TRANSPARENCY OF ACCRUALS QUALITY AND STOCK CRASH RISK

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ABSTRACT

This study investigates the relation between transparency of accruals quality and stock price crash risk. The result shows that higher accruals quality (transparency) reduces stock crash risk, consistent with prior studies that show a positive relation between opaque financial statements and crash risk using the absolute value of discretionary accruals as a proxy for financial statement information opacity. In further analyses, we find that transparency driven by innate factors of accruals quality reduce stock crash risk than transparency driven by discretionary accruals quality. This finding illuminates the importance of the innate feature of accruals quality and supports prior studies that argue the difficulty of discerning managerial intent to report opportunistically or responsibly over accounting and reporting choices. Because the discretionary component of accruals quality suffers from a mixture of both features that could undermine investor's capability to interpret financial information that distorts pricing decisions.

Keywords: Stock Crash Risk, Transparency.

INTRODUCTION

We investigate whether innate accruals quality affects stock price crash risk. Innate accruals quality is defined as accruals quality driven by economic fundamentals (innate factors) rather than by discretionary accruals driven by managerial judgements (discretionary factors). Accruals quality is central to accounting because it is a part of earnings that inform investors about the quality of earnings through the mapping of accruals to cash flows where better mapping indicates higher earnings quality. Accruals quality also contains information that is priced by investors (Subramanyaman, 1996) and is used as a proxy for information risk that affects opacity or transparency of financial statements that is heavily used by the market. Hence, low accruals quality increases information risk that reduces the usefulness of earnings therefore impairs the ability of investors in forming accurate pricing decisions. Moreover, investors can suffer a great loss of wealth due to information risk as the world has already experienced the grave consequences of past accounting shenanigans (i.e., Enron, Worldcom). Ultimately, both shareholders and managers bear the cost via lower firm value, higher cost of capital and lower compensation.

Francis et al. (2005) first used the distinction between innate accruals and discretionary accruals to highlight the different implications of accruals quality. They find that innate accruals quality has a greater pricing effect on the cost of capital than does the component of discretionary accruals. This is because innate accruals better map earnings into cash flows which reduce information asymmetry or risk whereas discretionary accruals contain managerial discretion that adds noise and dampens this mapping relation which increases information asymmetry or risk. As such, the information risk embedded in these accruals could affect the opacity or transparency of information risk differently in financial statements which is crucial in investor pricing decisions. Hence, our study is in part motivated by Francis et al. (2005) as we expect that each component has a differential

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implication on information risk in earnings that ultimately trigger price reactions. This distinction is important because investors heavily rely on financial statement information in forming pricing decisions and because price movement in response to currently available public news is relatively small (Roll, 1988). Hence, we revisit this issue by investigating the empirical link between innate accruals quality, a distinction largely ignored in past literature, and stock price crash risk.

The stock crash risk literature states that stock price crash risk occurs when managers reach a tipping point where they no longer can hold back the accumulation of bad news. This creates a sudden influx of negative information to the market which triggers a sudden shock that engenders a steep decline in stock prices. A considerable amount of studies examines the relation between accounting reporting opacity and stock crash risk (Jin & Myers 2006; Hutton et al., 2009; Kim & Zhang 2014; Kim & Zhang, 2016). Among this literature, Hutton et al. (2009) directly investigate the relation between financial statement transparency and stock crash risk. They show that firms with higher financial statement opacity, measured by the three-year moving sum of the absolute value of discretionary accruals, are less likely to reveal firm-specific information and more likely to be prone to stock price crash risk. However, as in other studies, Hutton et al. (2009) do not distinguish the source of opacity. That is, they do not distinguish between opacity driven by innate characteristics of a firm's business model and the operating environment (innate accruals quality), and opacity driven by managerial discretion over accounting and reporting choices (discretionary accruals quality). This distinction affects information risk differently as the former reinforces the mapping of earnings to cash flow relationship that reduces information asymmetry or risk while the latter weakens this relation that increases information asymmetry or risk. Moreover, the discretionary component of accruals contains both features of managerial opportunism and managerial behavior that reports in accordance with firm performance. This mixed signal in turn undermines investors' capacity to interpret financial statement information attributable to either managerial opportunism intending to shelter bad news or information attributable to a firm's true performance. More importantly, the mixture of discretionary accruals quality does not directly indicate opacity (or transparency) of financial statements. As such, this motivates us to reexamine the link between financial statement transparency driven by innate accruals quality versus discretionary accruals quality on stock crash risk.

