. Similarly, Wagner et al. (1998) report that the greater relative presence of both outside directors and inside directors is empirically associated with higher firm performance. Erkens et al. (2012) find firms with more outside directors suffered from *worse* stock returns during the 2008 crisis. Concerning alignment mechanisms, Tosi et al. (2000) fail to find significant relationship between firm performance and executive pay, and Van Essen et al. (2012a) report modest correlation between firm performance and executive pay that varies depending on the level of institutional development in a given country. In comparison, our findings provide relatively *stronger* support for the predictions of agency theory regarding the relationship between internal corporate governance mechanisms and firm performance in China.

Second, partial convergence may in fact stem from China's unique hybrid state (1) between central planning and market competition (Allen et al., 2005) and (2) between relationship-based and rule-based regime (Luen et al., 2013). This hybrid state may further highlight the role of newly adopted corporate governance mechanisms in controlling the self-serving behavior of managers, who are also transforming from relationship-based focus to a more market-oriented mindset. Overall, our findings show that institutional transitions impact the role of monitoring and alignment mechanisms in emerging economies (Van Essen et al., 2012a).

Board Independence and CEO Duality

Consistent with agency theory predictions, our meta-analysis finds board independence to have a positive correlation with firm performance, especially when measured by accounting performance. Moreover, this effect seems to grow stronger over time. This finding illustrates the importance of internal monitoring mechanisms, which require board vigilance and thus a level of independence from management. This also

indicates that as market reforms deepen, labor markets may become more efficient, ultimately sensitizing outside directors towards the maintenance of their personal reputation and credibility (Jiang et al., 2013).

Although outside directors seem to have a positive impact on firm outcomes, our findings do not suggest a significant negative relationship between CEO duality and firm performance. This is in contrast with agency-theoretic predictions. While the drawbacks of CEO duality have been extensively discussed in theory, there is still a general lack of empirical evidence emanating not only from emerging economies, but also from developed economies regarding its net effect (Dalton et al., 2007). We must therefore interpret our findings with caution (Dalton and Dalton, 2011). On the other hand, in the China context, the effect of unity of command and thus efficient decision making ability may counterbalance the importance of effective oversight given the relatively turbulent business environment (Peng et al., 2007). On the other hand, the significant and negative temporal effect of CEO duality indicates that over time the benefits of better oversight and monitoring outweigh the benefits of unity of command. As seen in Figure 1, the CEO duality line is downward slopping and over time it ends up in the negative zone, which suggests that the agency theory prediction of the negative effect of CEO duality starts working from the point when the line enters the negative zone.

In sum, we observe convergence to agency theory predictions for the effects of board independence and CEO duality, indicating that agency theory-prescribed monitoring mechanisms tend to have greater impact as China's market institutions develop further. In other words, Chinese firms face an increasing discipline both within and outside their firms, as the role of external corporate governance mechanisms such as labor and capital markets in controlling the self-serving behavior of managers become more visible (Fama and Jensen, 1983).

Managerial Incentives

Corporate governance reforms in China not only mimic important features of the US corporate boards such as independent directors and compensation committees, the drivers of managerial incentives are also becoming surprisingly like those of Anglo-American economies (Conyon and He, 2011). In line with agency theory, we find that managerial compensation is an important incentive mechanism that helps

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align managerial goals with firm performance. Specifically, we find strong correlation between CEO pay and firm performance. Indeed, CEO pay seems to be positively associated with not only accounting performance, but also market performance. Thus, our results suggest that, although modestly, China's corporate governance reforms have been instrumental in aligning managerial interests with shareholders.

In addition to CEO pay, we also find a positive correlation between managerial ownership and firm performance in general. Our results for managerial ownership, however, are largely inconclusive. This may stem from the fact that stock ownership by Chinese directors is still at negligible levels—approximately 0.015 percent (Wei et al., 2005). This may limit the possibility of finding meaningful ownership effects (Hu and Zhou, 2008). Lastly, we see that the temporal effect of managerial incentives becomes weaker over time. As seen in Figure 1, the managerial incentive line is downward slopping but is still in the positive zone, suggesting that the positive relationship is declining. This indicates that although China's corporate governance reforms have been helpful in aligning managerial interests with shareholders, the reforms have a great deal of room to deepen further (Conyon and He, 2011).

