Innate and discretionary accruals quality and corporate governance: A case study of Tehran Stock Exchange

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A R T I C L E I N F O	A B S T R A C T
	In this paper, we present an empirical study to find the relationship between discretionary accruals quality as well as innate accruals quality and portion of non-executive board of directors, concentration of ownership ratio and board size in Tehran Stock Exchange. The survey selects 118 qualified stocks from this exchange and using a random technique chooses 42 firms. The study implements two linear regression techniques to estimate the first part of the information and then using structural equation modeling examines six hypotheses. Based on the results of this survey we can conclude that an increase on non-executive members positively influences on discretionary accruals quality and negatively influences innate accruals quality. Concentration of ownership ratio positively influences on discretionary accruals quality and negatively impacts on innate accruals quality. Finally, size of board of directors negatively impacts discretionary accruals quality and positively influences on innate accruals quality.

1. Introduction

During the past few years, there has been growing interest on proposing new methods and techniques to assess transparency of financial statement. Many people argue that the recent financial crisis in United States banking system was a result of violating rules and regulations. Therefore, many have attempted to find the relationship between corporate governance mechanisms and the quality of reported earnings in publicly traded companies. Jensen and Meckling (1976) are believed to be the first who introduced the idea of corporate governance. In their study, they studied the relationship between the owners and managers where each part try to maximize their benefits and since there is not a unique flow of information between these two groups we see conflict of interest among them. Corporate governance will help reduce any existing conflict and provide a fair flow of information between two parties (Gillan, 2006).

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Klapper and Love (2004) investigated corporate governance, investor protection, and performance in emerging markets. They used the relevant information on firm-level corporate governance (CG) rankings across 14 emerging markets and reported that there was a wide variation in firm-level governance and the average firm-level governance was lower in countries with weaker legal systems. They also detected the determinants of firm-level governance and reported that governance was correlated with the extent of the asymmetric information and contracting imperfections that firms face. Based on their results, better corporate governance was significantly associated with better operating performance and market valuation. They also provided some evidences, where firm-level corporate governance provisions are more important in countries with weak legal environments.

Bauer et al. (2008) investigated the level of disclosure ensured by corporate governance codes in force in European Union member states based on OECD rules and regulations. They performed a comparative study on different existing features of corporate governance in the literature by using econometric analysis based on different statistical tools such as descriptive analysis, mainly based on computing tools, and correlations to detect the relationship between their results and what others researchers achieved. The results of the performed analysis disclosed that their results were not consistent with prior research findings associated with disclosure as "primary theme" of corporate governance codes. By analyzing the results, they have reached to the same conclusion as other researchers did on the same topic. Finally, they reported that we could certify that the compliance of corporate governance codes with OECD principles was consistent with prior research results associated with disclosure considering codes' issuer type and countries' legal regime.

Ştefănescu (2011) performed an investigation to find the level of disclosure ensured by corporate governance codes in force in European Union member states. She reported that common law regime could likely ensure the biggest level of transparency through corporate governance needs. They also asserted that the compliance of corporate governance codes with OECD principles was consistent with prior research achievement associated with disclosure considering codes' issuer type and countries' legal regime. Ammann et al. (2011) studied the relationship between firm-level corporate governance and firm value based on a dataset from Governance Metrics International (GMI), which includes 6663 firm-year observations from 22 developed countries over the period of 2003-2007. Based on a set of 64 individual governance attributes they built two alternative additive corporate governance indices with equal weights. The corporate governance attributed to the governance attributes and one index derived from a principal component analysis and they reported a strong and positive relation between firm-level corporate governance and firm valuation. Besides, they studied the value associated with governance attributes, which document the companies' social behavior. Their findings were robust against alternative calculation procedures for the corporate governance indices and to alternative estimation techniques.

