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Corporate Governance and Idiosyncratic Skewness: Evidence from External and Internal Provisions*

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June 2016

ABSTRACT

This paper analyzes the relationship between corporate governance and idiosyncratic skewness of stock returns. Firm-level skewness determinants are differences in investors' opinion, information and information asymmetries. Since companies with good corporate governance are more informative and transparent than their less shareholder protective counterparts, we argue that differences in the quality of corporate governance matter for idiosyncratic skewness. We test this hypothesis by analyzing the impact of external as well as internal governance provisions, and are thus able to provide an overall understanding of the relationship between governance and firm-specific return asymmetries. Our results show that better governance leads to a reduction in idiosyncratic skewness in relatively non-competitive industries. In relatively competitive industries, governance has less to no impact on firm-specific return skewness.

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ACCORDING to classical asset pricing theory, higher statistical moments of stock returns do not matter – neither for the distribution nor to investors – and idiosyncratic risk is not compensated (Markowitz 1952). These assumptions cannot withstand empirical evidence. At the aggregate level, stock market returns display negative skewness, whereas firm-level returns are positively skewed (Duffee 1995, Andersen et al. 2001). Furthermore, idiosyncratic components are priced into stock returns (Goyal and Santa-Clara 2003, Ang et al. 2006, and Boyer, Mitton, and Vorkink 2010), and investors do not only reveal a preference for positive skewness (Arditti 1967 and Scott and Horvath 1980), but for idiosyncratic skewness as well (Mitton and Vorkink 2007, Barberis and Huang 2007, and Conrad, Dittmar, and Ghysels 2013).

The persistence of skewness in stock returns has caused the emergence of various theories that aim to explain which underlying economic mechanisms are reflected in these stylized facts. In short, firm-level skewness is traced back to investor's heterogeneity of opinion, biased release of good news over bad news, and information flow in general. Because the underlying source of these concepts is information, and because corporate governance affects the transparency and handling of information and respective accounting mechanisms, we argue that corporate governance should also impact idiosyncratic skewness. We test this hypothesis by employing two distinct datasets that allow us to investigate the effect of external as well as internal governance provisions. The proxy for external governance is the anti-takeover index by Gompers, Ishii, and Metrick (2003), the measure for internal governance is the induction of the Sarbanes Oxley Act (SOX) that became effective in 2002. Overall, our results suggest that better governance is related to lower values of idiosyncratic skewness for corporations in non-competitive industries. Companies with more anti-takeover provisions, which correspond to worse governance, exhibit more positively skewed stock returns than their shareholder friendly

counterparts if, and only if, the economic environment allows for managerial slack. However, the results struggle to withstand robustness tests. For internal governance we find that companies in less competitive industries are more affected by SOX than their more competitive counterparts. Their level of idiosyncratic skewness is more negatively affected by SOX. The results withstand several placebo tests.

The paper proceeds as follows. Section I provides the economic background, literature and formulates our hypotheses. Section II describes the data, section III the empirical setup and presents primary evidence on the relationship between idiosyncratic skewness and external as well as internal governance provisions. Section IV tests for robustness; section V investigates the frequency of extreme residuals, and section VI concludes.

I. Economic Background and Literature

Theories aiming to explain which underlying economic mechanisms of skewed stock returns include the leverage-effects hypothesis. It states that a drop in the stock price increases leverage, which in turn leads to an increase of the stock's subsequent volatility. If the stock price rises, leverage shrinks and volatility decreases. This asymmetric response results in negatively skewed stock market returns (Black 1976, Christie 1982). Blanchard and Watson (1982) show that the stock market's negative skewness can be produced by the bursting of a stock price bubble. The volatility-feedback effect explains market skewness via the arrival of either good or bad news, a signal for increased volatility, which in turn increases the risk premium (Pindyck 1984, French, Schwert, and Stambaugh 1987, Campbell and Hentschel 1992). The increase of this premium reduces part of the positive effect of good news but amplifies the negative impact of bad news. Thus, large negative stock returns are more common than large positive ones, leading to

negatively skewed aggregated returns. Hong and Stein (2003) suggest that investor heterogeneity causes negative market skewness, and they detect that it is negatively related to turnover. This explanation is known as the difference-of-opinion model. Chen, Hong, and Stein (2001) document that this relationship between skewness and turnover also holds at the firm level. Theories that specifically focus on explaining the stylized fact of positive firm-level skewness include the discretionary-disclosure hypothesis. It traces positive, firm-specific skewness back to the degree of managers' discretion over the disclosure of information. As good news only has a positive impact on the firm's stock price, but bad news has both a positive effect (that of reducing the likelihood of a lawsuit) and a negative effect (that of decreasing the firm's stock price), the manager will disclose all positive and all sufficiently negative bad news, but will be less precise about or will withhold moderately negative news (Skinner 1994, Truemann 1997). According to Chen, Hong, and Stein (2001) this behavior tends to impart a degree of positive skewness. Achaya, DeMarzo, and Kremer (2011) and Albuquerque (2012) find similar effects of disclosure freedom on skewness of stock return; the former finding an impact of news clustering, the latter relating positive stock skewness to firm-level heterogeneity that is reflected in the timing of firm announcement events.

These firm-level skewness theories imply that the degree of *firm-specific* skewness can be influenced by managerial decisions on the release and handling of information. As accounting mechanisms are a primary source of information, one should expect that companies that differ in their information policies also exhibit different degrees of skewness. This suggests a link to corporate governance practices. Corporate governance addresses the principle-agent problem that evolves due to the separation of ownership and control, and thus aims at shareholder protection from expropriation by managers. Thus, it directly addresses managerial behavior and decisions,

which include, among others, information policy. There is a large body of empirical evidence that corporate governance is closely linked to accounting and information flow (Basu 1997, Ahmed and Duellmann 2007, and García Lara, García Osma, and Penalya 2009). Eng and Mak (2003) find that good corporate governance is coupled with a high degree of transparency and disclosure, subsequently reducing the possibility of insider knowledge and trading. Kanagaretnam, Lobo, and Whalen (2007) document that good corporate governance leads to more informative stock prices, and firms with stronger shareholder protection exhibit lower information asymmetry. Hence, good governance can be associated with a stronger stock market reaction, not only towards positive news, but also towards negative news, resulting in more tail observations. In line with this claim, Ferreira and Laux (2007) use idiosyncratic volatility as a proxy for information flow and private information (Roll 1988) and detect that firms with fewer anti-takeover provisions display higher levels of idiosyncratic volatility than firms with weak shareholder protection. They trace this relationship back to the link between weak governance and impeded information flow. John, Litov, and Yeung (2008) confirm that stronger shareholder protection is associated with higher firm-level risk.

The presented literature suggests that a link between corporate governance and firm-level skewness should exist, a relationship that Bae, Lim, and Wei (2006) investigate on a country level. They find that emerging markets, which possess poor corporate governance systems, exhibit returns that are more positively skewed compared to the returns of developed countries that apply good corporate governance. The asymmetric information disclosure of emerging countries is made accountable for this finding: good news is published immediately whereas bad news is held back. The paper at hand extends the literature by analyzing how corporate governance and *idiosyncratic* skewness are linked in the U.S. market. In particular, we focus on

testing the connectedness of corporate governance, information flow, and firm-specific skewness. Given the presented conceptual framework and prevailing empirical evidence, we can formulate our testable hypotheses. Depending on which factor dominates, governance and idiosyncratic skewness can be either positively or negatively related. If better governance positively impacts information flow like in Ferreira and Laux (2007), good corporate governance and idiosyncratic skewness should be positively related. If better corporate governance leads to more accounting conservatism, a reduction in information asymmetry, and a decline in the discretionary level of information disclosure, we expect a negative impact of governance on idiosyncratic skewness. We test these competing hypotheses by investigating the effect of both external and internal governance mechanisms on idiosyncratic skewness by employing two distinct datasets. The proxy for external provisions is the anti-takeover index by Gompers, Ishii, and Metrick (2003), which covers the time span 1990 to 2006. Ferreira and Laux (2007) have shown that these external provisions affect a corporation's information flow. Hence, a relationship between the G-index and idiosyncratic skewness should in theory also exist. A valid shortcoming of the G-index is its proneness to endogeneity concerns, which we overcome in the internal provisions analysis. We use the Sarbanes Oxley Act (SOX) that became effective in July 2002 as a natural experiment and positive shock on internal governance standards. By employing a difference-in-difference analysis, we test the effect of SOX on companies in industries that face different concentration levels. The motivation for this interaction stems from theoretical and empirical work that has shown that the effectiveness of governance is linked to the economic environment – a relation, we also test in the external governance analysis[1]. Since SOX aims to

[1] See for example Giroud and Mueller (2010 and 2011) and Chhaochharia et al. (2012), who show that governance matters in non-competitive industries, i.e. is a substitute; whereas Rolle (2016) finds evidence that governance and competition are contaminated complements when it comes to stock market data.

provide transparency and to improve financial disclosure, we also expect to detect a relationship to firm skewness.

