FINANCIAL CONTRACTING AND OPERATING PERFORMANCE: THE CASE FOR OBRA AND EFFICIENT CONTRACTING

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Abstract

When corporate governance is effective, new managerial contracts should maximize shareholder wealth. This paper examines operating performance measures after the Omnibus Budget Reconciliation Act (OBRA) of 1993 was passed. We find that firms affected by OBRA's $1 million cap on cash compensation experience an improvement in operating performance improves during the three years following contract revisions. Although prior performance was low, the post-contracting performance for affected firms is on par with comparison group. These findings are consistent with effective corporate governance and efficient contracting and contrary to expropriation theory.

Keywords: Contracting; Expropriation; Corporate governance; OBRA; CEO; Operating performance

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1. Introduction

If we accept the definition of firms as collections of financial contracts, then understanding the success of those contracts for wealth maximization is critical. The effectiveness of managerial contracts, in terms of increasing value has been a topic of debate among various researchers, and government agencies. While the debate focuses on compensation levels and operating performance, little research has examined the effect of new contracts in affecting operating performance. The primary purpose of this paper is to determine empirically if managerial contracts affect operating results in the years following the new contracts.

The popular media and some managerial expropriation theories (see Core, Holthausen, and Larcker (1999); Johnson, Ryan Jr., and Tian (2006); Morck, Shleifer, and Vishny (1988); Benkel, Mather and Ramsay (2006); and Bebcheuk, Fried, and Walker (2002)) tend to support the view that managers extract rents from shareholders or fail to write contracts that maximize shareholder wealth/operating results. Relatively large U.S. executive salaries relative to other employees along with recent failures at WorldCom, Tyco, and Enron have contributed to the belief that managerial contracts are not efficient. Core et al. (1999) show that CEOs at firms with greater agency problems receive greater compensation; and that firms with greater agency problems have worse operating performance. Johnson et al. (2006) claim that the likelihood of fraud is positively related to incentives from unrestricted stock holdings and is unrelated to incentives from restricted stock and unvested and vested options. Their operating performance measures suggest executives commit corporate fraud following declines in performance. Morck et al. (1988) claim that the reason for suboptimal performance is contracts that do not optimize managerial ownership. Relatively high contracting costs therefore lead some firms to engage in less efficient operations. Benkel et al.(2006) find that CEO's tend to manage earnings, and that outside directors mitigate its use. Lastly, Bebchuk et al. (2002) view managerial compensation as an exercise in expropriation and not an effort at increasing operating performance. They claim that managers actively engage in pay camouflage with low-interest loans to CEOs, overly generous option grants or tunneling compensation into pension or retirement programs. Overall, these papers show inefficiency in managerial contracting that can lead to relatively poor performance.

Other researchers, such as Core and Larcker (2002); Hanlon, Rajgopal, and Shevlin (2003);

Abowd (1990); Core, Larcker and Thomas (2004); Perry and Zenner (2000); Brickley, Bhagat, and Lease (1985); and Holmstrom and Kaplan (2003) support the efficient contracting hypothesis. Core and Larcker (2002) argue that firms can maximize shareholders' wealth by occasionally recontracting with managers if the benefits of recontracting outweigh its transaction costs. Hanlon et al. (2003), who show that operating performance increases $3.71 for every $1 of options given to managers, conclude that the pay–performance relationship is helpful for owners. Abowd (1990) finds that an additional 10% bonus for good economic performance is associated with a 30 to 90 basis point increase in expected after-tax gross economic return the following year. Core et al. (2004) review Bebchuck and Fried (2004) and dispute point by point their view of inefficient contracting. For example, higher documented pay by U.S. CEOs may reflect their higher incentive and risk levels, not overcompensation. Perry and Zenner (2000) show that after section 162(m) was passed that salaries for CEO's were reduced, and that on average, the pay for performance sensitivity has increased following the regulations, especially for million-dollar firms. In their study of stock price reactions to long-term CEO compensation contracts, Brickley et al. (1985) find that new contracts increase firm value, even after market adjustments, and those firms make compensation contracting choices to maximize shareholder wealth. Finally, Holmstrom and Kaplan (2003) conclude that, though imperfect, corporate governance measures in the U S. effectively control managerial behavior.

Maisondieu-Laforge, Kim and Kim (2006) examine shareholder price reaction to new contracts after the Omnibus Budget Reconciliation Act (OBRA) of 1993. They found that firms not affected by OBRA had abnormal returns of .9%, and firms affected by OBRA had 3.6% abnormal returns from contracting. They conclude that financial contracting was efficient, and that response to OBRA was positive despite a possibility for expropriation by managers. This paper seeks to continue testing the efficient contracting hypothesis by examining operating performance after the OBRA 1993. OBRA provides a good environment for determining whether compensation contract changes encourage shareholder wealth maximization or expropriation. Consistent with efficient contracting theory, our findings show operating performance below control groups before recontracting, but on par with comparison groups after new contracts are written.