In sum, although existing evidence from developed economies on the effectiveness of internal corporate governance mechanisms is not encouraging (Erkens et al., 2012; Misangyi and Acharya, 2014), our findings suggest that, albeit partially, these relatively new mechanisms help firm performance in China: board independence and CEO duality seem to gain importance, whereas we fail to find similar effects for managerial incentives over time. This, therefore, indicates partial convergence to agency theory predictions of monitoring and incentive mechanisms in the Chinese context.

Contributions

Motivated by an intense scholarly, practical, and policy interest in understanding whether agency theory-inspired standard corporate governance mechanisms work in China, this study makes two contributions. First, we join the debate on whether agency theory is applicable in the Chinese context with conclusive quantitative evidence. Specifically, through advanced meta-analytical techniques, we provide the first meta-analysis for monitoring and alignment mechanisms and their relationships to firm performance in China, thus tackling an important but previously unaddressed research gap. Our efforts are timely and

valuable as meta-analytic techniques help provide a comprehensive and rigorous assessment of empirical studies within a growing field. Previous meta-analyses either deal with developed economies (primarily the United States) (Dalton et al., 1998) or Asia in general (Heugens et al., 2009; Van Essen et al., 2012b). As Jiang and Peng (2011) demonstrate, corporate governance in each country in Asia is different. Thus, more country-specific investigations such as ours are necessary. Our findings in China are especially important due to the country's gradual transitions and uniquely hybrid state between central planning and market competition and between relationship-based and rule-based regimes.

Second, going beyond a static perspective, our findings contribute to corporate governance research by showing that internal monitoring and alignment mechanisms can help firm outcomes, especially when accompanied by improvements in market institutions. By doing so, our findings respond to the important question of whether or not agency theory can explain corporate governance dynamics in emerging economies such as China, as they converge toward market competition and transform into rule-based governance regimes. Inspired by Peng (2003, 2004), we believe this is a critical extension to the literature because it helps us understand the dynamic performance and convergence effects of these new governance practices. Moreover, advancing the dynamic institution-based view (Banalieva et al., 2014), our findings support the idea that the dynamic changes in the formal and informal rules of the game matter for the relationship between corporate governance mechanisms and firm performance (Kim et al., 2010). Although our focus in this paper is on the Chinese context, our findings hold considerable promise for other settings and comparative studies (Tsui, 2007).

Our study also offers unique insights for practitioners and policy makers. In particular, our findings indicate that "good" corporate governance practices such as board independence are associated with better performance for Chinese firms. Thus, we argue that on the backdrop of increasing integration with the world economy and exposure to international competition (Hoskisson et al., 2013; Mutlu et al., 2015), Chinese firms that operate in accordance with global standards of governance may have higher chances of better performance. A Deloitte (2010) survey shows that Chinese executives also agree that better governance help their firms in many ways, including access to capital, shareholder rights

protection, and decision making. Most importantly, Chinese firms increasingly understand that poor corporate governance is associated with elevated operational risks, ineffective management, and loss of international credibility.

Limitations and Future Research

Meta-analysis has its limitations. In particular, it is limited in terms of modeling the influence of time to a crude moderator effect (Combs et al., 2011) as we have done in our MARA (Van Essen et al., 2015). Additional primary studies may help capture longitudinal effects more effectively. Future research may also integrate the role of ownership concentration and types of ownership, which are critical characteristics of corporate governance in China, specifically by utilizing qualitative comparative techniques such as fuzzy sets to understand the effects of different corporate governance mechanisms (Misangyi and Acharya, 2014). Finally, whether firms are affiliated with business groups is also likely to be important (Carney et al., 2011). An additional and important avenue for research is the intra-regional institutional differences, which may add a new level of institutional dynamism (Banalieva et al., 2014; Meyer and Peng, 2016; Peng et al., 2015) to understand the effect of pro-market reforms on the link between corporate governance mechanisms and firm performance.