II. Data

The data is composed of two independent, though time-wise overlapping datasets. All market data is drawn from the Center for Research in Stock Prices (CRSP), fundamental data is taken from Compustat, and market risk factors are pulled from Kenneth French's website. The corporate governance index G, which captures external governance quality, is constructed using data from the Investor Responsibility Research Centre (IRRC). The time span for the external governance provisions analysis (G-index analysis) is September 1990 to December 2006 and determined though the availability of the G-index. The time span for the internal governance provisions analysis (SOX analysis) is January 2001 to December 2003, with a treatment period of post-July 2002. The time horizon for the SOX analysis stems from the fact that we want to exclude potentially confounding effects of Regulation Fair Disclosure (REG FD), which became effective in October 2000. Though SOX consists of several sub-sections that came into effect gradually, its first effective date was immediately upon passage of the Act, i.e. on July 30, 2002, with further effective dates in August 2002 as well as in January, March, April, May, June, and July 2003. To avoid capturing confounding effects we set the end of the time horizon to December 2003. If SOX was effective in terms of affecting idiosyncratic skewness, the effect should be captured in the seventeen months during our post-treatment period[2]. The next sub-section describes the idiosyncratic factors.

[2] The results are robust to shifting the end of the time horizon.

A. Idiosyncratic Factors

Monthly idiosyncratic volatility and skewness, *IDVOL* and *ISKEW*, are estimated using daily return data from CRSP. The computation follows Boyer, Mitton, and Vorkink (2010) in terms that both factors are constructed via daily residuals, ϵ_{id}, which are extracted from rolling regressions of daily excess stock returns on the Fama and French (1993) three-factor model. To allow for time-varying coefficients that reflect recent market dynamics, we estimate monthly rolling regressions for each company with a window size of one year of historical daily return data. The exogenous variables of the three factor model – excess market return (*RMRF*), Small-minus-Big (*SMB*), and High-minus-Low (*HML*), respectively – are taken from Kenneth French's website. Once the daily, firm-specific residuals, ϵ_{id}, are obtained, idiosyncratic volatility and skewness are constructed as follows:

$$IDVOL_{it} = \sqrt{\frac{1}{T}\sum_{d \epsilon S(t)} \epsilon_{id}^2} \tag{1}$$

$$ISKEW_{it} = \frac{1}{T}\frac{\sum_{d \epsilon S(t)} \epsilon_{id}^3}{IDVOL_{it}^3} \tag{2}$$

S(t) denotes the set of trading days and has a monthly horizon in this study. The number of days in this set is *T,* which is required to be at least 15 trading days per month.

B. Corporate Governance Proxies

The measure for external corporate governance provisions is the G- index by Gompers, Ishii, and Metrick (2003) that is available through the Investor Responsibility Research Centre (IRRC) database.[3] The index is based on 24 distinct provisions that restrict shareholder rights and is

[3] See chapter/paper 'Corporate Governance, Competition Regulation, and Equity Prices' for a more detailed description of the G-index.

composed of takeover defense measures including tactics to slow down hostile bidders, protection of officers and directors, shareholders' voting rights, state laws limiting takeover bids, and others. Hence, the G-index is based on anti-takeover measures and thus focuses on external governance (Cremers and Nair 2005). The IRRC started to report the number of external provisions in September 1990; updates are available in 1993, 1995, 1998 and then biennially until 2006. Given its possible range from 1 to 24 and an average of 9 provisions, it is common practice to label companies with $G \leq 5$ as shareholder friendly and to group them into the democracy portfolio. Firms with the weakest shareholder rights ($G \geq 14$) protect management at the expenses of shareholders and are thus allocated into the dictatorship portfolio. Consequently, higher values of G indicate worse governance quality. To recognize that the effectiveness of governance has been shown to be dependent on the economic environment, we also interact the G-index with proxies of the regulatory impact that each company faces with respect to competition. Our measure is the regulatory impact (RI) indicator developed by the Organization of Economic and Cooperation and Development (OECD), and is constructed in a way to solely capture regulations that limit efficiency enhancing competition. It is "silent on […] criteria other than competition" (Conway and Nicoletti 2006).

The proxy for internal governance is less detailed, but in contrast to the G-index also less prone to criticism of endogeneity. As a result of major corporate and accounting scandals, the U.S. Congress passed the Sarbanes Oxley-Act (SOX) in July 2002 to protect shareholders from accounting errors and frauds, and to improve the accuracy of corporate disclosures. Major pillars of SOX include Section 302 (date of effectiveness: August 29, 2002), according to which officers have to review and sign the correctness and completeness of financial reports. Furthermore, the signing officers are held responsible for internal controls. Section 401 (effective

since June 15, 2003) requires accurate financial statement reporting, including the disclosure of off-balance sheet transactions to prohibit companies carrying incognito leverage, which can lead to unexpected bankruptcies like in the case of Enron. Under Section 404, which was phased in since September 15, 2003, management and the external auditor are obliged to report on the adequacy of the company's internal controls on financial reporting in an internal control report. As of July 15, 2003, Section 407 requires that the audit committee includes at least one 'financial expert', and under Section 802 and 906 (effective since October 31, 2003 and immediately upon passage) penalties, fines, and possible imprisonment are imposed upon everyone – including accountants and the CEO/CFO – who criminally alters documents. Further provisions include the reporting of insider stock transactions (Section 403) as of August 29, 2002, and a 'blackout period' for all directors and executive offers during any 401(k) (Section 306, effective since January 26, 2003).[4] Overall, SOX aims at higher transparency and better financial disclosure through the enforcement of internal governance standards. Its effectiveness can be regarded as a natural experiment of a positive shock on the quality of internal governance provisions. SOX has been previously used in the academic literature, with mixed results. Chhaochharia and Grinstein (2007) show that firms, which are less compliant with the provisions of the rules earn positive abnormal returns, compared to firms that are more compliant. Iliev (2010) finds a shift towards conservatively reported earnings at the expenses of real costs, leading to a reduction of market value of small firms. Chhaochharia et al. (2012) provide evidence that firms in concentrated industries experience a larger improvement in operational efficiency after SOX than firms in non-concentrated industries.

[4] Though outside our time span, another example of SOX's aim at improving disclosure is Section 409 (effective on 23 August, 2004) that requires timely and understandable reporting of information on material changes in the financial condition or operations.

To capture the effect of SOX, we use an indicator variable from August 2002 onwards. To incorporate advances in the governance literature we take the industry concentration level into account. Our measure for concentration in the SOX analysis are the concentration ratios by the Economic Census, which measure competition in a given industry by the percentage of output accounted for by the largest fifty companies within the industry. Only the manufacturing reports include the Herfindahl-Hirschman index. The measure is available for the year 2002.[5]

C. Control Variables

The choice of control variables is justified by the (firm-level) skewness hypotheses and the idiosyncratic skewness model of Boyer, Mitton, and Vorkink (2010). Because idiosyncratic volatility proxies information flow, the volatility-feedback hypothesis and the (discretionary) disclosure hypothesis, it is our key control variable (*IDVOL*). It is calculated according to formula (1); momentum (*MOMENTUM*) is the monthly cumulative return of the firm's daily returns, lagged by one month, and capturing the observed fact of short-term reversal in stock returns, a phenomena documented by Jegadeesh (1990) and Lehmann (1990). Given that negative skewness is most profound in stocks that have experienced an increase in trading volume (Chen, Hong, and Stein 2001), we include the percentage of turnover (*TURNOVER*) in our analyses, which is the average daily turnover of the prior month in relation to the company's shares outstanding. Because Harvey and Siddique (2000) and Chen, Hong, and Stein (2001) find that skewness is, on average, more positive for small-capitalization stocks, we include a continuous size variable (*SIZE*), which is the log of the market capitalization as of $t - 1$. To

[5] The reason to not use the regulatory impact (RI) indicator for the SOX analysis is that the industry classification (ISIC Rev. 3) which underlies the RI requires a manual match between the company and the respective industry (see discussion in Rolle (2016)). This is feasible for a limited sample size, but not reasonable when working with the entire universe of CRSP/Compustat. Since the concentration ratios of the Census start in 1997 and update every five years, we believe that for the G-index analysis, the RI-values, which are available for every year of our analysis, are a better proxy than the Census data when seeking to capture the effect of competition.

control for corporate finance decisions and to capture the leverage hypothesis, we also include the firm's leverage ratio (*LEVERAGE*) as of the last quarter, which is debt over total assets as reported in Compustat[6]. To capture the unique institutional features of the NASDAQ exchange – such as differences in turnover measurement – we include an exchange dummy (*NASDAQ*) that is coded one if the stock is traded at this exchange. All market data is drawn from CRSP. For the G-index analysis we impose industry fixed effects. The choice of industry rather than firm fixed effects is due to insufficient within-variation of the G-index. The SOX dataset does not underlie this restriction, therefore we control for firm fixed effects in those analyses[7]. To control for unobserved or special events, all models include time fixed effects. Table I reports summary statistics for all variables.

[Insert table I here]

Panel A.1 provides summary statistics for the G-index sample from September 1990 to December 2006. As expected, idiosyncratic skewness is positive, with a mean of 0.13. Contrasting the idiosyncratic skewness values of companies with bad versus good external governance practices reveals that democrats seem to exhibit higher values in *ISKEW* than dictators; the difference is 0.029 and significant at the 1% level. However, this difference does not account for other factors that impact idiosyncratic skewness. The average momentum is 1.3%, the average monthly idiosyncratic volatility amounts to 2.2%, and around 24% of the stocks are traded on NASDAQ and exhibit an average daily stock turnover of 0.6%. Leverage ratios are moderate with a mean of 0.25. The correlation matrix in Panel A.2 matches the expectations: the positive correlation between *ISKEW* and *IDVOL* is in line with Chen, Hong, and Stein (2001), Kapadia (2006), and Boyer, Mitton, and Vorkink (2010), who find that

[6] Our results are robust to alternative definitions where we us market capitalization as the denominator.
[7] Which make the NASDAQ dummies redundant, as this effect is already captured through the firm fixed effects.

preceding idiosyncratic volatility is a strong predictor of idiosyncratic skewness. Corporate governance is negatively correlated with idiosyncratic skewness and volatility, the latter relationship confirming the results of Ferreira and Laux (2007), though the correlation is weak. G-index and *ISKEW* are weakly negatively correlated.