Recent papers show the importance of corporate governance measures in measuring firm value. Black, Kim, Jang and Park (2006) show that in Korea, improved performance is related to increased tobin's q, higher dividends, but not accounting measures. In measuring accounting measures, they account for neither new contracts, nor do they use comparable firms as a control group. This paper incorporates the Gompers index to control for governance measures and using an improved comparison group shows improvement in accounting performance for re-contracting, and stronger governance measures.

In the remainder of this section, we describe the importance of OBRA 1993 for creating an environment in which contracts are changed. In Section 2, we describe the data, followed by the operating performance consequences of contract changes in Section 3. We conclude the paper in Section 4.

1.1. Why OBRA?

For managers, Omnibus Budget Reconciliation Act of 1993 had two significant effects: It encouraged firms to alter their compensation contracts and shifted control rights from managers to owners.

Signed August 10, 1993, and effective January 1, 1994, OBRA 1993 included section IRS section 162(m) which limited the tax deductibility of cash compensation to $1 million per person and further restricted deductible compensation to that which qualified as performance related. To reduce the ability of managers to control their compensation contracts, it mandated that only outside directors be included on the compensation committee. It also requires that incentives be based on predetermined criteria, and that directors verify that those criteria have been met before making payments. Not following these procedures would result in the loss of compensation deductibility for tax purposes. These actions thereby encouraged changes in managerial contracts away from cash-based and toward performance-based compensation (Rose and Wolfram (2000) and Perry and Zenner (2000)). The September 6, 2006 issue of the wall street journal points that the long term effects of OBRA 1993 are still strong, and that the law is still under discussion. It attempted to curb excess managerial pay not associated with performance. The fear in congress is that it may have led to an overuse and abuse of options that was not intended by the law.

The period following OBRA 1993 thus provides a good environment for determining whether contract changes encourage wealth maximization (Core and Larcker (2002)) or expropriation (Bebchuck, Fried, and Walker (2002)). If contracts were changed for the benefit of managers, firm performance be consistently below peer groups. Firms with low CEO cash compensation are not directly affected by OBRA, and therefore the value of new contracts should not be affected by OBRA. Examining operating performance for these firms will help us examine whether contracts in general increase operating performance. Firms with large CEO cash

compensation on the other hand are affected by OBRA and have incentives to change their contracts even if operating performance was acceptable. Such a change would be for the primary purpose of keeping tax benefits, but would also affect agency costs and managerial control rights. What is unclear is whether the changes will be to shareholder's benefit, or detriment. Finding an increase in operating performance will confirm efficient contracting. Finding no change in performance will show poor contracting if performance was also weak before contracts were changed. Given that Maisondieu-Laforge et al. (2006) found a positive price reaction to new contracts for OBRA affected firms, showing an increase (or a steady operating performance) is still consistent with efficient contracting, indicating that the contract may have been changed for agency reasons, not operating performance improvements. In contrast, finding a negative market response to contract changes for affected firms would indicate that firms responded poorly to OBRA and that expropriation, or at least ineffective contracting took place. In the absence of OBRA, unaffected firms should have changed contracts naturally and should show whether contracting in general is efficient, even in the absence of OBRA.

OBRA not only attempts to control CEO pay, but may have led to a shift in effective control rights away from managers and toward owners. Grossman and Hart (1983) argue that control rights reside with owners, who control the assets. In contrast, Rajan and Zingales (1998) claim that effective control rights reside with employees, who control the assets unless forbidden to do so by the owners. Managers can increase their wealth by investing themselves in the firm. This is only beneficial if they expect to extract additional profits from their efforts. By changing the managerial compensation committee, OBRA reduces managerial incentives to work hard, but also reduces the agency costs associated with poor governance. This interchange can be measured by looking at improvements in operating performance. Since most firms who altered compensation contracts also altered their corporate structure in line with OBRA, the government pressure did change control rights, reduced agency costs, but reduced managerial incentives. What is unclear is if firm reaction to this change increased, or decreased shareholder wealth. The two effects of effective contracting or improving the agency/managerial control show similar results. Our results therefore represent a joint hypothesis of the effect of OBRA on affected firms as well as the efficiency of contracting. Although we discuss these results separately in the paper, any result must be interpreted as a joint result of these two effects.