CONCLUSION

Do agency theory predictions on standard corporate governance mechanisms hold in China? In the absence of concrete evidence, China's uncertain institutional transitions make it very challenging to entertain this question, hence triggering significant scholarly and practitioner debate. To respond to this timely debate, our meta-analysis demonstrates how these effects evolve over the course of reforms. Our findings suggest that despite certain problems, agency theory predictions with respect to internal corporate governance mechanisms such as board independence and managerial incentives do hold in China. Moreover, we report a partial convergence to agency theory predictions over time as China's market institutions develop. In fact, relative to the "near zero" relationship between agency theory-prescribed standard corporate governance mechanisms and firm performance in an influential meta-

analysis using 54 U.S.-based studies (Dalton et al., 1998: 282), our meta-analysis based on 81 China-based studies actually find that agency theory is *more strongly* supported in China and this effect seems to become *stronger over time*. In conclusion, although agency theory has not originated from China, as China becomes the second largest economy in the world, corporate governance in China has become a fascinating ground in which agency theory can be further developed, tested, falsified, and/or strengthened.

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TABLE 1. Three Stages of Institutional Transitions of Corporate Governance in China

	Key events	Implications
Stage 1 1980-1989	- Enterprise reform; privatization of SOEs - Introduction of SOE law to clarify property rights and to implement incentive contracts (1988)	- Ownership and control problems still constrained the effectiveness of the incentive contracts between the government and the management. - The need for a basic corporate governance framework emerged.
Stage 2 1990-1999	- Launch of Shanghai and Shenzhen Stock Exchanges - Launch of the Company Law (1993) and the Security Law (1999)	- Structural changes such as the formation of board of directors, the supervisory board, and mandatory annual shareholder meetings were introduced. - The establishment of a modern corporate governance system sped up.
Stage 3 2000-2011	- Revision of corporate laws (e.g. company law, accounting law, securities law) - Accession to the World Trade Organization (2001) - Introduction of the Code of Corporate Governance of Listed Companies (2002) - The 2005 non-tradable share reform	- Improvements in the quality of disclosures and transparency. - Convergence to international standards (e.g. rules about having independent directors on board).

Sources: Liang et al. (2013a); Tenev and Zhang (2002); Yang et al. (2011)

TABLE 2. Description of Variables

Variables	Description
Board independence	The extent to which the board of directors operates independently from corporate insiders. Commonly measured as the proportion of outside board members to total number of board members. For Chinese two tier board system, information is sometimes available for independence of supervisory board and management board (Cho and Rui, 2009; Peng, 2004).
CEO duality	Situation where the positions of board chairman and CEO are held by one individual. It is mainly a dummy variable coded 1 for CEO duality and 0 for non-duality (Lin and Liu, 2009; Peng et al., 2007).
Managerial incentive	Total incentives awarded to firms' CEO, top executives, and board of directors in terms of (a) total compensation and (b) stock owned by management (Buck et al., 2008; Liu and Lu, 2007).
CEO pay	Total annual cash compensation of the executives. In the Chinese context, CEO total pay is measured as the sum of total cash pay (salary and bonus) in a year earned by the top executives of the Chinese firms (Buck et al., 2008; Peng et al., 2015).
Managerial ownership	The extent to which a firm's outstanding stock is owned by the firm CEO, top executives, managers, and board members. We also incorporate the dummy variables of management ownership (Liu and Lu, 2007; Peng, 2004).
Firm performance	Any indicator of the financial performance of the firm, including both accounting-based measures and market-based measures of firm value.
Accounting performance	Any indicator of the financial performance of the firm that is expressed in the form of an accounting-based measure of firm profits (such as return on assets, return on equity, earnings per share, and profit margin).
Market performance	Any indicator of the financial performance of the firm that is expressed in the form of a market-based measure of firm value (such as stock returns, market to book, and Tobin's Q).

TABLE 3
HOMA Results: Corporate Governance and Firm Performance[a,b]

| Predictor | Partial Linear Correlation (rxy,z) | | | | | | Pearson Product-Moment Correlation (r) | | | | | |
	K	N	Mean	SE	CI 95%	Q Test	I^2	K	N	Mean	SE	CI 95%	Q Test	I^2
Board independence	50	41050	**0.039*****	0.010	0.020/0.058	**169.770*****	0.711	44	31277	-0.009	0.024	-0.056/0.038	**730.320*****	0.941
CEO duality	34	18837	0.004	0.008	-0.012/0.020	37.520	0.120	27	15938	0.014	0.012	-0.010/0.038	**49.530****	0.475
Managerial incentive	68	56904	**0.031*****	0.008	0.016/0.047	**213.460*****	0.686	49	36733	**0.038****	0.01	0.013/0.064	**276.440*****	0.83
CEO pay	7	6319	**0.098*****	0.026	0.047/0.148	**24.300*****	0.753	8	5612	**.142****	0.048	.049/.236	**83.450*****	0.916
Managerial ownership	61	50585	**0.021****	0.007	0.007/0.035	**144.370*****	0.584	41	31121	0.016	0.008	-0.000/0.032	**79.620*****	0.498