Black et al. (2012) first conducted a case study of Brazil, in which they studied Brazilian firms' governance practices at year-end 2004, constructed a corporate governance index, and demonstrated that the index for ownership structure, board procedure, and minority shareholder rights, predicts higher lagged Tobin's q. Nelson (2005) investigated the link between firm performance, CEO characteristics and changes in corporate governance practices based on unbalanced panel of 1721 over the period of 1980-1995. The paper provided the stylized facts about corporate governance practices and explained how governance practices had evolved over time. They reported no relationship between CEO age, tenure or compensation and governance changes. Fama and Jensen (1983) performed a deep investigation on separation of ownership and control and finally, Dechow and Dichev (2002) studied the quality of accruals and earnings by looking into the role of accruals estimation errors. Francis et al. (2005) investigated different parameters influencing accruals quality including total assets, loss reported in financial statement, life cycle of inventory and receivable accounts and operating revenue divided by total assets based on a linear regression analysis and discussed the findings.

In this paper, we present an empirical study to find the relationship between discretionary accruals quality as well as innate accruals quality and portion of non-executive board of directors, concentration of ownership ratio and board size in Tehran Stock Exchange.

2. The proposed study

2.1. Variables

PROIND:	Percentage of non-executive members to total number of executive member
CONC:	Concentration of ownership ratio, the ratio determines portions of the people who own at least five percent of the shares
DAQ:	Discretionary accruals quality
IAQ:	Innate accruals quality
Board size:	The number of people who take part in editorial board
ΔWC_t	The change in working capital in time t compared with previous period $t\text{-}1$
CFO_{t-1}	Cash flow in period t-1
CFO_t	Cash flow in period t
CFO_{t+1}	Cash flow in period t+1
ΔRev_t	Change in operating revenue for two consecutive period
PPE_t	Fixed asset in period t
AQ	Accruals quality
$SIZE_t$	Natural logarithm of total assets in period t
$LOSS_t$	The number of years that firm reports loss in its statement
$OPCYC_t$	Natural logarithm of mean life cycle of inventory and receivable accounts
$SDOR_t$	Standard deviation of operating revenue divided by total assets

The main hypothesis of this paper considers whether there is a relationship between concentration of ownership and board of director's characterization with discretionary accruals quality and Innate accruals quality. The proposed study of this paper considers the following six hypotheses,

1. The relationship between the ratio of non-executive members of board of directors and discretionary accruals quality,
2. The relationship between the ratio of non-executive members of board of directors and Innate accruals quality,
3. The relationship between the ratio of size of board of directors and Innate accruals quality,
4. The relationship between the ratio of size of board of directors and discretionary accruals quality,
5. The relationship between concentration of ownership and Innate accruals quality,
6. The relationship between concentration of ownership and discretionary accruals quality.

The proposed study of this paper gathers the necessary data from Tehran Stock Exchange based on some predefined rules and regulations. According to our regulation, all stocks must be tradable for the period of studies. They must have a unique fiscal year ending March and must not have changes their business model within the period of studies. The other requirement is that no financial firm including banks, insurance or holding company is permitted. Finally, the structure of board of directors must be available for study. Based on these criteria, the information of 118 firms have been qualified for the proposed study of this paper and using sampling technique, 42 companies have been gathered. Table 1 shows descriptive information on our survey. The study has adopted the study accomplished by Kent et al. (2010).
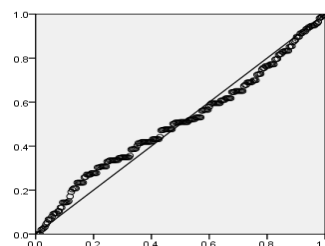
Table 1
Descriptive information for 42 firms