Using the accruals quality measure suggested by Francis et al. (2005) over a large sample of firms during the period of 1965-2013, we first expect that the transparency of total accruals quality will reduce stock crash risk. Then, to disentangle which component of transparency has a stronger effect on this relationship, we classify total accruals quality into innate accruals and discretionary accruals. We expect that innate accruals quality which represents transparency of economic fundamentals will have a stronger effect on crash risk than discretionary accruals quality because the latter contains a mixture of both managerial opportunism and reporting prudence. Consistent with this expectation, we find that the transparency of total accruals quality lessens stock crash risk consistent with prior studies. More importantly, the results show that the transparency of innate accruals quality reduces stock crash risk to a greater extent than that of discretionary accruals quality.

This paper makes the following contributions. First, consistent with the literature demonstrating that the opacity of financial statements leads to stock crash risk, this paper provides evidence that the transparency of financial statements, using a more refined measure of accruals quality, reduces stock crash risk. While Hutton et al. (2009) use a three-year moving sum of the absolute value of discretionary accruals to proxy for opacity of financial statements, we use a five-year rolling-standard deviation of residuals from the modified Jones model to proxy for transparency of financial statements. Although both measures have

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similar implications over financial statement information, the accruals quality measure used in our study allows us to distinguish the transparency of financial statements driven by innate accruals quality from that driven by discretionary accruals quality. Second, we illuminate the importance of innate accruals by demonstrating that the transparency (or opacity) measure driven by innate accruals quality dominates the impact on reducing stock price crash risk, rather than that driven by discretionary accruals quality. This is in contrast to previous studies that mainly focus on managerial discretion which sends mixed signals of managerial opportunism and/or responsible reporting, making it hard to discern the individual effects of each component on crash risk. Hence, opacity of economic fundamentals may enable managers to withhold bad news for longer periods thereby boosting the incident of a dramatic price precipitation. Investors should be aware that different components of accruals lead to different implications on pricing decisions as significant wealth is directly tied to portfolio returns.

LITERATURE REVIEW

Mangers tend to strategically withhold bad news or delay its disclosure but accelerate the disclosure of good news to the market. Such asymmetry in disclosure behavior allows managers to stockpile negative information within the firm which hinders outside investors to discriminate between good investments against bad ones thereby distorting investment decisions (Bleck & Liu, 2007). Stock price crash risk occurs when bad news stockpile up to a point where managers cannot bear the accumulation of bad news any longer and is suddenly released to outside investors. This in turn, leads to a steep decline in stock prices (Kim & Zhang, 2014). Jin & Myers (2006) further develop a model suggesting that the opaque financial reporting environment enables managers to hold bad news for certain periods and thus, increase the magnitude of future stock price crashes.

Hutton et al. (2009) extend Jin & Myers (2006)'s findings by empirically addressing whether firms with higher opaqueness of financial statements is more likely to engender stock price crash risks than those with more transparency. To proxy for the level of opaqueness of financial statements, they use a three-year moving sum of the absolute value of annual discretionary accruals. The higher the value of the three-year sum, the greater the opaqueness of financial statements. The underlying intuition of this measure is that firms with large absolute values of discretionary accruals are suspected to manipulate reported earnings, thereby disclosing less firm-specific information to investors. However, this measure has some limitation in that it does not exactly identify discretionary accruals driven by managers' discretion that could reflect opportunistic behavior verses managers' discretion that could either diminish or improve the role of earnings as a performance indicator.

HYPOTHESES DEVELOPMENT

Prior research has shown that managers use discretionary accruals to manipulate earnings, but at the same time, they use these accruals to communicate private information in order to report reliable and timely earnings (Subramanyaman, 1996). As Dechow (1994) states, the role of accruals is to map earnings into cash flows. If discretionary accruals are mainly driven by prudent managers who desire to improve the ability of earnings to reflect the underlying economic performance of a firm's operation in a reliable and timely manner, higher values of Hutton et al. (2009)'s opacity measure indicate higher transparency of financial statements information. If not, their opacity measure does not fully capture the underlying dynamics of the operational environment. This lack of validity in their measure leads us to revisit the link between opacity and crash risk using a more refined measure developed by (Francis et al., 2005).