[a] * $p < 0.05$ ** $p < 0.01$ *** $p<0.001$
[b] K = number of samples; N = firm observations; SE = the standard error of the mean correlation; CI 95% = 95 percent confidence interval around the meta-analytic mean;
Q test = Hedges and Olkin (1985) chi-square test for homogeneity; I^2 = scale-free index of heterogeneity.

TABLE 4
HOMA Results: Corporate Governance and Firm Accounting Performance[a,b]

| Predictor | Partial Linear Correlation (rxy,z) | | | | | | Pearson Product-Moment Correlation (r) | | | | | |
	K	N	Mean	SE	CI 95%	Q Test	I^2	K	N	Mean	SE	CI 95%	Q Test	I^2
Board independence	30	22420	**0.079*****	0.008	0.064/0.093	35.150	0.175	27	15876	**0.028****	0.010	0.008/0.048	38.360	0.322
CEO duality	22	6805	0.008	0.012	-0.016/0.033	21.420	0.020	21	9486	0.015	0.017	-0.019/0.048	**42.870****	0.533
Managerial incentive	37	27302	**0.031****	0.010	0.011/0.052	**93.370*****	0.614	29	18890	**0.055****	0.02	0.022/0.088	**136.640*****	0.795
CEO pay	4	3460	**0.074***	0.033	0.010/0.138	**10.700***	0.720	4	2542	**0.231*****	0.042	0.148/0.314	**12.050****	0.751
Managerial ownership	33	23842	**0.023***	0.010	0.003/0.043	**70.590*****	0.547	25	16348	**0.026****	0.010	0.007/0.045	34.470	0.304

[a] * $p < 0.05$ ** $p < 0.01$ *** $p< 0.001$
[b] K = number of samples; N = firm observations; SE = the standard error of the mean correlation; CI 95% = 95 percent confidence interval around the meta-analytic mean;
Q test = Hedges and Olkin (1985) chi-square test for homogeneity; I^2 = scale-free index of heterogeneity.

TABLE 5
HOMA Results: Corporate Governance and Firm Market Performance[a,b]

| Predictor | Partial Linear Correlation (rxy,z) | | | | | | Pearson Product-Moment Correlation (r) | | | | | |
	K	N	Mean	SE	CI 95%	Q Test	I^2	K	N	Mean	SE	CI 95%	Q Test	I^2
Board independence	20	18630	-0.009	0.014	-0.036/0.018	**63.19*****	0.699	17	15401	-0.066	0.052	-0.167/0.036	**650.240*****	0.975
CEO duality	12	12032	0.000	0.011	-0.021/0.022	15.880	0.307	6	6452	0.015	0.014	-0.013/0.043	6.460	0.226
Managerial incentive	31	29602	**0.030***	0.0117	0.007/0.053	**118.93*****	0.7478	20	17843	0.016	0.020	-0.024/0.055	**131.670*****	0.856
CEO pay	3	2859	**0.129*****	0.036	0.058/0.200	**7.240***	0.724	4	3070	0.048	0.082	-0.113/0.208	**0.082*****	0.000
Managerial ownership	28	26743	0.019	0.010	-0.001/0.039	**73.430**	0.632	16	14773	0.004	0.014	-0.023/0.032	**41.130*****	0.635

[a] * $p < 0.05$ ** $p < 0.01$ *** $p< 0.001$
[b] K = number of samples; N = firm observations; SE = the standard error of the mean correlation; CI 95% = 95 percent confidence interval around the meta-analytic mean;
Q test = Hedges and Olkin (1985) chi-square test for homogeneity; I^2 = scale-free index of heterogeneity.