2. Data

The data set includes managerial ownership, compensation information, operating performance measures and corporate governance data, and company data for the S&P 500 from 1994 to 2000. In addition, we gathered proxy statements from EDGAR for the S&P 500 during the sample period to find when contract was rewritten.[10] Using the intersection of Execucomp and EDGAR, we obtained 1,212 occurrences of changes to CEO compensation. However, 395 observations were contaminated by voting also for the following non-compensation items: new equity issues director compensation, among others. The resulting 817 uncontaminated firm year observations include voting on compensation items alone. To avoid overlapping effects, contract changes must be more than 3 years apart to be included in the sample. This reduces the sample to 466 events.

Two corporate governance measures were introduced as a control for price reactions caused by governance issues. To measure the strength of shareholder rights and corporate governance, we employ the Governance Index (GINDEX) developed by Gompers, Ishii, and Metrick (2003) and the Entrenchment Index (ENTINDEX) developed by Bebchuk, Cohen, and Ferrell (2004). We collect the governance data from the Investor Responsibility Research Center (IRRC), which publishes detailed listings of corporate governance provisions for individual firms in *Corporate Takeover Defenses* (Rosenbaum 1990, 1993, 1995, and 1998).[11] The data on governance provisions are derived from various sources, such as corporate bylaws, charters, proxy statements, annual reports, as well as 10-K and 10-Q documents filed with the Securities and Exchange Commission (SEC). The detailed explanation for each governance provision is available in the appendix of Gompers et al. (2003). The GINDEX is constructed for every firm by simply adding one point for every provision that restricts shareholder rights (increase managerial power). Thus, high GINDEX represents high management power or low shareholder rights. Alternatively, the ENTINDEX is constructed based on six provisions: staggered boards, limits to shareholder bylaw amendments, supermajority requirements for mergers, and supermajority

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[10] Using the proxy statement as a source of contracting specifics is not infallible. It is possible to offer subsidized loans, or tunnel compensation into a pension plan without the specifics showing up on the contract; nevertheless, the proxy is the best source of contract specifics available.

[11] IRRC covers the governance provisions in year 1990, 1993, 1995, 1998, and 2000. As noted in Gompers, Ishii and Metrick (2003) and Core, Guay, and Rusticus (2005), we assume that governance provisions for years in between do not change from the earlier reported period.

requirements for charter amendments, poison pills and golden parachutes.

To gather operating performance measures, we employed Compustat, which provided us information on operating income scaled by assets (EBIT) and sales (OM) (Danielson and Karpoff (2002)). We use these measures to capture both efficiency increases in asset use and cost reductions. Specifically, we define EBIT and OM as follows: EBIT is operating income before depreciation (Compustat #13) minus depreciation and amortization (#14) divided by the book value of assets (#6), and OM is operating income before depreciation (#13) divided by sales (#12).

With EBIT scaled by assets, we can measure the firm's ability to generate profits for various amounts of assets. Increases indicate the improved use of assets, whereas decreases indicate inefficient uses. The OM measures the cost structure within a firm and therefore can capture decreases in costs or selling expenses relative to sales. Both measures can be affected by managerial effort. Finally, by reviewing the measures across several years, we minimize the possibility that the use of discretionary accruals could bias the results.

To account for firms affected by OBRA, we designate those firms whose executives' salary compensation is greater than $900,000.[12] Our choice of this benchmark is somewhat arbitrary; Rose and Wolfram (2000) use $1 million, whereas Perry and Zenner (2000) use $900,000 as ex-post measures of affected firms. However, we believe it is unlikely that an executive paid more than $1 million before the legislation would have his or her salary reduced much below $1 million afterwards, so we use $900,000 to capture such rare cases, if they exist, and still include executives whose salary is high enough that future contracts are likely to be affected by OBRA. Whereas Rose and Wolfram (2000) use an ex-ante measure of affected firms to avoid any endogeneity between their ex-post measure of compensation and firms that were affected in the past by OBRA, we suggest that endogeneity is minimized because of our $100,000 window when we calculate changes in salary. In addition, endogeneity is not relevant when we use abnormal stock prices as the dependent variable. On a practical note, using $1 million reduces the sample size of the affected firms dramatically.

3. Methodology and Empirical Results

We examine the relationship between compensation contract change and firm performance. After the contract is in place, operating results, such as EBIT or OM, can increase, stay the same, or decrease. If

the contracts are efficient and provide incentive to maximize shareholder value, then operating performance should increase. If performance stayed the same, either the contracts are irrelevant to operating performance or the contract change is unrelated to operating performance. A decrease in performance is consistent with the contract contributing to entrenchment and that agency costs increased.

To find abnormal performance prior to the contract change, we use three benchmarks: 1. abnormal performance versus all firms; 2. six and twelve industry adjusted[13] abnormal operating performance; and 3. changes in abnormal operating performance. A stronger test developed by Barber and Lyon (1996) is also used to examine results after contracts are written. Their technique uses a one-to-one matching by performance a year before the contract change to find the control group. This benchmark keeps test statistics correctly specified and is more powerful than size or industry matches. Therefore, we use industry- and performance-matching criteria as benchmarks.