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Following Francis et al. (2005), we illuminate the role of accruals quality by discriminating accruals quality between innate factors and discretionary factors as a proxy for transparency. As mentioned in Francis et al. (2005), accruals quality proxies for information risk associated with earnings. Since stock crash risk is closely tied to information risk, this conceptual framework enhances the validity of accruals quality as a proxy for financial statement transparency that affects crash risk. To examine the relation between transparency of financial statements and stock crash risk, we carry out this study as follows. First, we calculate accruals quality by using the cross-sectional Dechow & Dichev (2002) model augmented with variables from the modified Jones model, as in (Francis et al., 2005). As mentioned before, accruals quality captures information risk associated with earnings, so we expect that higher accruals quality represents greater transparency in financial statements. To the extent that a firm's financial statements are transparent, financial statements are more likely to preclude managerial misbehavior from withholding bad news to reap private gains therefore resulting in a negative association with crash risk. Based on the aforementioned discussion, we formulate our first hypothesis as below:

Hypothesis 1: *More transparent financial statements reduce stock crash risk*.

Second, we divide total accruals quality into two subcomponents: (1) the innate component of accruals quality and (2) the discretionary component of accruals quality. Francis et al. (2005) show that the average change in the discretionary component of accruals quality is significantly larger than that in the innate component of accruals quality. In other words, accruals reflecting innate characteristics inherent in the business model and operating environment are less mutable than accruals reflecting discretion. Therefore, it is expected that once transparency driven by innate characteristics is well established in financial statements, the level of transparency will seldom change. The discretionary component of accruals quality is driven by both managerial discretion and prudence in financial reporting. If managers are opportunistic, they will use discretion to reap private benefits that increase information risk and opacity of financial statements. If managers are prudent, they will report reliable and timely earnings that decrease information risk and opacity of financial statements. This produces mixed signals in discretionary accruals creating fluctuations that dampen and make its effect less persistent. Hence, we predict that transparency driven by innate characteristics will have a more consistent and greater impact on financial statements in reducing stock crash risk than that driven by the discretionary component. Based on these discussions, we postulate our second hypothesis as below:

Hypothesis 2: *The transparency driven by innate accruals quality reduces stock crash risk more than the transparency driven by discretionary accruals quality.*

METHODOLOGY

Sample Selection

The sample period spans from 1961 to 2013 and firm data is obtained from Compustat. We delete firm-year observations as follows: (1) firms that operate within the finance and utility industries; (2) firm-year observations with missing data insufficient to calculate variables used in the model; (3) firm-year observations in industries that have fewer than 15 observations in any two-digit SIC code and year combinations to calculate total accruals quality; (4) firms with changed fiscal year end to ensure comparability; (5) firms with missing daily stock returns on CRSP files. Finally, we lose significant firm-year observations when merging Compustat data with CRSP data. In addition, following prior

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literature, we winsorize firm-year observations above and below 1 % of all observations. The finalized sample results in 89,313 firm-year observations.

Research Model

To measure firm-specific stock price crash risk, following Hutton et al. (2009), we first calculate firm-specific weekly returns (W) by regressing the following expanded market model for each firm and fiscal year:

$$r_{i,\tau} = \alpha_j + \beta_{1\,i}\, r_{m,\,\tau-2} + \beta_{2\,i}\, r_{m,\tau-1} + \beta_{3\,i}\, r_{m,\tau} + \beta_{4\,i}\, r_{m,\tau+1} + \beta_{5\,i}\, r_{m,\tau+2} + \varepsilon_{i,\tau}, \quad (1)$$

where r i,τ is the returns on stock i and rm,, τ is the CRSP value-weighted market index in week τ where the fiscal year is defined as the 12-month period ending three months after the fiscal year-end. We include lead and lag terms for the market return to allow for nonsynchronous trading as noted in (Hutton et al., 2009). Wi,τ is the firm-specific weekly return for firm i and week τ, measured as the natural logarithm of one plus the residual (εi,τ) derived from Equation (1). Following previous studies, this paper uses three firm-specific stock crash risk measures. The first crash risk measure (CRASHi,τ) is a dummy variable equal to 1 if the firm-specific weekly return (Wi,τ) exceeds 3.02 standard deviations below its mean; otherwise, 0 (Hutton et al., 2009; Kim et al., 2011a). The second firm-specific crash risk measure ($NCSKEW$i,) is the negative skewness of weekly stock returns Chen et al. (2001); Kim et al. (2011b) using the below Equation (2):