TABLE 6

HOMA Firm Year Observation Results: Corporate Governance and Firm Performance[a,b]

Predictor	Partial Linear Correlation (rxy,z)							Pearson Product-Moment Correlation (r)						
	K	N	Mean	SE	CI 95%	Q Test	I^2	K	N	Mean	SE	CI 95%	Q Test	I^2
Board independence	50	80967	**0.03*****	0.01	0.012/0.056	**433.30****	0.89	44	128299	-0.008	0.027	-0.062/ 0.045	**3,963.07****	0.99
CEO duality	34	34197	0.007	0.009	-0.01 / 0.02	**62.14***	0.47	27	49003	0.02	0.010	-0.00 / 0.04	**89.82****	0.71
Managerial incentive	68	186364	**0.033*****	0.008	0.02 / 0.05	**688.79****	0.90	49	157883	**0.037****	0.013	0.01 / 0.06	**1,301.30****	0.96
CEO pay	7	30597	**0.096*****	0.03	0.04 / 0.15	**127.12****	0.95	8	27244	**0.137****	0.05	0.03 / 0.24	**482.11****	0.99
Managerial ownership	61	155767	**0.020*****	0.006	0.008 / 0.03	**300.32****	0.80	41	130639	0.01	0.01	-0.00 / 0.03	**248.76****	0.84

[a] * $p < 0.05$ ** $p < 0.01$ *** $p<0.001$

[b] K = number of samples; N = firm observations; SE = the standard error of the mean correlation; CI 95% = 95 percent confidence interval around the meta-analytic mean;
Q test = Hedges and Olkin (1985) chi-square test for homogeneity; I^2 = scale-free index of heterogeneity.

TABLE 7

Hunter and Schmidt Results: Corporate Governance and Firm Performance[a,b]

Predictor	Partial Linear Correlation (rxy,z)							Pearson Product-Moment Correlation (r)						
	K	N	$\bar{r}$	$\bar{r}_c$	σ_e^2	$\sigma_{\bar{r}}^2$	CRI	K	N	$\bar{r}$	$\bar{r}_c$	σ_e^2	$\sigma_{\bar{r}}^2$	CI
Board independence	50	41050	**0.039**	0.041	0.0012	0.0029	-0.065 / 0.147	44	31277	-0.009	- 0.009	0.0014	0.023	-0.30 / 0.28
CEO duality	34	18837	0.004	0.003	0.018	0.002	-0.02 / 0.03	27	15938	0.014	0.011	0.0017	0.0031	-0.06 / 0.08
Managerial incentive	68	56904	**0.031**	0.024	0.0012	0.0025	-0.075 / 0.123	49	36733	**0.038**	0.040	0.0013	0.0075	-0.11 / 0.20
CEO pay	7	6319	**0.098**	0.103	0.0011	0.0028	0.00 / 0.206	8	5612	**.142**	0.171	0.0013	0.0148	-0.06 / 0.40
Managerial ownership	61	50585	**0.021**	0.014	0.0012	0.0028	-0.066 / 0.093	41	31121	0.016	0.017	0.0013	0.0026	-0.05 / 0.09

[a] * $p < 0.05$ ** $p < 0.01$ *** $p<0.001$

[b] K = number of samples; N = firm observations; $\bar{r}$ = mean effect size; $\bar{r}_c$ = corrected mean effect size; σ_e^2 = sampling error variation; $\sigma_{\bar{r}}^2$ = sample correlation variance; CRI: 95 percent credibility interval.
Q test = Hedges and Olkin (1985) chi-square test for homogeneity; I^2 = scale-free index of heterogeneity.

TABLE 8. Results of Mixed-Effects WLS Regression Partial Correlation Results

	Model 1 Board independence–firm performance	Model 2 CEO duality–firm performance	Model 3 Managerial incentives–firm performance
Constant	**0.10 (0.04)****	0.04 (0.03)	**0.10 (0.03)*****
Performance predictors			
Market performance	**-0.09 (0.02)*****	0.00 (0.02)	-0.01 (0.02)
Accounting performance (ref)			
Methodological predictors			
Published	-0.03 (0.03)	-0.01 (0.02)	-0.02 (0.02)
Panel	0.01 (0.02)	**-0.04 (0.02)****	**-0.06 (0.02)****
Median year of effect size	**0.005 (0.00)****	**-0.01 (0.00)***	-0.0036 (0.00)
R^2	0.40	0.18	0.13
K	50	34	68

TABLE 9. Results of Mixed-Effects WLS Regression Partial Correlation Results and Stock Market Capitalization