3.1 Industry Match Comparisons

We match event firms with a firm from the S&P 500 that experienced similar performance in year 0 that is in the same industry. Specifically, we performed a four-digit SIC search of firms with no contract changes and use the one with the closest performance measure EBIT or OM, within 5% (see table 1). If no matching firm meets this criterion, we repeat the procedure with three-, two-, and then one-digit SIC code matches, as well as with a 10% difference as the limit. We reduce repetition of match firms by excluding them from the pool of available matches in subsequent SIC searches. For example, after the four-digit SIC code search, we reduced the list of possible match firms by those accepted. For matches made with EBIT, this technique produced the sample size to 263; for the OM match, it produced a sample size of 261. Between the EBIT and OM matches, 183 or 54% of the events are in both match samples, and 86 or 25% have both the same event and matching firm. We examine 341 of the possible 466 separate events that represent 303 separate firms between the two matches.

(Insert table 1 here)

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[12] For robustness check, we also use cash compensation (salary + bonus) to separate the affected firms. The results are similar to our findings.

[13] The six industry groupings are as follows: mining and construction; manufacturing; transport communication and utilities; wholesale and retail; finance and insurance; and services. The additional six classifications contained in the group of twelve are subcategories of manufacturing: food; paper and publishing; chemicals and petroleum; stone, concrete and metals; industrial equipment; and electronics and instruments. These groupings are similar to those used by Danielson and Karpoff (2002).

For both the year of the event and the previous year, we calculate abnormal earnings as follows:

$$Abnormal\ EBIT_{i,t} = EBIT_{i,t} - EBIT_{I,t} \qquad (1)$$

$$Abnormal\ OM_{i,t} = OM_{i,t} - OM_{I,t}, \qquad (2)$$

where the subscript i refers to the mean measure for the industry group. The Abnormal EBIT or Abnormal OM is the difference between the firm's performance and the average of the industry's performance.

In Table 2, we provide the abnormal performance results in years –1 through 3 relative to the industry-matched samples and control for OBRA affected firms and the governance index. Panel A includes the results for the level of EBIT performance measure. In years -1, 0 and 1 relative to the contract, firms tend to underperform against all firms, 6 and 12 industry matches. For example, firms underperformed by 1%, 1.3% and 1.1% relative to the 12 industry adjusted returns over years -1 to 1 with significance at the 5% or better in each.

[Table 2 approximately here]

Since managerial compensation increased over this period, result is inconsistent with Kole (1996), who argues that managers are rewarded for good performance. However, it is consistent with Core and Larcker (2002), who claim that recontracting corrects inefficiencies in existing contracts.

In years 2, and 3, the abnormal EBIT is not different than 0 regardless of the comparison group. For example, abnormal EBIT in year 3 compared with a 12 industry group is 0.04%. For all three comparison groups, adjusted performance increases monotonically from years 0 to 3. This finding suggests that negative abnormal performance before the contracts are rewritten does not continue afterward the rewriting, consistent with the optimal contracting idea that contracts improve operating performance. It is not consistent with managerial entrenchment. Separating events into firms not affected by OBRA (salary < $900,000) and those that were affected do not change the results. Despite the difference in motivation for changing contracts, firm performance increases afterwards indicating that once the contracts are rewritten, firm performance tends to improve.

The sample is also split into those with good corporate governance (i.e., strong shareholder rights, GINDEX =0) and those with less favorable governance (i.e., weak shareholder rights, GINDEX =1). The interaction of GINDEX and AFFECTED reveals the motivation for recontracting. For good governance sample firms that were UNAFFECTED underperformed less than those that were AFFECTED. Since governance measures for these firms are stronger, then contracts should be renegotiated at the correct time, and should provide the proper incentives. This would be reflected in better performance both before and after contracts

are written. For UNAFFECTED firms in year 0, firms with good governance (GINDEX=0) had underperformance of 0.8% which was significant, but firms with weak governance (GINDEX=1) underperformed 1.7%, which is not only significant but also significantly worse. A similar relation exists in years 1 and 2 in which UNAFFECTED and GINDEX =1 firms underperformed UNAFFECTED and GINDEX =0 firms.

AFFECTED firms with good governance also underperformed significantly in years -1 to 1 but improved in years 2 and 3. Those with weak governance never underperformed significantly. This difference may be caused by the reason for recontracting. Affected firms may have been encouraged by OBRA even though low firm performance had not materialized. Overall, this result suggests that contracts improved firm performance by taking underperforming firms and turning them into average firms within 2 years of writing the new contract.