$$NCSKEW_i = -[n(n-1)^{3/2}\, \Sigma W^3_{i,\tau}] \,/\, [(n-1)(n-2)(\Sigma W^2_{\ i,\tau})^{3/2}], \quad (2)$$

where, W i,τ is the natural logarithm of one plus the residual (εi,τ) from Equation (1), and NCSKEWi is calculated by taking the negative of the third moment of the firm-specific weekly returns for each fiscal year and dividing it by the standard deviation of the firm-specific weekly returns raised to the third power. We multiply -1 in Equation (2) to indicate that higher values of NCSKEWi represent higher crash risk. The third firm-specific crash risk measure is the asymmetric volatility of the weekly stock return, DUVOL i,τ [Chen et al. (2001); Kim et al. (2011b)]. DUVOL i,τ is calculated by using the natural logarithm of the ratio of the standard deviation on "*down weeks*" to the standard deviation on "*up weeks*," where down(up) weeks are those with Wi,τ below (above) its mean value within the 12-month period ending three months after the end of the fiscal year.

To proxy for financial statement transparency, we use the Dechow and Dichev (2002) model with additional variables suggested by prior literature (McNichols 2000; McNichols 2000):

$$TCA_{i,t} = \beta_0 + \beta_{1,i}\, CFO_{i,t-1} + \beta_{2,i}\, CFO_{i,t} + \beta_{3,i}\, CFO_{i,t+1} + \beta_{4,i}\, \Delta Rec_{i,t} + \beta_{5,i}\, PPE_{i,t} + \varepsilon_{i,t,} \quad (3)$$

where, TCA i,t, represents total current accruals and is measured as ΔCAi,t - ΔCLi,t - ΔCASHi,t + ΔDEBTi,t. ΔCAi,t of firm i's change in current assets (Compustat #4) between year t-1 and t, ΔCLi,t is firm i's change in current liability (Compustat #5) between year t-1 and t, ΔCASHi,t is firm i's change in cash (Compustat #1) between year t-1 and t, ΔDEBTi,t is firm i's change in debt in current liability (Compustat #34) between year t-1 and t, CFO i,t is firm i's cash flow from operations in year t which is measured as NIi,t - TAi,t.. NIi,t is the net income before extraordinary items (Compustat #18) in year t, TA i,t is firm i's total accruals in year t and is measured as ΔCAi,t - ΔCLi,t - ΔCASHi,t + ΔDEBTi,t - DPi,t . Dpi,t is firm i's depreciation and amortization expenses (Compustat #14) in year t. ΔREC i,t is the change in account receivables (Compustat #2) between year t and year t-1, PPE i,t is firm i's

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gross of property, plant, and equipment (Compustat #7) in year t. All variables are scaled by average assets. Then we regress Equation (3) for each two digit SIC industry codes and years with at least 15 firm-year observations to calculate accruals quality. This annual cross-sectional regression allows us to yield firm-year specific residuals. Consistent with prior literature, we calculate the standard deviation of the residuals from year t-4 to year t (TAQi,t). The greater value of TAQi,t implies lower quality of total accruals which is associated with higher information risk (opaque financial statements).

To test the second hypothesis, we decompose TAQ into two sub-components: (1) AQ driven by innate characteristics and (2) AQ driven by discretionary components.

$$TAQ_{i,t} = \Phi_0 + \theta_{1,i} SIZE_{i,t} + \theta_{2,i} SD\_CFO_{i,t} + \Phi_{3,i} SD\_SALES_{i,t} + \Phi_{4,i} OperCycle_{i,t} + \Phi_{5,i} NEG_{i,t} + \eta_{i,t} \quad (4)$$

where, TAQ i,t is the total accruals quality in year t. At least 5 observations are required for a 10 year rolling bases. SIZEi,t is the log of total assets in year t, SD_CFO i,t is the standard deviation of firm i's CFO over the past 10 years, SD_SALES i,t is the standard deviation of firm i's sales over the past 10 years, OperCycle i,t is the log of the operating cycle measured by 360/(sales/average accounting receivables) + 360/(cost of goods sold)/(average inventory) where Sales is Compustat item #12, cost of goods sold is item # 41, accounting receivable is item #2, and inventory is item #3. NEG i,t is the number of loss years over the past 10 years.