	Model 1 Board independence–firm performance	Model 2 CEO duality–firm performance	Model 3 Managerial incentives–firm performance
Constant	**0.10 (0.04)***	0.03 (0.03)	**0.11 (0.03)*****
Performance predictors			
Market performance	**-0.10 (0.02)*****	0.02 (0.02)	-0.00 (0.02)
Accounting performance (ref)			
Methodological predictors			
Published	-0.03 (0.03)	-0.00 (0.02)	-0.02 (0.02)
Panel	0.01 (0.02)	**-0.06 (0.02)****	**-0.08 (0.02)*****
Stock market development	0.0003 (0.00)	**-0.006 (0.00)****	**-0.0007 (0.00)***
R^2	0.37	0.29	0.17
K	50	34	68

TABLE 10. Results of Mixed-Effects WLS Regression Partial Correlation Results and Stock Market Value

|	Model 1 Board independence–firm performance	Model 2 CEO duality–firm performance	Model 3 Managerial incentives–firm performance
Constant	**0.10 (0.04)***	0.04 (0.03)	**0.11 (0.03)*****
Performance predictors			
Market performance	**-0.10 (0.02)*****	0.01 (0.02)	-0.01 (0.02)
Accounting performance (ref)			
Methodological predictors			
Published	-0.03 (0.03)	-0.01 (0.02)	-0.02 (0.02)
Panel	0.01 (0.02)	**-0.05 (0.02)****	**-0.07 (0.02)****
Stock market value	0.0003 (0.00)	**-0.0004 (0.00)****	**-0.0003 (0.00)***
R^2	0.38	0.33	0.12
K	50	34	68
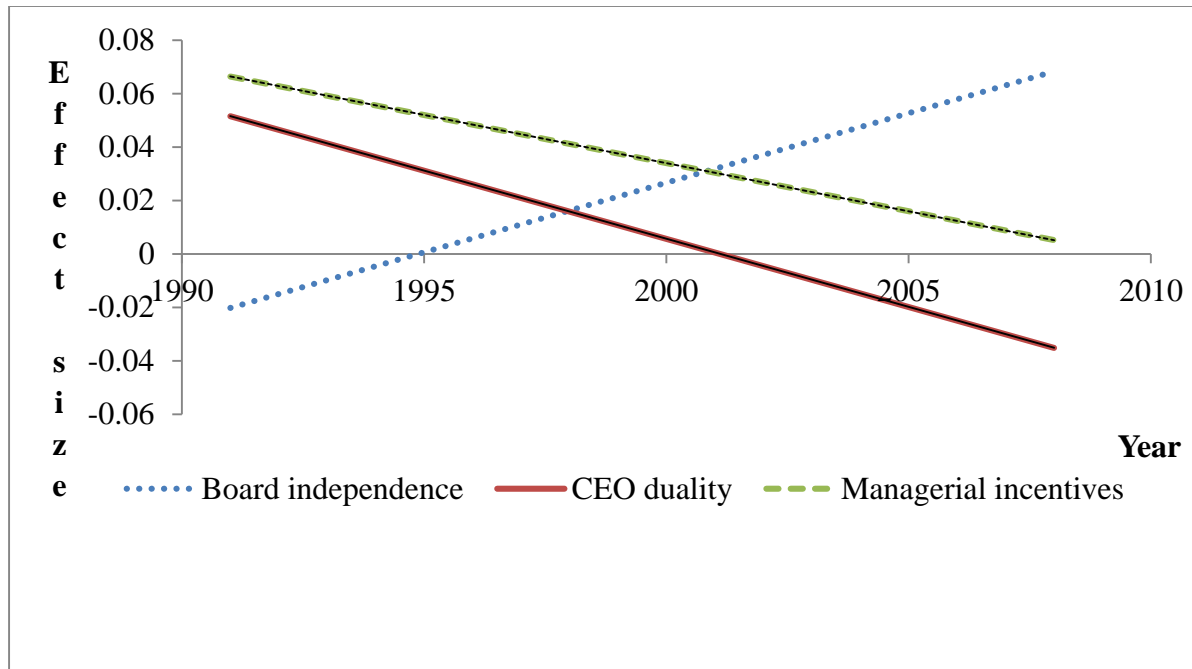
Figure 1. Effect sizes versus time