For the SOX sample that comprises all companies in the CRSP/Compustat universe which were traded during the month before and after SOX, Panel B.1 reports summary statistics for the time span January 2001 to December 2003, with all months after July 2002 denoted as the treatment period. We find an average *ISKEW* value of 0.16. With 3.6%, idiosyncratic volatility is higher compared to the G-index sample; momentum is 1.9%, the average turnover 0.5%, and leverage 0.22. A simple t-test to contrast idiosyncratic skewness in competitive industries (*CON*=0) with idiosyncratic skewness in non-competitive industries (*CON*=1) post-SOX reveals a difference of -0.043, significant at the 1% level. The correlation matrix in Panel B.2 also finds a weak negative relationship between corporations in industries above the concentration median versus those below (variable *SOX*CON*) after SOX. The remaining correlations between *ISKEW* and the control variables are in line with our expectations.

III. Empirical Setup

To test the relationship between corporate governance and idiosyncratic skewness, we estimate the following model:

$$ISKEW_{it} = \alpha_0 + \alpha_{i/j} + \alpha_t + \beta_t'(CG_{it} \times \mathbf{I}_{it}) + \gamma_t'\mathbf{X}_{it-1} + \varepsilon_{it} \quad (3)$$

The dependent variable is monthly idiosyncratic skewness (*ISKEW*) that is computed using the daily residuals of the Fama and French (1993) three-factor model, as described in section II. *CG* denotes our measure of corporate governance; in the external provisions analysis it is represented

by the corporate governance index G, in the SOX analysis we use a dummy variable for the period post SOX enactment, hence the firm-specific index i is dropped. In the difference and difference-in-difference analyses $\mathbf{I}_{it}$ is a vector of competition dummies: in the G-index analysis we form tercile dummies based on the regulatory impact (RI) index of the OECD to capture whether the firm lies in a low, medium or highly regulated industry[8]. In the SOX analysis – after initially splitting the sample into concentration terciles and detecting an overall though differing effect for all industries – we divide the sample into above and below median values based on the Economic Census concentration ratios from 2002 (*CON*). Since we rely on census data, which updates every five years, the division of the sample into above/below median concentration ratios remains constant throughout the two-year analysis. Hence, there is no assignment variation and the respective concentration dummy variable *CON* is subsumed through the firm fixed effects, and thus does not appear as a stand-alone variable in the estimated models. The choice of control variables is motivated by the (idiosyncratic) skewness literature: $\mathbf{X}_{it-1}$ is a vector of explanatory variables including lagged idiosyncratic volatility (*IDVOL*), the cumulative return of the previous month (*MOMENTUM*), the average daily trading volume during the preceding months over the average number of shares outstanding during this month (*TURNOVER*), the log of the market capitalization (*SIZE*), and book leverage as of the last quarter (*LEVERAGE*). To capture the institutional features of *NASDAQ* trading, we include an indicator variable in the G-index analysis. For the SOX analysis, this control is not necessary because it is already captured through the firm fixed effects, α_i. All models include monthly time fixed effects, α_t, as well as industry α_j (G-index) or firm fixed effects α_i (SOX analysis) and robust standard errors. All

[8] See Rolle (2016) for a detailed description of the formation of the dummies.

variables are winsorized at the top/bottom 1% of their distribution. Table II (G-index analysis) and table IV (SOX analysis) in the next sub-sections report the main results of our paper.

A. External Governance Provisions Analysis

Model (1) of table II reports estimated coefficients of equation (3) with the G-index as the corporate governance proxy for the entire time period, i.e. September 1990 to December 2006.[9] The estimated effect of *G* on *ISKEW* is weakly positive but not significant. Economically, the positive sign of the G-index indicates that worse governance is associated with higher values of idiosyncratic skewness. Validating the previously stated theories, we find that idiosyncratic volatility has a positive impact on idiosyncratic skewness, whereas momentum, trading volume and firm size are negatively related. Furthermore, leverage has a positive effect on our dependent variable. Next, we turn to the competition-conditioned analyses. Here we split the sample period into the 1990s (model 3) and 2000s (model 4). The motivation to divide the sample into sub-periods is due to the fact that many studies of the G-index only find an effect for the 1990s. The exception is Giroud and Mueller (2011), who show that governance matters for firm and stock performance in the 2000s if one takes the economic environment with respect to the level of competition into account. To incorporate this governance-competition relationship, we interact the G-index with tercile dummies of a measure of competition, that is whether the corporation operates in a low, medium or highly competition-regulated industry. Our measure for anti-competitiveness is the regulatory impact (RI) indicator by the OECD, which updates annually – thus, we reassign terciles annually as well. The low RI tercile indicates little regulation with regard to competition and captures a competitive environment. The high RI tercile captures companies which operate in industries that are highly competition-regulated, i.e. shielded from

[9] In unreported tests we rerun equation (3) for different sample periods as well. We do not find any effect.

competition and can therefore be regarded as relatively non-competitive. Model (2) reports estimates for the entire sample period, (3) for the nineties, and model (4) captures the effect during the 2000s. In all sample periods we find a non-monotonic effect. Governance, conditioned on a relatively competitive environment (*G*RI low*), is positive, though insignificant; in a neutral environment (*G*RI medium*), the effect is negative; and in non-competitive industries (*G*RI high*) governance has a positive and significant impact on idiosyncratic skewness. For the entire time period we find a 5% significant impact of 0.002 (t-stat = 2.524), and for the 1990s the estimate is even a little bigger, i.e. 0.003 (t-stat = 2.127). Economically interpreted, these significances indicate that worse governance in a rather non-competitive environment leads to higher values of idiosyncratic skewness.

[Insert table II here]

To further investigate this result, we follow the methodology of Ferreira and Laux (2007). We check the previous results for corporations with extreme governance in a stand-alone analysis. We use a dummy variable (*DIC*) that is coded one if companies are classified as dictators ($G \geq 14$) and zero if they are considered democrats ($G \leq 5$). Firms with intermediate G values ($5 < G < 14$) are excluded from the analysis. Thus, the remaining sample contains either dictators or democrats, and coefficients in table III capture the difference between these two groups. For the unconditioned model (1), we cannot detect an effect of extreme governance on idiosyncratic skewness. In the RI-conditioned models, where we split the dictators-democrats-only sample into their respective competitive terciles, we find validation of the previous results. In the tercile for non-competitiveness (*DIC*RI high*) we find a positive and significant effect for all time periods: with 0.062 (t-stat = 3.389) it is strongest during the nineties and drops to 0.035

(t-stat = 1.988) in the 2000s. None of the neutrally or competitive terciles is significant. Interestingly, the coefficients are negative.

[Insert table III here]

The results hint at a negative relationship between governance quality and idiosyncratic skewness in non-competitive industries. The higher the number of external provisions, the more positive is the idiosyncratic skewness level. Reversely, this indicates that companies with a good governance structure experience lower values of idiosyncratic skewness. This relationship only holds in relatively non-competitive industries, i.e. an economic environment that lacks market discipline and facilitates managerial slack.

B. Internal Governance Provisions Analysis

Next we turn to our internal governance analysis where we directly test a difference-in-difference analysis of the effect of SOX on idiosyncratic skewness, conditioned on the economic environment. The sample span is from January 2001 to December 2003, with months post July 2002 as the treatment period. The study comprises the entire universe of CRSP/Compustat. In order to make it into our sample, we require that the stock is traded between July and September 2002, i.e. is present both in the pre- and post-treatment period. For periods from August 2002 onwards, the *SOX* indicator that captures the respective governance effect, is coded one; prior to this date *SOX* is zero. We interact *SOX* with a dummy variable (*CON*) that captures whether the corporation operates in a relatively competitive or a relatively non-competitive industry. Our measures for competition are the concentration ratios by the Economic Census for the year 2002. The data are classified by the percent of output accounted for by the largest fifty companies, and only manufacturing reports include the Herfindahl-Hirschman index. Since the ratios are obtainable every five years we keep the 2002 classification constant. Corporations below the

median are coded zero, corporations above the median are coded one. Table IV reports the estimates of the difference-in-difference analysis.

[Insert table IV here]

The estimated effect of SOX between non-competitive versus competitive industries in model (1) is -0.02 (t = 1.791) and significant at the 10% level. This indicates that idiosyncratic skewness of firms in non-competitive industries is relatively diminished after the enactment of SOX. The effect is even stronger and significant at the 1% level, when we exclude the financial sector (SIC codes between 6000 and 6999) in model (2): the impact rises to -0.04 (t-stat = 3.29). A valid justification to exclude the financial sector is the fact that some of the requirements of SOX are duplicate requirements under the Federal Deposit Insurance Corporation Improvement Act (FDICIA), which applies to the banking sector since 1991. Overall, we find that an increase of internal governance quality leads to a reduction of idiosyncratic skewness for companies that face less market discipline. This reduction can be regarded as detrimental for shareholders, who have a preference for positive idiosyncratic skewness. Therefore, the estimated effects fall in line with previous work which finds that – at the end of the day – SOX came at the expenses of shareholders. The result is also in line with our G-index findings. The signs of the coefficients of the control variables keep their directions as well.