Dechow & Dichev (2002) and Francis et al. (2005) suggest five innate factors that could possibly affect accruals quality. Following prior literature, we measure accruals quality driven by innate features of the operating environment and business models. Innate_AQ and Disc_AQ are estimated by equation (4). The predicted values estimated from using the five factors in Equation (4) capture Innate_AQ and the residuals (ηi,t) capture Disc_ AQ, respectively. We multiple each AQ, Innate_AQ, and Disc_AQ by -1 so that the higher values indicate greater transparency of financial statements (Trans_TAQ, Trans_InAQ, and Trans_DAQ, respectively.)

To test the first hypothesis, we estimate the following cross-sectional regression model with clustering at firm and industry level including year fixed effects;

$$CR_{PROXY\ i,t+1} = \alpha_0 + \alpha_1 TRAN\_TAQ_{i,t} + \alpha_2 NCSKEW_{i,t} + \alpha_3 DTURN_{i,t} + \alpha_4 RET_{i,t} + \alpha_5 SIGMA_{i,t} + \alpha_6 MTB_{i,t} + \alpha_7 SIZE_{i,t} + \alpha_8 LEV_{i,t} + \alpha_9 ROA_{i,t} + \sum YEAR + \sum IND + \varepsilon_{i,t}, \quad (5)$$

CR PROXY i,t+1 is the stock price crash risk proxies measured by CRASH i,t+1, NCSKEW i,t+1, and DUVOL i,t+1 in year t+1. When the dependent variable is CRASH i,t+1, we employ a logit regression model with firm clustering. TRAN_TAQ i,t is the level of transparency driven by total accruals in year t and is measured by multiplying a 5 year standard deviation of total current accruals by -1. Therefore, a higher value of TRAN_AQ i,t is associated with greater transparency. We expect that firms with more transparent accruals will reduce stock crash risk. Accordingly, a negative coefficient is expected for α1. We include a set of control variables as follows: NCSKEWi,t is the negative skewness of firm-specific weekly returns in year t and is incorporated to control for the autocorrelation of the negative skewness of firm-specific weekly returns. DTURNi,t is the detrended average monthly stock turnover in year t and controls for the differences of opinion among investors which is one factor that increases stock crash risks. RET i,t is the average firm-specific weekly returns in year t and controls for the tendency that high past stock returns are more likely to crash. SIGMA i,t is the standard deviation of firm-specific weekly returns over year t and controls for stock volatility that also affects stock crash risks. MTB i,t is the market to

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book ratio in year t and controls for the possibility that growth stocks are more prone to undergo future crash risk. SIZE i,t is the natural logarithm of market capitalization in year t. LEV i,t is the total long-term debt divided by total assets. ROA i,t is income before extraordinary items divided by lagged total assets for year t.

To test the second hypothesis, we estimate the following cross-sectional regression model with firm and industry clustering with year fixed effects;

$$CR_{PROXY\ i,t+1} = \alpha_0 + \alpha_1 TRAN\_AQ_{PROXY\ i,t} + \alpha_2 NCSKEW_{i,t} + \alpha_3 DTURN_{i,t} + \alpha_4 RET_{i,t} + \alpha_5 SIGMA_{i,t} + \alpha_6 MTB_{i,t} + \alpha_7 SIZE_{i,t} + \alpha_8 LEV_{i,t} + \alpha_9 ROA_{i,t} + \sum YEAR + \sum IND + \varepsilon_{i,t,} \quad (6)$$

TRAN_AQ PROXY i,t indicates transparency proxies of either Trans_InAQ i,t or Trans_DiscAQ i,t. As mentioned before, Trans_InAQ i,t is driven by innate features of the business model and operating environment and Trans_DiscAQ i,t is driven by the discretionary component of accruals quality. The second hypothesis predicts that Trans_InAQ i,t reduces stock crash risk more than Trans_DiscAQ i,t does. Therefore, we expect that the coefficient of Trans_InAQ i,t is more negative than the coefficient of Trans_DiscAQ i,t. Or, to the extent that Trans_DiscAQ i,t includes mixed signals of managerial discretion as addressed earlier, the coefficient on Trans_DiscAQ i,t may be insignificant.