Var.	ΔWC_t	CFO_{t-1}	CFO_t	CFO_{t+1}	ΔRev_t	PPE_t	$SIZE_t$	$LOSS_t$	$OPCYC_t$	$SDOR_t$
Mean	356.161	1226.729	3226.449	2612.636	1600.466	859.0678	34.5339	3.5	34.822	153284.1
Std. Dev.	41.61921	145.82	98.95449	39.36156	15.09866	5.07043	0.5294	0.10475	0.54808	9716.019
Median	3677	520.5	3445.5	2573.5	1595	865	34.5	4	35	147300.5
Mode	2975	180	2235.00 [a]	2136	1381	816.00 [a]	38	4	36.00	314.89
Std. Dev.	452.1003	1584.01	1075.247	427.576	164.0135	55.07892	5.75078	1.13792	5.95371	1.06E+05
Variance	204394.7	2509088	1156156	182821.2	26900.42	3033.688	33.071	1.295	35.447	1.11 E+10
Skewness	-0.224	2.378	0.441	0.253	0.041	0.805	0.069	-0.62	0.202	0.152
Std. dev. Skewnesss	0.223	0.223	0.223	0.223	0.223	0.223	0.223	0.223	0.223	0.223
Percent quartile 25	3056.5	323	2249.5	2214	1443	813.75	31	3	30	58565.41
50	3677	520.5	3445.5	2573.5	1595	865	34.5	4	35	147300.5
75	3999	1602	4111.25	3024.25	1771.25	886.25	38	4	38	245987.2

In order to perform regression analysis for the following two linear regression model we need to verify normality test.

$$\Delta WC_t = \beta_0 + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \beta_4 \Delta Rev_t + \beta_5 PPE_t + e_t \qquad (1)$$

$$AQ = \alpha + \beta_1 SIZE_t + \beta_2 LOSS_t + \beta_3 OPCYC_t + \beta_4 SDOR_t + e_t \qquad (2)$$

The first step in performing regression analysis is to make sure that dependent variable is normally distributed and to perform this, we perform Kolmogorov–Smirnov (KS) test and KS value for WC_t is calculated as 0.401. Fig. 1 shows distribution of residuals for regression analysis given in Eq. (1) as follows,
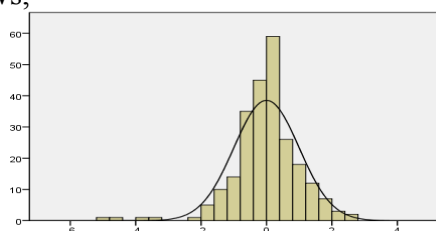
Fig. 1. Distribution of residuals for ΔWC_t

Fig. 2. Cumulative probability for dependent variable ΔWC_t

Based on the results of KS and Fig. 1 and Fig. 2 we can conclude that data are normally distributed. The other test is to study the correlation among independent variables. Table 2 shows the results of Pearson correlation test for independent variables.

Table 2
The results of Pearson correlation test for Eq. (1)

		WCT	CFO_{t-1}	CFO_t	CFO_{t+1}	Rev	PPE
WCT	Pearson test	1	0.262[**]	0.695[**]	0.655[**]	0.648[**]	0.446[**]
	Level of significance		0.004	0.000	0.000	0.000	0.000
CFO_{t-1}	Pearson test	0.262[**]	1	0.078	0.057	0.125	0.152
	Level of significance	0.004		0.400	0.536	0.178	0.100
CFO_t	Pearson test	0.695[**]	0.078	1	0.938[**]	0.959[**]	0.592[**]
	Level of significance	0.000	0.400		0.000	0.000	0.000
CFO_{t+1}	Pearson test	0.655[**]	0.057	0.938[**]	1	0.936[**]	0.657[**]
	Level of significance	0.000	0.536	0.000		0.000	0.000
Rev	Pearson test	0.648[**]	0.125	0.959[**]	0.936[**]	1	0.646[**]
	Level of significance	0.000	0.178	0.000	0.000		0.000
PPE	Pearson test	0.446[**]	0.152	0.592[**]	0.657[**]	0.646[**]	1
	Level of significance	0.000	0.100	0.000	0.000	0.000	