The section concludes that idiosyncratic skewness and better corporate governance are negatively related once the corporation operates in a relatively non-competitive industry. For neutrally and rather competitive industries, governance does not significantly matter with respect to positive, firm-specific return asymmetries. To draw general conclusions concerning the relationship between corporate governance and idiosyncratic skewness, the next section checks for robustness.

IV. Robustness

To test the validity of the main results in section III, we run sample-specific robustness tests, which individually tackle potential inference concerns. The external provisions robustness checks include a refined governance proxy, the Entrenchment index by Bebchuk, Cohen, and Ferrell (2009), and an alternative estimation method, i.e. Fama-MacBeth cross-sectional regressions, to handle issues of omitted variables bias. The internal governance robustness checks include placebo tests as well as the investigation of the effect of Regulation Fair Disclosure.

A. External Governance Provisions Analysis

To check for the robustness of our results with respect to the governance measure, we re-estimate equation (3) employing the E-index by Bebchuk, Cohen, and Ferrell (2009). After finding that only six of the original 24 G-index provisions matter for explaining the documented stock performance, they put forward an entrenchment index E based on the following six provisions: staggered boards, limits to shareholder bylaw amendments, poison pills, golden parachutes, and supermajority requirements for mergers and charter amendments. As the 18 excluded provisions represent "noise", the E-index is useful by providing a measure of corporate governance quality that is not affected by the noise created by the inclusion of these provisions (cf. Bebchuk, Cohen, and Ferrell (2009), p. 17). Table V reports estimated coefficients of equation (3) with the E-index as our measure of external governance. In model (1) we report the unconditioned effect estimation for the entire period. Though insignificant, the effect is negative, a result that is in stark contrast to the G-index results. In model (2) to (7) we interact the E-index with dummy variables for low, medium, and high values of the anti-competition index RI. In contrast to the G-index interaction results, governance according to the E-index only matters in

neutrally regulated industries, but in the opposite direction. The estimated impact is *negative* and significant for the entire sample period as well as the 1990s. When turning to extreme governance companies, i.e. companies with five or six provisions (dictators) and companies with zero provisions (democrats), respectively models (5) to (7), we fail to verify the results of table III. It is rather interesting that the effect in the medium and high RI terciles is negative, whereas we estimate positive coefficients in the most competitive industries, i.e. the lowest RI tercile.

[Insert table V here]

In table VI we tackle the valid concern that an omitted variable bias is driving the results in the RI-interacted models. We thus re-estimate equation (3) using Fama-MacBeth cross-sectional regressions. Because Fama-MacBeth is a two-step procedure that first estimates time series and then computes T cross-sectional regressions using the estimates of the first step, both time and industry fixed effects are dropped. Since we do not need to condition on industry fixed effects, which are constructed using SIC codes, our sample slightly increases. This is due to the fact that CRSP/Compustat does not provide SIC codes for all companies in the G-index sample.

[Insert table VI here]

In Panel A of table VI we estimate the effect of the G-index and in Panel B the effect of the E-index via Fama-MacBeth regressions. None of the G-index-interacted analyses – model (1) to (3) – confirm the previous relationship between governance and idiosyncratic skewness. The G-index is not significant in all RI-terciles and throughout all time horizons. When turning to the dictators-democrats-only analyses, the positive effect between bad governance and idiosyncratic skewness in non-competitive industries is affirmed. The entire sample period estimates a positive effect of 0.036 (t-stat = 1.804), significant at the 10% level. For the nineties the effect of the dictatorship dummy is 0.065 and significant at the 1% level (t-stat = 2.672). The effect vanishes

in the 2000s. Panel B reports estimates for the E-index. We find an overall significant *negative* effect of bad governance on idiosyncratic skewness, with the unconditioned analyses reporting an estimate of -0.003 (t-stat = 1.785) for the entire time span. The value is significant at the 10% level. In the interacted models (2) to (4) we find a negative effect of governance in neutrally regulated industries. When turning to the extreme governance analyses, we encounter another surprise: good governance has a negative impact on idiosyncratic skewness in competitive industries. This is another hint that governance can come at the cost of shareholders. Overall, the robustness results are blurry and indicate that the different external governance provisions might impact the distribution of stock returns differently. A broad arrow of anti-takeover provisions seems to generate more skewed idiosyncratic returns in a competition-reduced environment than a more compressed governance structure.

B. Internal Governance Provisions Analysis

Our robustness checks with respect to the effect of internal governance provisions consist of placebo tests where we shift the sample period as well as the fake treatment date. If our results in table IV are correct and do not pick up a governance-unrelated trend, we expect to not find significant results. Our first placebo test runs from September 2000 to July 2002, i.e. ends when the true SOX came into effect and starts after Regulation Fair Disclosure (REG FD) was enacted – a FED rule, which aimed at eliminating asymmetric information disclosure. We investigate the effect of REG FD in a separate analysis. For the first placebo time horizon we test multiple fake treatment dates, i.e. April, June, October and December 2001. To ensure enough length in our pre- and post-treatment periods, but in order to avoid picking up the extreme market chaos caused by 9/11, we set the placebo treatments outside this turmoil phase. In a second placebo test, we run our model for the time period January 2001 to December 2002 and declare

November 2001, January 2002 and April 2002 as fake treatment months. Though this time span overlaps with the true SOX treatments in July 2002, we expect to detect no effect since we set our treatment dates significantly prior to the true effect. Even if we would pick up some SOX-effect, the length of the fake treatment period should override the impact.

[Insert table VII here]

Models (1) to (7) of table VII report the difference-in-difference estimates of our placebo tests, excluding the financial sector[10]. As expected, none of the interacted terms is significant. This supports the hypothesis that SOX did in fact have a significant effect on idiosyncratic skewness, especially for corporations in non-competitive industries. Internal governance reduces in relative terms idiosyncratic skewness of corporations in industries that face less competition, compared to idiosyncratic skewness of corporations in more competitive industries.

[Insert table VII here]

In model (8) and (9) we also carry out an analysis of the effect of Regulation Fair Disclosure (REG FD), which was adopted on August 15, 2000. REG FD requires that when material non-public information is disclosed to certain individuals or entities – like analysts or holders of the issuer's securities – this information must be disclosed to the public as well. This FED rule aims to promote full and fair disclosure. Though obviously significantly less comprehensive than SOX, it can still be considered as an exogenous requirement how corporations handle their information flow. If it was effective, it should diminish information asymmetries in the market, so we would expect to detect an impact on idiosyncratic skewness. However, depending on which mechanism dominates, the impact can be either positive or negative. If information flow in general increases, we would expect a positive impact of REG FD on idiosyncratic skewness. If

[10] In unreported tests we include the financial sector. Our results do not change.

solely information asymmetry is reduced, skewness should diminish. Our analysis horizon lasts from July 1999 to July 2002, and all months post August 2000 are declared as the treatment period. For the overall sample, which includes the financial sector, we estimate a positive effect of REG FD on idiosyncratic skewness that is stronger for companies in relatively less competitive industries. The coefficient is 0.048 and significant at the 1% level (t-stat = 3.85). When excluding the financial sector, the estimate becomes insignificant. This could be evidence, that in order to affect idiosyncratic skewness, an overall governance shock that includes multiple actions is necessary.

V. Frequencies of Extreme Residuals

Because the preceding results support the notion that relatively better governance in a less competitive environment reduces information asymmetry and discretionary disclosure, we investigate whether and to which extent governance affects the frequencies of the extreme positive and negative idiosyncratic return component. This analysis allows us to further inspect the discretionary-disclosure hypothesis by Skinner (1994) and Truemann (1997), which states that managers will disclose all positive and all sufficiently negative bad news, but will be less precise about or will withhold moderately negative news. This behavior tends to impart a degree of positive skewness (Chen, Hong, and Stein 2001). Hence, under different governance regimes, the percentages of good and bad news releases could differ, which should be reflected in the frequencies of the extreme idiosyncratic return component. We test this for both samples in table VIII by contrasting the relative frequencies of observing extreme negative and positive daily residuals, which are obtained through the Fama-French (1993) three-factor model described in section II. In Panel A we test the equality of proportions of observing extreme residuals between

companies in the democracy portfolio and companies in the dictatorship portfolio. In Panel B we test the effect of SOX on the equality of proportions of extreme frequencies for corporations in industries above and below the industry concentration median. A noteworthy limit of this methodology is that we cannot control for other effects that might drive the differences. Hence, the results reported in table VIII should be considered supplementary to the previous tests of this paper and not be interpreted independently.