DATA ANALYSIS AND RESULTS

Descriptive Statistics and Univariate Analysis

Table 1 presents descriptive statistics for interest variables used in the analyses. The mean value of TRAN_TAQ is -0.0489 which is similar in magnitude with an opposite sign compared to Francis et al. (2005). As expected, the mean value of TRAN_DiscAQ is closed to zero since this represents the residuals from Equation (4). The mean value of FCRASH1 is 0.1531 which is comparable to previous studies suggesting that about 15% of firms experience stock crash risk. Estimates on other crash risk measures and control variables are consistent with prior studies as well.

Table 1
DESCRIPTIVE STATISTICS

Variables	Mean	Median	STD	Q1	Q3
Dependent Variable:					
FCRASH1	0.153	0.000	0.360	0.000	0.000
FNCSKEW1	-0.104	-0.117	0.806	-0.525	0.282
FDUVOL1	-0.112	-0.122	0.367	-0.348	0.111
Independent Variables:					
TRAN_TAQ	-0.049	-0.036	0.041	-0.062	-0.022
TRAN_InAQ	-0.049	-0.042	0.029	-0.062	-0.029
TRAN_DiscAQ	0.001	0.004	0.031	-0.012	0.018
NCSKEW	-0.115	-0.124	0.736	-0.528	0.268
TURNOVER	1.006	0.533	1.247	0.235	1.254
RET	-0.002	-0.001	0.003	-0.003	-0.001
SIGMA	0.058	0.050	0.032	0.036	0.072
MTB	2.361	1.612	2.970	0.952	2.795
SIZE	5.124	4.993	2.285	3.407	6.704
LEV	0.222	0.200	0.186	0.060	0.333

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ROA	0.020	0.049	0.157	0.002	0.092

Table 2 reports the Pearson and Spearman correlations for variables used in the analyses. The mean and median firm-specific Pearson and Spearman correlations show the inconsistent relation between stock crash risk and transparency measures. The correlation between TRAN_TAQ and FCRASH1 is significantly negative (-0.0311) at the 1% level while the correlations between TRAN_TAQ and FNCSKEW1 and between FDUVOL1 are significantly positive (0.0390 and 0.0144, respectively) at the 1% level. The correlations between TRAN_InAQ and all three stock crash risk measures are positive (0.0049,0.1252, and 0.0903, respectively) while the correlations between TRAN_DiscAQ and all three stock crash risk measures are all significantly negative (-0.0324,-0.0600, and -0.0586, respectively) at the 1% level. This univariate test shows that TRAN_DiscAQ appears to reduce crash risk the most.

Table 2
CORRELATIONS MATRIX

Variables	*FCRASH1*	*FDUVOL 1*	*FNCSKEW1*	*TRAN_TAQ*	*TRAN_InA Q*	*TRAN_DiscA Q*
FCRASH1		0.494***	0.556***	-0.019***	-0.003	-0.022***
FDUVOL1	0.457***		0.958***	0.0341***	0.101***	-0.038***
FNCSKEW1	0.495***	0.977***		0.012***	0.061***	-0.039***
TRAN_TAQ	-0.031***	0.039***	0.014***		0.613***	0.731***
TRAN_InAQ	0.005	0.125***	0.091***	0.594***		-0.081***
TRAN_DiscA Q	-0.032***	-0.061***	-0.059***	0.608***	-0.181***	

Table 3 reports the result of the first hypothesis. The first hypothesis predicts that greater transparency in a firm's financial statement information will reduce stock crash risk. As seen in the table, all coefficients of TRAN_TAQ are significantly negative at the 1 percent level (-0.3984, -0.3296, and -0.1056, when the dependent variable is FCRASH1, FNCSKEW1, and FDUVOL1, respectively). This finding indicates that when the firm's financial statements are transparent, stock crash risk is significantly reduced. Therefore, our results support our first hypothesis.