The operating margin results in Table 2, Panel B, provide less conclusive results. Years –1, 0 and 1 show statistically significant underperformance compared with all firms, 6 industry groupings, and 12 industry groupings, which become insignificant in years 2 and 3. The magnitude of the underperformance appears relatively constant over time. These indicate one of two possibilities. First, firms do not improve performance after contracting from an operating margin's point of view. Second, the results are caused by another factor such as size. The event firms are all part of the S&P 500. The industry comparison is based on the median of all firms on Compustat in the same industry classification. The size difference is captured in the depreciation expense which is part of the OM measure. In this way, Table 2 demonstrates the weakness of industry adjustments. Being affected by OBRA is correlated with firm size; larger firms tend to offer higher salaries (Murphy (1998)). Larger firms also tend to have lower operating margins; thus, OBRA-affected firms will tend to underperform a broad 12 industry grouping. For this reason, a more powerful matching technique is required.

3.2 Performance Match Comparison

Because of the weakness of industry analysis, the remainder of the paper uses the Barber and Lyon (1996) matching method based on prior performance. After we identified the match firms, we calculated the abnormal performance measures as follows:

$$Abnormal\ \Delta EBIT_{i,(0,t)} = (EBIT_{i,t} - EBIT_{i,0}) - (Matched\ EBIT_{I,t} - Matched\ EBIT_{i,0})$$
(3)

$$Abnormal\ \Delta OM_{i,(0,t)} = (OM_{i,t} - OM_{i,0}) - (Matched\ OM_{I,t} - Matched\ OM_{i,0})$$
(4)

The abnormal change in EBIT is the change in the event firm's EBIT between year 0 and year t, minus the change in the match firm's EBIT during the same time. The measure is cumulative, in that the three-year abnormal EBIT in each year contributes to the measure. The abnormal change in operating margin is calculated similarly.

The results in Table 3 show that for years 1, 2, and 3, firms do not underperform their matched sample after contracts are rewritten. In the complete sample, the mean abnormal EBIT is never statistically significant but monotonically increases from –0.3% to 0.4%. Firms not affected by OBRA do not underperform statistically in years 1, 2, or 3 according to both the means and the medians for both the EBIT and OM measures. In year 2, UNAFFECTED firms underperform by 0.3%, and in year 3, they overperform by 0.3%. Although neither number is significant, the difference is significant at the 10% level. In the OM measure, there is no underperformance in any year, neither are the differences significant. These results show that overall, firms do not underperform after contracts are rewritten which is consistent with efficient contracting hypothesis.

For firms affected by OBRA, the results are similar. Using the EBIT measure, firms underperform their competitors by 1.1%, with a *p* of 2% for the first year. The median is also negative and significant. In years 2 and 3, they do not underperform their competitors, and the increases in both the means and the medians are monotonic. The increase from year 1 to year 2 is significant according to a Wilcoxon rank sum test. Although the OM measure is not monotonic in its increase, there is an increase in performance which is not significant. In no year is performance negatively significant

[Table 3 approximately here]

Splitting the sample by the strength of the corporate governance does not change the overall pattern, but does show that firms with better governance tend to outperform those with less efficient governance. Using EBIT, firm performance increases monotonically for all firms, AFFECTED and not AFFECTED for good governance firms. Although weak governance firms also have insignificant operating levels, unaffected firms in years 1 and 2 perform significantly worse than good governance firms in the same years. For AFFECTED firms, the sample size becomes small and the differences are not significant. Using OM, performance improves for all 3 measures, but gets worse for bad governance firms. For all firms and not affected firms, performance is monotonically decreasing with time while it improves for good governance firms. These results indicate that overall, the efficient contracting hypothesis holds

strongly for firms with good corporate governance. For firms with weak governance, the results are mixed. The firms do not underperform their match firms, but do underperform well governed firms.

In Table 4, we separate the firms that underperform in year 0 and track their performance in years 1, 2, and 3. Overall, firms that performed poorly before the contract do not underperform after the contract. Their performance increases monotonically during the next three years for both EBIT and OM measures using all firms and firms with good corporate governance In year 3, the OM abnormal returns are positive and significant for firms that underperformed in year 0 with a p of 1%. These findings indicate a turnaround in both EBIT and OM for firms that performed poorly before the contract change. Firms that performed well before the contract changes are not significantly different than their counterparts after the contracts are written, although both performance measures decrease almost monotonically. Firms with poor corporate governance do not show any consistent pattern in performance improvement. In 3 out of 4 measures, performance in year 3 is lower than in year 1, but not significantly. The motivation for writing contracts therefore may differ for firms according to their needs. Underperforming firms seek to improve performance, and firms that are doing well, or have poor corporate governance may have other motives. Finding these motives is left to additional research.