The cutoffs for extreme residuals are given by the top/bottom 1%, 5%, and 10% of the entire residual distribution of each sample. Thus, the thresholds for the external governance analysis (Panel A) differ from the thresholds in the SOX analysis (Panel B). The bottom 1% in the G-index sample is given by -7.84%, whereas the bottom 1% in the SOX sample is given by -13.23%. Overall, the SOX sample exhibits more pronounced extreme residuals than the G-index sample. Once the thresholds are determined, we compute the relative frequencies of observing residuals that pass these thresholds. For example, 0.57% of the residuals of dictatorial companies (i.e. $G \geq 14$) exceed or are equal to -7.84% (i.e. bottom 1%), whereas 0.66% are equal to or larger than 8.96% (i.e. top 1%). For democratic companies (i.e. $G \leq 5$) the bottom/top 1% frequencies are 1.43% and 1.36%, respectively. Because the differences are larger in the left tail (i.e. the bottom thresholds), the asymmetric frequencies between top and bottom are in line with the discretionary-disclosure hypothesis, according to which dictators would have fewer observations in the left tail of the distribution than in the right tail. Since the differences in frequencies between democrats and dictators are positive for all cutoffs – though more pronounced in the bottom thresholds, e.g. 0.86% in the bottom 1% versus 0.70% in the top 1% – this indicates that better governance is indeed positively linked to information flow (cf. Ferreira and Laux 2007). When splitting the G-index sample into the respective economic terciles – as described in section

II –, we find that the frequency of observing extreme residuals is indeed a function of the regulatory environment. In a relatively competitive environment, captured through the lowest regulatory impact (RI) tercile, extreme negative residuals occur more often than in a relatively competition-shielded environment (i.e. in the high RI tercile). This pattern holds for democrats and dictators. In the low RI tercile, 9.18% of residuals of the democrats exceed or are equal to -3.80% (i.e. the bottom 5% threshold), whereas 4.35% of the residuals of the dictators hit or exceed this cutoff. This is a difference of 4.83%. In the high RI tercile, the frequency difference of residuals larger or equal to -3.80% reduces to 2.34%. The lower frequencies in the bottom cutoffs in the high RI tercile are in line with previous results, according to which a relatively non-competitive environment grants possibilities of managerial slack, which can results in biased information disclosure. Turning to the top of the distribution, it becomes apparent that the proportion reduction between the low and high RI tercile is mostly driven by democratic companies. For dictatorial companies the frequencies of extreme positive residuals remain almost stable. For example, democrats in the low RI tericle exhibit 8.16% of the residuals in the top 5%, and democrats in the high RI tercile display 5.35% of residuals in the top 5%. For dictators, the respective percentages are 3.84% in the low RI tercile and 3.62% in the high RI tercile. Overall, the results support the discretionary disclosure hypothesis, and a positive link between external governance and information flow.

[Insert table VIII here]

Panel B tests the effect of SOX on the frequency of observing extreme daily residuals for corporations below (*CON*=0) and above (*CON*=1) the median of the Economic Census concentration ratio. With the exception of the bottom 1%, where SOX has a significant positive impact on the frequency of extreme negative residuals, SOX significantly reduces the

frequencies of extreme positive and negative residuals. For corporations in a relatively competitive environment, the frequency of observing residuals that are larger or equal to -6.63% (i.e. bottom 5%) reduces from 7.14% pre-SOX to 5.24% post-SOX. For companies in relatively non-competitive industries, SOX reduces the residual frequency from 5.24% to 4.09% for the same cutoff. Despite reducing the frequencies of bottom 5% and 10% residuals, SOX also has a negative effect on the top of the distribution: the frequency of observing residuals above 7% (i.e. top 5%) reduces from 7.39% to 5.16% in relatively competitive industries, and from 5.49% to 4.08% in relatively non-competitive industries. This can be considered as evidence for a reduction in information flow or more conservative information releases. In contrast to the previous findings of this paper, the overall effect of SOX on the tail distribution is stronger for companies in a relatively competitive environment. However, since we do not control for other effects in this analysis[11], these results should rather be regarded as supplementary than stand-alone. Overall, the frequency differences in the SOX sample indicate a reduction in extreme tail observations post SOX.

VI. Conclusion

The paper investigates the relationship between corporate governance and idiosyncratic skewness for a large sample of U.S. firms, for both external and internal governance provisions. In particular, we focus on testing the link between corporate governance, information flow, and firm-specific skewness. Since information is a determinant in explaining return skewness, and governance is related to information flow, a relationship ought to exist. However, depending on which mechanism dominates, governance could either increase or decrease idiosyncratic

[11] Due to methodical limitations.

skewness. If governance helps to transport information transparency and reduce information asymmetry, investor's opinion should converge, leading to a reduction in return skewness. If the overall information flow increases – which has been shown to be a positive predictor of idiosyncratic skewness – but asymmetries remain, a positive relationship between governance and skewness is expected. We mostly find evidence for the former. For a broad external governance index we detect that companies with fewer shareholder friendly provisions exhibit higher values of idiosyncratic skewness than their shareholder friendly competitors, subject to the condition of an anti-competitive industry. In rather competitive and neutrally regulated industries, governance does not matter. For a refined and narrower external governance index the results become blurry and less straightforward. For internal provisions, we find that an increase in transparency, quality and disclosure of information, proxied through the Sarbanes Oxley Act, reduces relative idiosyncratic skewness in non-competitive industries compared to rather competitive industries. The internal governance results are robust. Our idiosyncratic results are in line with Bae, Lim, and Wei (2006) who find a similar relationship between corporate governance and conditional skewness in the world's stock markets. However, we find that governance only/mostly matters in non-competitive industries. Overall then, although governance aims to create shareholder value, it comes at a price which is paid in the tails and in industries which lack market discipline. The reduction of idiosyncratic skewness through better governance collides with shareholder's preference for idiosyncratic and positively skewed stock returns, which present a lottery like upside option of monetary gains and value creation through the right tail.

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Table I
Summary Statistics

This table provides summary statistics on the distribution of the dependent variable idiosyncratic skewness (*ISKEW*) and control variables for both sub-studies, i.e. G-index companies (Panel A.1 and A.2) between September 1990 and December 2006, and the Sarbanes Oxley Act study (SOX) (Panel B.1 and B.2), which lasts from January 2001 to December 2003. The G-index study (Panel A) includes all companies with external governance data in the Investor Responsibility Research Center (IRRC) database. The SOX study includes all traded companies in the CRSP/Compustat universe that were actively traded between July and September 2002; summary statistics cover January 2001 to December 2003. The column DIC-DEM (Pane A.1) reports the difference in idiosyncratic skewness between democratic companies (DEM, G≤5) and dictatorship companies (DIC, G≥14). Panel B reports summary statistics for the entire SOX period, and pre-/post-SOX split values of idiosyncratic skewness conditioned on a dummy variable that is one for industries above the median concentration ratio and zero otherwise. The ratio is the 2002 Economic Census concentration ratio. Monthly *ISKEW* is constructed from daily residuals of monthly rolling regression with an estimation window of one year of daily data. The underlying asset pricing model is the Fama French factor model; The variables (*RMRF*, *SMB*, and *HML*) are taken from French's website. *IDVOL* is constructed using the same residuals from the estimated three factor model. *MOMENTUM* is the cumulative return of the last month, *SIZE* is the logarithm of the market capitalization of the stock as of the previous month, *TURNOVER* is the percentage of the sum of shares traded during the last month over the total shares outstanding. *LEVERAGE* is the ratio of total liabilities over total assets as of the last quarter reported in Compustat. *NASDAQ* is an indicator variable if the stock is traded on NASDAQ. All market data is drawn from CRSP.

Panel A.1: G-index sample

	N	Mean	Std. Dev.	p25	Median	p75	DEM-DIC
ISKEW	278,082	0.13	1.093	-0.613	0.139	0.876	
ISKEW DIC	15,937	0.119	1.073	-0.625	0.134	0.854	0.029***
ISKEW DEM	25,166	0.148	1.101	-0.602	0.155	0.9	(2.642)
G-index	278,082	9.212	2.724	7	9	11	
IDVOL	278,082	0.022	0.015	0.012	0.017	0.026	
MOMENTUM	278,082	0.013	0.117	-0.049	0.01	0.069	
SIZE	278,082	14.057	1.605	13.012	14.009	15.062	
TURNOVER	278,082	0.006	0.006	0.002	0.004	0.007	
LEVERAGE	278,082	0.247	0.187	0.093	0.235	0.361	
NASDAQ	278,082	0.239	0.427	0	0	0	

Panel A.2: G-index sample correlations

	ISKEW	G-index	IDVOL	MOM	SIZE	TURN	LEV	NASDAQ
ISKEW	1.000							
G-index	-0.008	1.000						
IDVOL	0.045	-0.143	1.000					
MOMENTUM	-0.065	0.000	0.006	1.000				
SIZE	-0.056	0.106	-0.394	0.063	1.000			
TURNOVER	0.000	-0.097	0.370	0.023	0.075	1.000		
LEVERAGE	0.003	0.059	0.019	-0.016	-0.024	-0.098	1.000	
NASDAQ	0.008	-0.158	0.204	0.009	-0.130	0.336	-0.257	1.000

Panel B.1: SOX sample

	N	Mean	Std. Dev.	p25	Median	p75	
ISKEW	162,003	0.160	1.122	-0.624	0.156	0.935	
ISKEW SOX*CON(0)|SOX=1	39,948	0.147	1.124	-0.647	0.136	0.923	-0.043***

ISKEW SOX*CON(1)|SOX=1	42,060	0.191	1.157	-0.617	0.182	0.986	(5.444)
IDVOL	162,003	0.036	0.028	0.016	0.027	0.046	
MOMENTUM	162,003	0.019	0.185	-0.07	0.008	0.089	
SIZE	162,003	12.089	2.075	10.588	11.987	13.492	
TURNOVER	162,003	0.005	0.008	0.001	0.003	0.006	
LEVERAGE	162,003	0.215	0.217	0.021	0.159	0.346	