**Results is valid when the level of significance is set to 0.01

As we can observe from the results of Table 2, there are some strong correlations among independent variables and we need to use stepwise regression analysis. Similarly, we perform Kolmogorov–Smirnov (KS) test and KS value for WC_t is calculated as 1.406. Fig. 3 shows distribution of residuals for regression analysis given in Eq. (2) as follows,
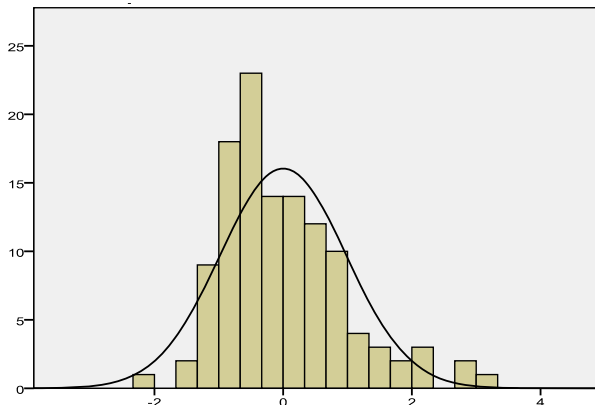
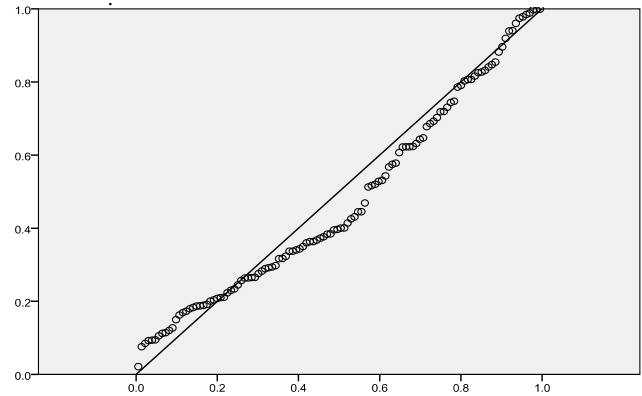

Fig. 3. Distribution of residuals in AQ equation

Fig. 4. Cumulative probability for dependent variable AQ

Based on the results of KS and Fig. 3 and Fig. 4 we can conclude that data are normally distributed. The other test is to study the correlation among independent variables. Table 3 shows the results of Pearson correlation test for independent variables.

Table 3
The results of Pearson correlation test for Eq. (2)

		Standard predicted error	$SIZE_t$	$LOSS_t$	$OPCYC_t$	$SDOR_t$
AQ	Pearson test	1	0.418**	0.016	0.067	0.438**
	Level of significance		0.000	0.864**	0.470	0.000
SIZEt	Pearson test	0.418**	1	-0.105	0.250**	0.752**
	Level of significance	0.000		0.257	0.006	0.000
LOSSt	Pearson test	-0.016	-0.105	1	-0.045	-0.125
	Level of significance	0.864	0.257		0.630	0.177
OPCYCt	Pearson test	0.067	0.250**	-0.045	1	0.303**
	Level of significance	0.470	0.006	0.630		0.001
SDORt	Pearson test	-0.438**	0.752**	-0.125	0.303**	1
	Level of significance	0.000	0.000	0.177	0.001	

 **Results is valid when the level of significance is set to 0.01

Again, we see some strong correlation between some independent variables, which implies that we need to use stepwise regression analysis.

3. The results

In this section, we first present details of our regression analysis for the Eq. (1) and Eq. (2).

3.1. The first model

The implementation of stepwise linear regression for the first model is summarized in Table 4 as follows,

Table 4
The results of regression analysis when the dependent variable is WCT ($R^2 = 0.80$)

Model		Non-standard coefficients		Standard coefficients	t	Error
		B	Std. dev	Beta		
1	Intercept	3542.003	773.434		4.580	0.000
	CFO_{t-1}	0.066	0.019	0.231	3.490	0.001
	CFO_t	0.406	0.107	0.966	3.798	0.000
	CFO_{t+1}	0.174	0.221	0.164	2.786	0.004
	Rev	1.357-	0.700	0.492-	1.938-	0.000
	PPE	0.403	0.726	0.049	2.556	0.005

As we can observe from the results of Table 4, all t-student values are valid and the regression covers 91% of the results. The results of regression analysis is summarized as follows,

$$\Delta C_t = 3542.003 + 0.066 CFO_{t-1} + 0.406 CFO_t + 0.174 CFO_{t+1} - 1.357 \Delta Rev_t + 0.403\ PPE_t + 773.434\ e_t \qquad (3)$$

Table 5 shows the results of ANOVA test.