[Table 4 approximately here]

4. Conclusions

Financial contracts represent the core of business relationships, and one of the main roles of corporate governance is to encourage managers to enact compensation contracts that increase shareholder wealth. With OBRA 1993, we have the opportunity to examine a situation in which managers have an opportunity to expropriate funds, and to examine the effect of shifting some control rights from managers to owners.

Changing managerial contracts also increases operating performance. Prior to writing the contract, firms on average underperform their industry groups. After the contracts are written, performance is indistinguishable from industry averages or performance matched sample. The effect is more pronounced for the subset of firms whose performance was lower than the industry average or their matched firm prior to the contract change. Performance for these firms improves monotonically during the next three years. These results suggest that the need for recontracting, as described by Core and Larcker (2002), is correct and that recontracting brings poorly performing firms back to average. Poor performance before

recontracting contradicts Kole (1996), who suggested that contracts were changed to reward managers. Firms affected by OBRA tended to improve performance faster than unaffected firms. Firms with better governance measures outperform those with poor governance measures. The overall implication is that recent publicized corporate failures may be isolated cases, not evidence of structural problems among U.S. corporations (Holmstrom and Kaplan, 2003).

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Appendices

Table 1. Results of Performance matching

Panel A: EBIT matched sample

SIC	Reduced Match Sample	
digits	5% criteria	10% criteria
4	71	1
3	18	0
2	57	0
1	99	17
Total Match Found		263
No Match Found		203
Total matches possible		466

Panel B: OM matched sample

	Reduced Match Sample	
SIC	5%	10%
digits	Criteria	Criteria
4	68	1
3	14	4
2	53	0
1	118	3
Total Match Found		261
No Match Found		205
Total matches possible		466

Note: Events are independently matched to one firm with the same industry and performance in year -1. For the full matched sample, the 4 digit SIC matched firm with the closest performance (EBIT or OM) that is within 5% of the event is accepted. If none is found, the procedure is repeated with 3, 2, and 1 digit SIC. Unmatched events are then compared to 10% performance match. The reduced match sample uses the same procedure, but does not allow replacement at the next SIC level. Matchable firms must be S&P 500 firms with no contract change in year -2 to 2.

Table 2. Abnormal Changes by Industry Groupings

Panel A: Abnormal EBIT
The mean of abnormal performance is measured as EBIT scaled by assets. The number of observations is listed in parentheses.

$$Abnormal\ EBIT_{i,t} = EBIT_{i,t} - EBIT_{I,t} \ ^{(1)} \qquad Abnormal\ EBIT_{i,t} = EBIT_{i,t} - EBIT_{I,t} , ^{(2)}$$

	Time	All	6 Industry	12 Industry	12 Industry Matched	
			Matched	Matched	Sal<900k	Sal>900k
EBIT	-1	-1.0%*	-0.9%*	-1%*	-0.8%+	-1.5%*
		(261)	(261)	(261)	(189)	(70)
	0	-1.3%**	-1.3%**	-1.3%**	-1.3%**	-1.3%*
		(263)	(263)	(263)	(190)	(70)
	1	-1.1%**	-1.1%**	-1.1%**	-0.9%*	-1.8%**
		(260)	(260)	(260)	(187)	(70)
	2	-0.6%	-0.6%	-0.6%	-0.5%	-0.8%
		(162)	(162)	(162)	(126)	(33)
	3	0.04%	-0.2%	0.04%	0.19%	0.15%
		(123)	(123)	(123)	(98)	(22)

	Time	All	12 Industry Matched		All	12 Industry Matched	
			Sal<900k	Sal>900k		Sal<900k	Sal>900k
		GINDEX = 0			GINDEX = 1		
EBIT	-1	-0.7%	-0.2%	-1.7%+	-1.2%*	-1.3%*	-0.7%
		(128)	(89)	(39)	(107)	(82)	(25)
	0	-1.0%*	-0.8%+	-1.6%+	-1.4%**	-1.7%**	-0.3%
		(129)	(90)	(39)	(107)	(82)	(25)
	1	-0.9%+	-0.4%	-2.1%*	-1.3%*	-1.5%*	-0.6%
		(127)	(87)	(40)	(106)	(81)	(25)
	2	-0.21%	0.43%	-1.4%	-1.1%	-1.3%	0.1%
		(78)	(58)	(20)	(63)	(51)	(12)
	3	0.36%	0.58%	-0.5%	0.06%	-0.1%	0.81%
		(58)	(45)	(13)	(48)	(39)	(9)

Note.- The sample of 263 events comes from S&P 500 firms that changed managerial contracts between 1994 and 2000 and had at least three years between contract changes, a matching firm, and enough data for analysis. Abnormal performance is measured as the difference between the event performance and the mean of all non-event firms or the mean of 6 and 12 industry matched performance. Firms are subdivided into those with CEO salary below or above $900,000 to indicate firm susceptibility to OBRA 1993. GINDEX is a measure of corporate governance. Higher numbers indicate inferior governance. GINDEX signifies whether the governance index is above the median (GINDEX=1) or below the median (GINDEX=0). The +, * and ** indicate that the difference in performance is statistically significant at the 10%, 5%, and 1% level.