Panel B.2: SOX sample correlations

	ISKEW	SOX*CON|SOX=1	IDVOL	MOM	SIZE	TURN	LEV
ISKEW	1.000						
SOX*CON|SOX=1	-0.019	1.000					
IDVOL	0.091	0.094	1.000				
MOMENTUM	-0.075	-0.059	0.084	1.000			
SIZE	-0.111	-0.113	-0.434	0.034	1.000		
TURNOVER	-0.027	-0.021	0.176	0.049	0.281	1.000	
LEVERAGE	-0.008	-0.019	-0.048	-0.002	0.064	-0.068	1.000

Table II
Main Results I – External Corporate Governance and Idiosyncratic Skewness

The table reports estimates of coefficients of panel regressions of the effect of external governance provisions on monthly idiosyncratic skewness. In model (1) and (2) the sample period covers September 1990 to December 2006, in model (3) the effect is only estimated for the nineties, i.e. last from September 1990 to December 1999, and in (4) the sample period is January 2000 to December 2006. The dependent variable is monthly idiosyncratic skewness, which is constructed using daily residuals from monthly rolling regressions of the Fama French three factor model, estimated via a twelve months window of historical daily returns. A minimum of fifteen trading days is required. The measure for external governance is the G-index that is constructed from the Investor Responsibility Research Center (IRRC). Control variables include lagged idiosyncratic volatility (*IDVOL*), last month's cumulative return (*MOMENTUM*), the percentage of average daily turnover (*TURNOVER*), the logarithm of lagged market value (*SIZE*), the leverage ratio as of the current quarter, defined as debt over total assets (*LEVERAGE*), and an indicator if the stock is traded on *NASDAQ*. Model (1) estimates the effect of the unconditioned G-index; models (2) to (4) interact the G-index with dummies, whether the company operates in an industry with low, medium, or high competition regulation. The measure for competition is the regulatory impact (RI) indicator by the OECD, which captures the degree of anti-competitiveness in a given industry. All models include industry fixed effects (two-digit SIC codes) and time fixed effects. All variables, except G and RI, are winsorized at the top/bottom 1% of their distribution. Robust, industry-clustered t-statistics are in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level.

	(1)	(2)	(3)	(4)
G-index	0.001			
	(0.677)			
G*RI (low)		0.001	0.001	0.003
		(1.294)	(0.519)	(1.336)
G*RI (medium)		-0.002	**-0.003***	-0.002
		(-1.544)	(-1.822)	(-1.445)
G*RI (high)		**0.002****	**0.003****	0.001
		(2.524)	(2.127)	(0.736)
RI low		0.032**	0.031	0.036
		(2.125)	(1.533)	(1.215)
RI medium		0.067***	0.078***	0.063**
		(3.983)	(3.624)	(2.303)
IDVOL	2.838***	2.848***	2.183***	3.488***
	(11.707)	(11.462)	(6.519)	(12.180)
MOMENTUM	-0.712***	-0.707***	-0.752***	-0.677***
	(-15.801)	(-16.464)	(-16.877)	(-13.450)
TURNOVER	-2.344***	-2.373***	0.718	-4.151***
	(-4.271)	(-4.069)	(0.674)	(-7.523)
SIZE	-0.028***	-0.028***	-0.027***	-0.030***
	(-14.545)	(-15.009)	(-12.156)	(-11.882)
LEVERAGE	0.026**	0.035***	0.032**	0.047**
	(2.042)	(3.491)	(2.441)	(2.360)
NASDAQ	-0.006	-0.009	-0.014	-0.007
	(-0.626)	(-0.928)	(-1.275)	(-0.651)
Constant	0.288***	0.246***	0.236***	0.491***
	(3.928)	(3.669)	(3.475)	(8.899)
Observations	278,080	272,923	146,722	126,201
R-squared	0.015	0.015	0.014	0.015
Industry FE	YES	YES	YES	YES
Time FE	YES	YES	YES	YES

Table III
Idiosyncratic Skewness and Extreme External Governance

The table reports estimates of the differential effect of extreme governance on idiosyncratic skewness. The variable of interest is *DIC* that is coded one if the company exhibits high values in anti-takeover provisions, i.e. G≥14. For corporations with shareholder friendly governance, i.e. G≤5, DIC is coded zero. All intermediate companies are excluded from the analyses. Model (1) reports the overall effect for the entire sample period, i.e. September 1990 to December 2006. Model (1) to (3) condition the effect of extreme governance on the regulatory environment of the respective company. The measure for competition regulation is the RI index. RI terciles are formed annually, when the RI updates. *RI (low)* captures industries which are least regulated, *RI (medium)* neutrally regulated industries, and *RI (high)* competition shielded, i.e. non-competitive, industries. Model (2) covers the entire sample period, model (3) September 1990 to December 1999, and model (4) January 2000 to December 2006. All control variables are lagged and defined as in table I, and include idiosyncratic volatility (*IDVOL*), the cumulative return (*MOMENTUM*), the percentage of shares turnover (*TURNOVER*), the logarithm of the market value (*SIZE*), the leverage ratio as of the current quarter (*LEVERAGE*), and a dummy if the stock is traded on *NASDAQ*. All effects are estimated including industry fixed effects on two-digit SIC code level and monthly time fixed effects. Industry-clustered, robust t-statistics are in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level.

	(1)	(2)	(3)	(4)
DIC	0.010			
	(0.705)			
DIC*RI (low)		-0.009	-0.021	0.002
		(-0.482)	(-0.920)	(0.059)
DIC*RI (medium)		-0.016	-0.010	-0.033
		(-0.707)	(-0.338)	(-1.238)
DIC*RI (high)		**0.053*** **	**0.062*** **	**0.035***
		(4.810)	(3.389)	(1.988)
RI (low)		0.070***	0.069**	0.075
		(4.043)	(2.259)	(1.020)
RI (medium)		0.064***	0.073**	0.050
		(3.071)	(2.393)	(0.814)
IDVOL	2.389***	2.397***	1.526**	3.801***
	(4.870)	(4.990)	(2.319)	(6.189)
MOMENTUM	-0.704***	-0.697***	-0.785***	-0.610***
	(-10.191)	(-10.152)	(-10.791)	(-6.081)
TURNOVER	-0.022	-0.388	1.336	-2.935*
	(-0.020)	(-0.370)	(0.794)	(-1.921)
SIZE	-0.039***	-0.039***	-0.039***	-0.043***
	(-7.902)	(-8.058)	(-7.117)	(-6.025)
LEVERAGE	0.023	0.034	-0.003	0.078
	(0.624)	(0.925)	(-0.115)	(1.039)
NASDAQ	-0.037**	-0.036**	-0.027	-0.052***
	(-2.283)	(-2.377)	(-1.312)	(-2.678)
Constant	0.390***	0.329***	0.400***	0.661***
	(3.655)	(2.975)	(3.880)	(5.692)
Observations	41,102	40,404	24,310	16,094
R-squared	0.020	0.020	0.020	0.024
Industry FE	YES	YES	YES	YES
Time FE	YES	YES	YES	YES

Table IV

Main Results II – Internal Corporate Governance and Idiosyncratic Skewness

The table reports difference-in-difference estimates of the effect of SOX in above versus below median concentrated industries on idiosyncratic skewness. The sample span is from January 2001 to December 2003, with months post July 2002 falling into the treatment period. The sample comprises the entire universe of CRSP/Compustat (1) of common stocks that were actively traded the month before and after the first SOX induction. Model (2) excludes the financial sector (SIC codes between 6000 and 6999). For periods from August 2002 onwards, *SOX*, which captures the respective governance effect, is coded one; prior to this date *SOX* is zero. *CON* is an indicator variable whether the corporation operates in a relatively competitive or a relatively non-competitive industry. The measures for competition are the concentration ratios by the Economic Census for the year 2002 – the data are classified by the percent of output accounted for by the largest fifty companies. Only manufacturing reports include the Herfindahl-Hirschman index. Corporations below the median are coded zero, corporations above the median are coded one. Control variables are lagged and defined as in table I. All variables, except *SOX* and *CON* are winsorized at the top/bottom 1% of their distribution. All effects are estimated including firm fixed effects and monthly time fixed effects. Clustered and robust t-statistics are in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level.