Table 5
The results of ANOVA test for Eq. (1)

Model		Sum of Least squares	df	Mean	F	Level of significance
1	RSS	1.296E7	5	2591266.8	26.485	0.000
	ESS	1.096E7	36	97837.93		
	TSS	1.391E7	41			

As we can observe from the results of ANOVA test, the null hypothesis can be rejected when the level of significance is one percent and we can conclude that the first linear regression is valid.

3.2. The second model

The implementation of stepwise linear regression for the second model is summarized in Table 6 as follows,

Table 6
The results of regression analysis when the dependent variable is AQ ($R^2 = 0.81$)

Model		Non-standard coefficients		Standard coefficients	t	Error
		B	Std. dev	Beta		
2	Intercept	89.063	17.082		5.214	0.000
	$SIZE_t$	0.752	0.442	0.207	-1.701	0.092
	$LOSS_t$	1.319	1.481	0.72	2.515	0.010
	$OPCYC_t$	0.757	0.295	0.216	2.561	0.012
	$SDOR_t$	7.202	0.000	0.364	-2.936	0.004

As we can observe from the results of, except two cases, the other coefficients maintain valid t-student values. Eq. (4) shows details of our findings,

$$AQ = 89.063 + 0.752 SIZE_t + 1.319 LOSS_t + 0.757 OPCYC_t + 7.202 SDOR_t + 17.082 e_t \qquad (4)$$

Similarly, we have performed ANOVA test for the second model and Table 7 shows details of our findings. As we can observe from the results of ANOVA test, the null hypothesis can be rejected when the level of significance is one percent and we can conclude that the first linear regression is valid.

Table 7
ANOVA test results for the second model

Model		SUM of Squares	df	Mean	F	Error
	RSS	14451.136	5	2890.227	8.836	0.000
2	ESS	36635.387	36	327.102		
	TSS	51086.523	41			

3.3. The impact of PROIND, CONC and BOARD SIZE on DAQ and IAQ

In this section, we perform structural equation modeling (SEM) to determine the effects of three PROIND, CONC and BOARD SIZE on two variables of DAQ and IAQ using LISREL software packages. Fig. 5 shows details of our results for the proposed SEM model,
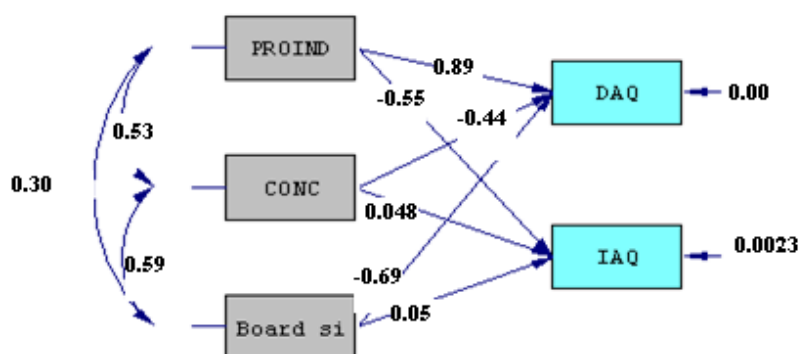

Fig. 5. The results of SEM model

Based on the results, we can derive the following results,

$$DAQ = 0.89*PROIND - 0.44*CONC - 0.69*Board\ SIZE \quad Error\ var. = 0.0012, R^2 = 0.95 \quad (5)$$
$$IAQ = -0.55PROIND + 0.048*CONC + 0.05*Board\ size \quad Error\ var. = 0.002, R^2 = 0.93 \quad (6)$$

In our proposed model, the ratio of Chi-Square on degree of freedom is 1.6<3, NFI is equal to 0.97, NNFI is 0.93, CFI is equal to 0.92, GFI and AGFI are also equal to 0.91 and 0.90, respectively. The results confirm the findings of SEM model. Table 8 shows the summary of our results.