Table 2 Continued
Abnormal Changes by Industry Groupings

Panel B: Abnormal Operating Margin (OM)

$$Abnormal\ EBIT_{i,t} = EBIT_{i,t} - EBIT_{I,t}\ (1)$$

$$Abnormal\ OM_{i,t} = OM_{i,t} - OM_{I,t},\ (2)$$

	Time	All	6 Industry Matched	12 Industry Matched	12 Industry Matched	
					Sal<900k	Sal>900k
OM -1	-1	-1.5%**	-1.7%**	-1.5%*	-0.9%+	-2.8%**
		(260)	(260)	(260)	(182)	(76)
OM 0	0	-1.8%**	-1.9%**	-1.8%**	-1.4%**	-2.9%**
		(261)	(261)	(261)	(183)	(76)
OM 1	1	-1.6%**	-1.8%**	-1.6%*	-0.8%	-3.3%**
		(253)	(253)	(253)	(176)	(75)
OM 2	2	-2.0%**	-1.9%*	-2%+	-1.7%*	-2.7%
		(162)	(162)	(162)	(122)	(38)
OM 3	3	-2.0%+	-1.8%+	-2%	-1.6%	-4.0%
		(108)	(108)	(108)	(90)	(16)

	Time	All	12 Industry Matched		All	12 Industry Matched	
			Sal<900k	Sal>900k		Sal<900k	Sal>900k
		GINDEX = 0			GINDEX = 1		
OM	-1	-1.1%	-0.3%	-2.9%*	-1.3%*	-1.0%	-2.5%
		(136)	(92)	(44)	(102)	(78)	(24)
	0	-1.5%*	-1.0%	-2.7%*	-1.5%+	-1.3%+	-2.4%
		(137)	(93)	(44)	(102)	(78)	(24)
	1	-1.3%	0.5%	-2.9%*	-1.1%	-0.7%	-2.7%
		(131)	(88)	(43)	(101)	(77)	(24)
	2	-1.9%	-1.9%	-1.7%	-1.2%	-0.5%	-4.3%
		(86)	(63)	(23)	(61)	(49)	(12)
	3	-2.2%	-1.6%	-5.5%	-1.1%	-0.7%	-3.6%
		(57)	(48)	(9)	(40)	(34)	(6)

Note.- The sample of 263 events comes from S&P 500 firms that changed managerial contracts between 1994 and 2000 and had at least three years between contract changes, a matching firm, and enough data for analysis. Abnormal performance is measured as the difference between the event performance and the mean of all non-event firms or the mean of 6 and 12 industry matched performance. Firms are subdivided into those with CEO salary below or above $900,000 to indicate firm susceptibility to OBRA 1993. GINDEX is a measure of corporate governance. Higher numbers indicate inferior governance. GINDEX signifies whether the governance index is above the median (GINDEX=1) or below the median (GINDEX=0). The number of observations is listed in parentheses. The [+], [*] and [**] indicate that the difference in performance is statistically significant at the 10%, 5%, and 1% level.

Table 3. Abnormal Performance Versus Matched Firm After Managerial Contract Changes

$$\text{Abnormal } \Delta EBIT_{i,(0,t)} = \left(EBIT_{i,t} - EBIT_{i,0}\right) - \left(\text{Matched } EBIT_{I,t} - \text{Matched } EBIT_{i,0}\right) \quad (3)$$

$$\text{Abnormal } \Delta OM_{i,(0,t)} = \left(OM_{i,t} - OM_{i,0}\right) - \left(\text{Matched } OM_{I,t} - \text{Matched } OM_{I,0}\right) \cdot \quad (4)$$

		AΔEBIT(0,t)			AΔOM(0,t)		
	Year	All firms	Sal<900k	Sal >900k	All firms	Sal<900k	Sal >900k
Mean	1	-0.3%	0.0%	-1.1%*	0.0%	0.3%	-0.8%
		(243)	(175)	(65)	(241)	(168)	(71)
	2	-0.1%	-0.3%	0.6%	-0.2%	-0.1%	-0.3%
		(149)	(120)	(26)	(156)	(119)	(35)
	3	0.4%	0.3%	0.7%	0.0%	-0.1%	0.4%
		(114)	(93)	(19)	(104)	(89)	(13)
Median	1	-0.1%+	-0.1%	-0.6%*	0.0%	-0.5%	-0.3%
	2	-0.2%	-0.2%	-0.4%	-0.1%	-0.9%	-0.5%
	3	-0.1%	-0.1%	0.8%	0.0%	0.4%	0.2%