	(1)	(2)
SOX*CON	**-0.020***	**-0.043*****
	(-1.791)	(-3.288)
IDVOL	1.347***	1.354***
	-7.328	(6.952)
MOMENTUM	-0.431***	-0.392***
	(-25.357)	(-21.852)
SIZE	-0.431***	-0.440***
	(-45.977)	(-42.854)
TURNOER	-1.082	-0.707
	(-1.520)	(-0.958)
LEVERAGE	-0.255***	-0.308***
	(-5.504)	(-6.195)
Constant	5.670***	5.796***
	(-48.092)	(44.509)
Observations	162,003	122,316
R-squared	0.047	0.055
Number of firms	5,192	3,937
Firm FE	YES	YES
Time FE	YES	YES

Table V
Robustness Check I - Idiosyncratic Skewness and the Entrenchment Index

The table reports estimates of coefficients of panel regressions of the effect of external governance provisions on monthly idiosyncratic skewness. The measure for external governance is the E-index by Bebchuk, Cohen, and Ferrell (2009). It is based on six of the original 24 IRRC provisions of the governance index G and ranges from zero to six; higher values of E indicate worse governance. In model (1), (2), and (5) the sample period covers September 1990 to December 2006, in model (3) and (6) the sample period last from September 1990 to December 1999, and model (4) and (7) estimate the time horizon January 2000 to December 2006. The control variables include idiosyncratic volatility (*IDVOL*), the cumulative return (*MOMENTUM*), the percentage of stock turnover (*TURNOVER*), the logarithm of the market value (*SIZE*), the leverage ratio as of the current quarter (*LEVERAGE*), and a dummy variable if a stock is traded on *NASDAQ*. All control variables are lagged. All variables are winsorized at the top/bottom 1% of their distribution. Model (1) estimates the effect of the unconditioned E-index. Model (2) to (4) interact the E-index with a dummy variable whether the company operates in an industry with low, medium or high competition-regulation. The measure for competition is the regulatory impact (RI) index by the OECD. It updates annually, so the dummy variables are reassigned annually, too. Model (5) to (7) replace the E-index by a dummy variable (*DIC*) for extreme governance. Companies with an E-index of five or six are coded one, companies with an E-index of zero are coded zero. Companies with intermediate E-index values are excluded. All effects are estimated including monthly time fixed effects and industry fixed effects on two-digit SIC code level. Robust and industry-clustered t-statistics are in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
E-index	-0.002						
	(-1.214)						
E*RI (low)		0.001	-0.001	0.004			
		(0.463)	(-0.508)	(1.070)			
E*RI (medium)		**-0.007***	**-0.008****	-0.006			
		(-1.945)	(-2.001)	(-1.388)			
E*RI (high)		-0.001	-0.001	-0.001			
		(-0.463)	(-0.150)	(-0.217)			
DIC*RI (low)					0.030	0.015	0.048
					(1.428)	(0.540)	(1.639)
DIC*RI (medium)					-0.011	-0.028	0.016
					(-0.448)	(-1.261)	(0.533)
DIC*RI (high)					-0.016	-0.017	-0.018
					(-0.841)	(-0.667)	(-0.839)
RI (low)		0.010	0.009	0.017	0.009	0.039	-0.077
		(0.888)	(0.728)	(0.797)	(0.375)	(1.250)	(-1.557)
RI (medium)		0.030***	0.033***	0.022	0.033	0.047*	-0.036
		(2.742)	(2.923)	(1.079)	(1.357)	(1.672)	(-0.837)
IDVOL	2.812***	2.807***	2.130***	3.454***	2.478***	1.471**	4.080***
	(11.548)	(11.589)	(6.505)	(12.344)	(4.220)	(2.212)	(5.049)
MOMENTUM	-0.700***	-0.700***	-0.751***	-0.665***	-0.714***	-0.815***	-0.611***
	(-16.470)	(-16.469)	(-16.914)	(-13.558)	(-10.021)	(-9.415)	(-6.757)
TURNOVER	-2.299***	-2.327***	0.845	-4.142***	-1.090	-0.798	-1.888

	(-3.884)	(-3.920)	(0.767)	(-7.231)	(-0.764)	(-0.362)	(-0.977)
SIZE	-0.028***	-0.028***	-0.027***	-0.030***	-0.021***	-0.023***	-0.023***
	(-15.873)	(-16.402)	(-12.642)	(-12.395)	(-6.195)	(-6.014)	(-2.872)
LEVERAGE	0.038***	0.037***	0.033**	0.049**	0.003	-0.038	0.057
	(3.794)	(3.771)	(2.498)	(2.573)	(0.101)	(-0.996)	(0.846)
NASDAQ	-0.009	-0.009	-0.015	-0.007	-0.019	-0.031*	0.009
	(-1.039)	(-1.023)	(-1.387)	(-0.724)	(-1.049)	(-1.881)	(0.312)
Constant	0.303***	0.285***	0.274***	0.527***	0.013	0.036	0.500***
	(4.203)	(4.041)	(3.906)	(9.552)	(0.128)	(0.364)	(3.893)
Observations	273,886	273,886	146,397	127,489	37,145	22,759	14,386
R-squared	0.014	0.014	0.014	0.015	0.017	0.017	0.023
Industry FE	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES

Table VI
Robustness Check II – Fama-MacBeth Cross-Sectional Regressions

The table reports monthly estimates of Fama-MacBeth cross-sectional regressions of idiosyncratic skewness on the G-index (Panel A) and the E-index (Panel B) and various control variables, defined as in table I. Both indices capture external governance provisions and higher values refer to worse governance. G rages from 1 to 24, E from 0 to 6. In models (4) to (6) (Panel A) and (7) to (9) (Panel B) G and E are replaced through a dummy variable *DIC* that is coded one if G≥ 14 and zero if G≤5 (Panel A) and one for E≥5 and zero if E=0. Intermediate companies (5<G<14 and 0<E<4, respectively) are excluded from those analysis. Models (1) and (4) (Panel A) and models (1), (2) and (5) in Panel B cover the entire sample period; models (2) and (5) (Panel A) and (3) and (6) (Panel B) report estimates for September 1990 to December 1999; models (3) and (6) (Panel A), and models (4) and (7) (Panel B) run from January 2000 to December 2006. RI low, medium, and high represent dummy variables whether the company operates in a low, medium, or high competition-regulated industry, proxied through the RI index by the OECD. All variables, excluding the E-, G-, and RI-index, are winsorized at the top/bottom 1% of their distribution. Fama-MacBeth t-statistics are in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level.

Panel A: G-index						
	(1)	(2)	(3)	(4)	(5)	(6)
G-index*RI(low)	0.001	-0.000	0.002			
	(0.442)	(-0.145)	(0.736)			
G-index*RI(medium)	-0.002	-0.002	-0.002			
	(-1.139)	(-1.126)	(-0.527)			
G-index*RI(high)	0.000	0.002	-0.002			
	(0.288)	(1.194)	(-0.846)			
DIC*RI(low)				-0.016	-0.032	0.005
				(-0.722)	(-1.275)	(0.124)
DIC*RI(medium)				-0.024	-0.023	-0.025
				(-1.064)	(-0.940)	(-0.603)
DIC*RI(high)				**0.036***	**0.065*****	-0.004
				(1.804)	(2.672)	(-0.121)
RI(low)	0.013	0.027	-0.006	0.041**	0.052**	0.027
	(0.619)	(1.087)	(-0.175)	(1.988)	(2.145)	(0.744)
RI(medium)	0.034	0.041	0.024	0.038	0.033	0.046
	(1.378)	(1.370)	(0.584)	(1.635)	(1.221)	(1.101)
IDVOL	2.312***	1.913***	2.850***	2.200***	0.600	4.359***
	(7.071)	(4.597)	(5.468)	(3.154)	(0.702)	(3.867)
MOMENTUM	-0.788***	-0.810***	-0.758***	-0.825***	-0.912***	-0.707***
	(-21.709)	(-17.352)	(-13.152)	(-11.424)	(-9.790)	(-6.244)
TURNOVER	-1.231	0.058	-2.969***	-0.508	1.335	-2.995
	(-1.555)	(0.050)	(-2.985)	(-0.337)	(0.622)	(-1.487)
SIZE	-0.025***	-0.023***	-0.027***	-0.032***	-0.030***	-0.034***
	(-12.297)	(-9.127)	(-8.232)	(-6.088)	(-4.898)	(-3.761)
LEVERAGE	0.015	0.013	0.017	0.032	-0.003	0.080*
	(0.915)	(0.680)	(0.614)	(1.071)	(-0.069)	(1.760)
NASDAQ	-0.004	-0.006	-0.000	-0.015	-0.008	-0.024
	(-0.542)	(-0.712)	(-0.030)	(-1.135)	(-0.504)	(-1.092)
Constant	0.430***	0.416***	0.449***	0.516***	0.521***	0.510***
	(12.561)	(9.562)	(8.129)	(6.647)	(5.748)	(3.746)
Observations	272,942	146,741	126,201	40,423	24,329	16,094
R-squared	0.030	0.028	0.031	0.076	0.070	0.084
Number of month	195	112	83	195	112	83

Panel B: E-Index							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
E-index	**-0.003***						
	(-1.785)						
E*RI (low)		-0.001	-0.004	0.003			
		(-0.246)	(-0.899)	(0.724)			
E*RI (medium)		**-0.006***	**-0.008****	-0.004			
		(-1.960)	(-2.040)	(-0.772)			
E*RI (high)		-0.003	-0.001	-0.006			
		(-1.126)	(-0.327)	(-1.295)			
DIC*RI(low)					0.031	0.006	**0.065****
					(1.392)	(0.181)	(2.127)
DIC*RI(medium)					-0.010	-0.035	0.022
					(-0.431)	(-1.233)	(0.526)
DIC*RI(low)					-0.019	-0.015	-0.024
					(-0.820)	(-0.489)	(-0.689)
RI (low)		0.003	0.006	-0.000	-0.006	0.019	-0.040
		(0.253)	(0.360)	(-0.005)	(-0.315)	(0.862)	(-1.120)
RI (medium)		0.011	0.012	0.011	0.018	0.004	0.038
		(0.782)	(0.658)	(0.443)	(0.847)	(0.145)	(0.994)
IDVOL	2.347***	2.286***	1.836***	2.886***	1.776***	0.599	3.346***
	(7.095)	(7.028)	(4.362)	(5.700)	(2.604)	(0.813)	(2.704)
MOMENTUM	-0.771***	-0.783***	-0.809***	-0.748***	-0.819***	-0.904***	-0.707***
	(-20.393)	(-21.154)	(-17.053)	(-12.700)	(-12.020)	(-10.754)	(-6.296)
TURNOVER	-1.178	-1.198	0.270	-3.155***	0.581	1.049	-0.044
	(-1.471)	(-1.523)	(0.239)	(-3.130)	(0.355)	(0.459)	(-0.019)
SIZE	-0.026***	-0.025***	-0.024***	-0.027***	-0.016***	-0.017***	-0.016**
	(-12.645)	(-12.591)	(-9.299)	(-8.463)	(-4.032)	(-3.556)	(-2.234)
LEVERAGE	0.012	0.013	0.010	0.017	-0.015	-0.034	0.010
	(0.711)	(0.802)	(0.520)	(0.610)	(-0.491)	(-0.940)	(0.187)
NASDAQ	-0.004	-0.005	-0.008	-0.000	-0.003	0.000	-0.007
	(-0.548)	(-0.675)	(-0.900)	(-0.026)	(-0.178)	(0.022)	(-0.282)
Constant	0.459***	0.451***	0.452***	0.449***	0.329***	0.368***	0.276**
	(14.766)	(13.777)	(10.354)	(9.036)	(4.911)	(4.669)	(2.383)
Observations	273,905	273,905	146,416	127,489	37,164	22,778	14,386
R-squared	0.022	0.029	0.028	0.030	0.081	0.073	0.090
Number of groups	196	196	112	84	196	112	84