Table 8
The summary of our results for six hypotheses

Hypothesis	Path	P Value	Results
H'_1	Proind $\rightarrow$ DAQ	< 0.001	Accept
H'_2	Proind $\rightarrow$ IAQ	< 0.001	Accept
H'_3	Conc$\rightarrow$ DAQ	< 0.001	Accept
H'_4	Conc$\rightarrow$ IAQ	< 0.001	Accept
H'_5	Board Size$\rightarrow$ DAQ	< 0.001	Accept
H'_6	Board Size$\rightarrow$ IAQ	< 0.001	Accept

As we can observe from Table 8, all eight hypotheses have been confirmed and we can conclude that an increase on non-executive members positively influences on discretionary accruals quality and negatively influences innate accruals quality. Concentration of ownership ratio positively influences on discretionary accruals quality and negatively impacts on innate accruals quality. Finally, size of

board of directors negatively impacts discretionary accruals quality and positively influences on innate accruals quality.

4. Conclusion

In this paper, we have presented an empirical study to find the relationship between discretionary accruals quality as well as innate accruals quality and portion of non-executive board of directors, concentration of ownership ratio and board size in Tehran Stock Exchange. The survey selected 118 qualified stocks from this exchange and using a random technique selected 42 companies. The study used two linear regression techniques to estimate the first part of the information and then using structural equation modeling examined six hypotheses. Based on the results of this survey we can conclude that an increase on non-executive members positively influences on discretionary accruals quality and negatively influences innate accruals quality. Concentration of ownership ratio positively influences on discretionary accruals quality and negatively impacts on innate accruals quality. Finally, size of board of directors negatively impacts discretionary accruals quality and positively influences on innate accruals quality.

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References

Ammann, M., Oesch, D., & Schmid, M. M. (2011). Corporate governance and firm value: International evidence. *Journal of Empirical Finance*, 18(1), 36-55.

Bauer, R., Frijns, B., Otten, R., & Tourani-Rad, A. (2008). The impact of corporate governance on corporate performance: Evidence from Japan. *Pacific-Basin Finance Journal*, 16(3), 236-251.

Black, B.S., de Carvalho, A.G., & Gorga, É (2012). What matters and for which firms for corporate governance in emerging markets? Evidence from Brazil (and other BRIK countries). *Journal of Corporate Finance*, 18(4), 934-952.

Cohen, J., Krishnamoorthy, G., & Wright, A. (2002). Corporate governance and the audit process. *Contemporary Accounting Research* 19, 573–592.

Dechow, P., & Dichev, I. (2002). The quality of accruals and earnings: the role of accruals estimation errors. *The Accounting Review, Supplement*, 77, 35–59.

Fama, E. F., & Jensen, M. (1983). Separation of ownership and control. *Journal of Law and Economics*, 26, 301–325.

Francis, J., LaFond, R., Olsson, P.M., & Schipper, K. (2005). The market pricing of accruals quality. *Journal of Accounting and Economics* 39, 295–327.

Gillan, S.L. (2006). Recent developments in corporate governance: An overview. *Journal of Corporate Finance*, 12(3), 381-402.

Kent, P., Routledge, J., & Stewart, J. (2010). Innate and discretionary accruals quality and corporate governance. *Accounting and Finance*, 50, 171-195.

Klapper, L.F., & Love, I. (2004). Corporate governance, investor protection, and performance in emerging markets. *Journal of Corporate Finance*, 10(5), 703-728.

Jensen, M.C., & Meckling, W.H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(40), 305-360.

Nelson, J. (2005). Corporate governance practices, CEO characteristics and firm performance. *Journal of Corporate Finance*, 11(1-2). 197-228.

Ştefănescu, C.A. (2011). Disclosure and transparency in corporate governance codes - comparative analysis with prior literature findings. *Procedia - Social and Behavioral Sciences*, 24, 1302-1310.