Table 3
THE RELATION BETWEEN FINANCIAL STATEMENT TRANSPARENCY AND STOCK CRASH RISK

Dependent Variables	*FCRASH1*		*FNCSKEW1*		*FDUVOL1*	
	Estimate	z-stat.	Estimate	t-stat.	Estimate	t-stat.
TRAN_TAQ	-0.398**	6.43	-0.330***	-3.47	-0.106**	-2.50
NCSKEW	0.044***	35.15	0.043***	9.73	0.021***	10.91
TURNOVER	0.052***	99.84	0.020***	6.29	0.008***	5.81
RET	20.604**	7.63	21.543***	5.28	3.849**	2.11
SIGMA	-0.511	0.52	2.491***	6.08	0.148	0.81
MTB	0.009***	21.55	0.007***	5.90	0.003***	6.05
SIZE	0.002	0.16	0.065***	27.48	0.031***	28.91
LEV	0.078**	6.45	0.020	1.10	-0.001	-0.06
ROA	0.109***	7.85	0.119***	4.77	0.086***	8.21
Ind &Year fixed effects	Included		Included		Included	
Adj. R^2(R^2)	0.458		0.080		0.161	

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Table 4, Panel A to Panel C exhibits results for our second hypothesis. The second hypothesis posits that transparency driven by innate accruals quality reduce stock crash risk to a greater extent than that driven by discretionary accruals quality. In Panel A, columns (1) and (2) show the individual effect of each transparency measure analyzed separately in each regression and column (3) shows the regression results of these variables when analyzed simultaneously in the same regression. The results display that when the dependent variable is FCRASH1, the coefficient of TRAN_InAQ is significantly negative in column (1) where the coefficient is -1.3216 at the 5 percent level while the coefficient of TRAN_DiscAQ in column (2) is insignificant in the separate regression model showing each variable's individual effect. Consistently, the column (3) of Panel A reports that even when both TRAN_InAQ and TRAN_DiscAQ are included in the same regression, the coefficient of TRAN_InAQ is still significantly negative (coefficient is -1.3505 at the 1 percent level) while the coefficient of TRAN_DiscAQ is insignificant. Collectively, these results imply that a decrease in stock crash risk is more pronounced when transparency of financial statement information is driven by the innate feature of the business model and the operating environment than transparency driven by the discretionary component of accruals quality.

Table 4 Panel A
THE RELATION BETWEEN FINANCIAL STATEMENT TRANSPARENCY AND STOCK CRASH RISK

Dependent Variable	*FCRASH1*					
	(1)		(2)		(3)	
	Estimate	Chi-sqr.	Estimate	Chi-sqr.	Estimate	Chi-sqr.
TRAN_InAQ	-1.322**	23.57	-	-	-1.351***	23.98
TRAN_DiscAQ	-	-	0.017	0.01	-0.117	0.44
NCSKEW	0.045***	37.30	0.044***	34.76	0.045***	37.25
TURNOVER	0.051***	95.47	0.052***	101.13	0.051***	95.46
RET	17.899***	5.71	21.1411***	8.03	17.957**	5.75
SIGMA	-0.929	1.70	-0.336	0.23	-0.941	1.74
MTB	0.007***	14.48	0.009***	25.86	0.007***	14.19
SIZE	0.007	2.94	0	0.00	0.007*	2.97
LEV	0.094**	9.09	0.074**	5.81	0.094***	9.07
ROA	0.163***	15.89	0.097**	6.20	0.162	15.76
Ind &Year fixed effects	Included		Included		Included	
R^2	0.458		0.4578		0.458	

Table 4, Panel B shows the results for the second hypothesis when the dependent variable is FNCSKEW1. As shown, the coefficient of TRAN_DiscAQ is, now, significantly negative in both the separate regression in column (2) where the coefficient is -0.2154 at the 5 percent level and in the regression when both transparency measures are included in column (3) where the coefficient is -0.2670, at the 5 percent level. However, both the magnitude and significance level of the coefficients on TRAN_DiscAQ are significantly smaller than that of TRAN_InAQ in column (3), suggesting that innate accrual quality still dominates the effect of the discretionary component on stock price crash risk. Consistently, Table 4, Panel C displays similar results to Panel A and Panel B. In sum, the overall results support our second hypothesis by revealing that financial statement transparency driven by the innate feature reduces stock price crash risks significantly more than that driven by the discretionary component of accruals quality. Additionally, these results show that the distinctive features in accruals quality affect information risk, therefore transparency, differently in financial statements. Hence, a distinction in accruals quality will better aid the

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pricing decisions of market participants, especially those associated with stock price crash risks.