		AΔEBIT(0,t)			AΔOM(0,t)		
	Year	All firms	Sal<900k	Sal >900k	All firms	Sal<900k	Sal >900k
GINDEX = 0							
	1	-0.00%	0.42%	-1.1%+	-0.0%	0.31%	-0.70%
		(147)	(101)	(43)	(147)	(96)	(49)
	2	0.28%	0.45%	-0.7%	0.21%	0.03%	0.64%
		(92)	(72)	(17)	(97)	(71)	(24)
	3	0.51%	0.78%	-0.6%	0.51%	0.43%	0.41%
		(69)	(56)	(11)	(66)	(55)	(9)

GINDEX = 1

1	-0.70%	-0.6%	-1.20%	0.08%	0.37%	-0.90%
	(96)	(74)	(22)	(94)	(72)	(22)
2	-0.70%	-1.4%	3.18%	-0.80%	-0.40%	-2.40%+
	(57)	(48)	(9)	(59)	(48)	(11)
3	0.12%	-0.4%	2.54%	-0.80%	-0.90%	0.50%
	(45)	(37)	(8)	(38)	(34)	(4)

Note.- The event firms were matched by four-digit SIC within 5% of performance in year −1 to the event firm. Unmatched firms are matched with SIC3, SIC2 and SIC1 using firms not already used. The matching process is repeated with performance within 10%. The matching is done on the basis of EBIT and OM. GINDEX is a measure of corporate governance. Higher numbers indicate inferior governance. GINDEX signifies whether the governance index is above the median (GINDEX=1) or below the median (GINDEX=0). The abnormal performance for years 1, 2, and 3 are tested versus a null hypothesis of being equal to 0. The number of observations is listed in parentheses.

Table 4. Abnormal Performance Versus Matched Firm After Managerial Contract Changes

$$Abnormal\ \Delta EBIT_{i,(0,t)} = \left(EBIT_{i,t} - EBIT_{i,0}\right) - \left(Matched\ EBIT_{I,t} - Matched\ EBIT_{i,0}\right) \ (3)$$

$$Abnormal\ \Delta OM_{i,(0,t)} = \left(OM_{i,t} - OM_{i,0}\right) - \left(Matched\ OM_{I,t} - Matched\ OM_{I,0}\right) \cdot \ \ (4)$$

AEBIT(0,t)

Year	ALL EVENTS		GINDEX =0		GINDEX =1	
	Firm < Match	Firm > Match	Firm < Match	Firm > Match	Firm < Match	Firm > Match
1	-0.7%	0.1%	-0.3%	0.27%	-1.3%**	-0.08%
	125	118	77	70	48	48
2	-0.2%	0.1%	0.23%	0.34%	-0.9%	-0.4%
	82	67	49	43	33	24
3	0.8%	-0.2%	1.48%	-0.70%	-0.2%	0.61%
	64	50	38	31	26	19

AOM(0,t)

Year	ALL EVENTS		GINDEX = 0		GINDEX = 1	
	Firm < Match	Firm > Match	Firm < Match	Firm > Match	Firm < Match	Firm > Match
1	0.0%	0.0%	0.12%	-0.10%	0.42%	-0.20%
	111	140	65	82	45	49
2	0.8%	-0.6%	0.34%	0.12%	-0.08%	-1.4%*
	75	83	40	57	28	31
3	2.0%**	-0.4%	0.88%	0.25%	-0.40%	-1.0%
	52	69	27	39	14	24

Note.- The sample is split between firms that outperformed or underperformed one of two benchmarks. The industry columns were separated by under- or overperformance versus the 12 industry match. The match comparison splits the sample into firms that under- or overperformed in year 0 versus the match firm. Regardless of the benchmark, years 1, 2, 3 compare the event firm with the matched performance. The event firms were matched by four-digit SIC within 5% of performance in year 0 (the year prior to the contract change). Unmatched firms are matched with SIC3, SIC2, and SIC1 for firms not already used in other SIC groups. The matching process is repeated for performance within 10%. The matching is done on the basis of EBIT and OM. The mean abnormal performance for years 1, 2, and 3 are tested versus a null hypothesis of being equal to 0. GINDEX is a measure of corporate governance. Higher numbers indicate inferior governance. GINDEX signifies whether the governance index is above the median (GINDEX=1) or below the median (GINDEX=0).