Table VII
Robustness Check III – Placebo Tests and Regulation Fair Disclosure

This table reports estimates of placebo treatments (model 1 to 7) and Regulation Fair Disclosure (model 8 and 9) on idiosyncratic skewness. In model (1) to (4) the placebo horizon runs from September 2000 to July 2002, various fake treatment dates are April, June, October and December 2001. In model (5) to (6) the placebo horizon is altered to the time period January 2001 to December 2002, with November 2001, January 2002 and April 2002 as fake treatment dates. In model (8) and (9) the effect of Regulation Fair Disclosure, enacted in August 2000, is estimated on a sample that runs from July 1999 to July 2002. *CON* is a dummy variable if the company operates in a concentrated industry and based on the Economic Census concentration ratios as of 2002. Values above the median are classified as relatively non-competitive and *CON* codes one for these industries. Values below the median are coded zero. All control variables are lagged and defined as in table I. All variables, except the Census data, are winsorized at the top/bottom 1% of their distribution. All effects are estimated including monthly time fixed effects and firm fixed effects. Cluster, robust t-statistics are in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
REG FD*CON								**0.048*** **	0.010
								(3.845)	(0.652)
t≥Apr2001*CON	-0.001								
	(-0.057)								
t≥Jun2001*CON		-0.008							
		(-0.513)							
t≥Oct2001*CON			0.012						
			(0.711)						
t≥Dec2001*CON				0.013					
				(0.751)					
t≥Nov2001*CON					-0.026				
					(-1.639)				
t≥Jan2002*CON						-0.012			
						(-0.770)			
t≥Apr2002*CON							0.003		
							(0.172)		
IDVOL	1.480***	1.393***	1.390***	1.390***	1.059***	1.058***	1.054***	0.733***	0.846***
	(6.642)	(6.386)	(6.370)	(6.370)	(4.758)	(4.751)	(4.738)	(4.131)	(4.486)
MOMENTUM	-0.339***	-0.327***	-0.326***	-0.326***	-0.304***	-0.304***	-0.304***	-0.302***	-0.288***
	(-16.096)	(-15.792)	(-15.777)	(-15.777)	(-14.432)	(-14.424)	(-14.423)	(-19.365)	(-17.499)
SIZE	-0.459***	-0.459***	-0.459***	-0.459***	-0.521***	-0.521***	-0.520***	-0.345***	-0.342***
	(-36.759)	(-37.269)	(-37.190)	(-37.216)	(-39.267)	(-39.227)	(-39.178)	(-41.113)	(-38.465)
TURNOVER	-0.107	0.129	0.123	0.115	0.418	0.403	0.387	4.047***	3.282***
	(-0.108)	(0.133)	(0.127)	(0.119)	(0.415)	(0.400)	(0.384)	(5.917)	(4.672)
LEVERAGE	-0.249***	-0.244***	-0.247***	-0.248***	-0.284***	-0.287***	-0.289***	-0.118***	-0.111**
	(-3.620)	(-3.553)	(-3.601)	(-3.606)	(-4.100)	(-4.132)	(-4.170)	(-2.667)	(-2.365)
Constant	5.729***	5.731***	5.733***	5.731***	6.758***	6.758***	6.757***	4.434***	4.405***

	(35.724)	(36.266)	(36.197)	(36.224)	(40.327)	(40.292)	(40.257)	(41.672)	(38.799)
Observations	81,396	85,171	85,171	85,171	86,145	86,145	86,145	156,473	118,871
R-squared	0.061	0.060	0.060	0.060	0.068	0.068	0.068	0.041	0.050
Number of firms	3,933	3,933	3,933	3,933	3,986	3,986	3,986	4,846	3,698
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table VIII
Frequencies of Extreme Residuals

This table reports the frequencies of extreme negative and positive daily residuals, obtained through the Fama French three factor model. The thresholds are determined by the bottom/top 1%, 5%, and 10% of the total residual distribution of each sample. Panel A reports the frequencies and percentile cutoffs for the G-index sample for the entire sample period, i.e. September 1990 to December 2006; Panel B reports the frequencies and distribution cutoffs for the SOX sample, excluding financial companies, for the time span January 2001 to December 2003. Panel A contrasts the frequencies of observing a residual that exceeds the given threshold between dictators (G≥14) and democrats (G≤5). The frequencies are calculated by dividing the number of residual observations that lie beyond the threshold through the total number of residuals in the given portfolio. In the RI-split proportion tests, the relative frequencies are calculated for each regulatory impact (RI) tercile separately. Panel B reports the frequencies for the SOX-sample, split into corporations that belong into industries below the Economic Census concentration ratio median (*CON*=0) and above the median (*CON*=1), and tests the effect of SOX on the frequencies by contrasting the proportions before SOX (*SOX*=0) with the proportions after SOX (*SOX*=1). The z-test is used to test the null hypothesis that the frequencies of extreme daily residuals between the dictators and democrats (Panel A) and pre-post SOX (Panel B) are equal. Z-statistics are in parentheses. Differences significant at the 5% are in boldface.

Percentile	p1	p5	p10	p90	p95	p99
Panel A: G-index sample						
Threshold: Residual	≤ -7.84%	≤ -3.80%	≤ -2.53%	≥ 2.57%	≥ 4.05%	≥ 8.96%
All Dictators (G≥14)	0.57%	3.59%	7.83%	8.05%	3.60%	0.66%
All Democrats (G≤5)	1.43%	6.88%	12.75%	11.97%	6.58%	1.36%
Difference	**0.86%**	**3.29%**	**4.93%**	**3.93%**	**2.98%**	**0.70%**
z-statistic	(11.10)	(19.24)	(21.31)	(17.27)	(17.71)	(9.01)
Dictators*RI (low)	0.74%	4.35%	8.88%	8.76%	3.84%	0.79%
Democrats *RI (low)	1.84%	9.18%	15.68%	14.26%	8.16%	1.86%
Difference	**1.10%**	**4.83%**	**6.80%**	**5.50%**	**4.31%**	**1.07%**
z-statistic	(5.95)	(11.92)	(12.96)	(10.82)	(11.24)	(5.75)
Dictators*RI (medium)	0.75%	4.31%	8.96%	8.36%	4.28%	0.54%
Democrats*RI (medium)	1.07%	6.51%	13.01%	13.09%	7.47%	1.27%
Difference	**0.33%**	**2.20%**	**4.04%**	**4.73%**	**3.19%**	**0.73%**
z-statistic	(2.11)	(5.97)	(7.97)	(9.38)	(8.28)	(4.60)
Dictators*RI (high)	0.33%	3.12%	6.61%	8.34%	3.62%	0.76%
Democrats *RI (high)	1.53%	5.46%	10.24%	9.66%	5.35%	1.16%
Difference	**1.20%**	**2.34%**	**3.63%**	**1.33%**	**1.74%**	**0.40%**
z-statistic	(7.76)	(7.42)	(8.46)	(3.04)	(5.44)	(2.63)
Panel B: SOX sample						
Threshold: Residual	≤ -13.23%	≤ -6.63%	≤ -4.37%	≥ 4.31%	≥ 7.00%	≥ 16.04%
SOX=0|CON=0	0.72%	7.14%	13.51%	13.73%	7.39%	1.46%
SOX=1|CON=0	1.08%	5.24%	10.38%	10.24%	5.16%	1.07%
Difference	**0.36%**	**-1.89%**	**-3.13%**	**-3.49%**	**-2.23%**	**-0.39%**
z-statistic	(16.15)	(-39.02)	(-47.41)	(-53.09)	(-46.03)	(-17.41)
SOX=0|CON=1	0.48%	5.24%	10.67%	10.95%	5.49%	1.02%
SOX=1|CON=1	0.78%	4.09%	8.47%	8.54%	4.08%	0.79%
Difference	**0.31%**	**-1.15%**	**-2.20%**	**-2.41%**	**-1.41%**	**-0.23%**
z-statistic	(14.29)	(-24.83)	(-33.86)	(-36.98)	(-30.299	(-11.26)