Table 4 Panel B **THE RELATION BETWEEN FINANCIAL STATEMENT TRANSPARENCY AND STOCK CRASH RISK**						
Dependent Variable	*FNCKEW1*					
	(1)		(2)		(3)	
	Estimate	t-stat.	Estimate	t-stat.	Estimate	t-stat.
TRAN_InAQ	-0.491***	-2.94	-	-	-0.554***	-3.27
TRAN_DiscAQ	-	-	-0.215**	-2.10	-0.267**	-2.56
NCSKEW	0.044***	9.82	0.043***	9.67	0.044***	9.79
TURNOVER	0.019***	6.22	0.021***	6.39	0.019***	6.21
RET	20.883***	5.09	22.186***	5.43	20.991***	5.12
SIGMA	2.424***	5.83	2.632***	6.45	2.397***	5.76
MTB	0.007***	5.60	0.007	6.45	0.007***	5.49
SIZE	0.066***	26.95	0.063***	27.04	0.066***	26.98
LEV	0.024	1.32	0.015	0.86	0.023	1.30
ROA	0.131***	5.19	0.103***	4.22	0.131***	5.17
Ind &Year fixed effects	Included		Included		Included	
Adj.R^2	0.079		0.079		0.080	

Table 4 Panel C **THE RELATION BETWEEN FINANCIAL STATEMENT TRANSPARENCY AND STOCK CRASH RISK**						
Dependent Variable	*FDUVOL1*					
	(1)		(2)		(3)	
	Estimate	t-stat.	Estimate	t-stat.	Estimate	t-stat.
TRAN_InAQ	-0.142*	-1.93	-	-	-0.164**	-2.18
TRAN_DiscAQ	-	-	-0.073***	-1.59	-0.088*	-1.89
NCSKEW	0.021***	10.95	0.021***	10.86	0.021***	10.93
TURNOVER	0.008***	5.77	0.008***	5.89	0.008***	5.77
RET	3.670**	2.00	4.059**	2.22	3.705	2.02
SIGMA	0.133	0.72	0.193	1.06	0.124	0.67
MTB	0.003***	5.87	0.003***	6.47	0.003***	5.78
SIZE	0.031***	28.23	0.031***	28.75	0.031***	28.25
LEV	0.001	0.07	-0.002	-0.24	0.001	0.06
ROA	0.089***	8.32	0.081***	7.82	0.089***	8.31
Ind &Year fixed effects	Included		Included		Included	
Adj.R^2	0.160		0.160		0.161	

CONCLUSIONS AND RECOMMENDATIONS

Mangers generally tend to hold or delay bad news for their own profits. However, when managers are no longer capable of hiding bad news, the accumulation of bad news is suddenly released all at once which results in stock price crash risk. Hutton et al. (2009) examine whether opacity of financial statements triggers such stock crash risk. However, they do not identify the different implications between financial statement opacity that is led by innate characteristics of the firm's business model and operating environment, and opacity that is led by managers' discretion over accounting and reporting choices. Arguably, the level of opacity or transparency of financial statements is not only attributable to the firm's innate factors but also to managerial discretion. However, this study shows that innate accruals

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quality has a greater effect than discretionary accruals on crash risk, a conclusion not well documented in previous studies. By illuminating the importance of this distinction, we provide empirical evidence on how the two different sources of accruals quality affects stock crash risk. Hence, this study attempts to fill the void and extends the literature by examining both aspects of accruals quality on crash risk.

The conclusion of our study is as follows: (1) transparency does reduce overall crash risk, and (2) accruals quality affected by innate factors of the firm and its operating environment reduce stock crash risk significantly more than accruals affected by the discretionary component. Our conclusions support prior studies arguing that transparency of financial statements is driven by the discretionary component, however, to a lesser extent than the innate component of accruals quality, a distinction not directly addressed in prior research. This distinction is important because innate accruals quality has a dominating effect over discretionary accruals which provide mixed signals of managerial decision, either due to opportunism or to fiduciary obligation, associated with crash risk (Guay et al., 1996; Healy, 1996; Francis et al., 2005).

This paper makes the following contributions to the literature. First, consistent with prior literature we demonstrate that the opacity of financial statements leads to stock price crash risk. Stated differently, lower information risk contained in accruals quality, proxied by TRAN_AQ, alleviates stock crash risk. Second, the distinction of accruals quality between innate and discretionary factors allows us to better assess which component drives crash risk.

In closing, this study has implications for accounting standard setters, regulators and particularly for investors who rely on information contained in the financial statement when pricing accruals information. A good amount of investor wealth is tied to stocks. Thus, a more refined approach in analyzing accruals will better assist investor pricing and investment decisions that increase wealth and avoid unnecessary loss.

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