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Peter J. Frischmann

Research strongly suggests non-articulation is an effective indication of the reporting quality of both the cash flow statement (Gong et al. 2014) and income statement (Collins et al. 2015). I complete the financial reporting circle by examining the association between non-articulation and the reporting quality of the balance sheet, captured by way of classification shifts across balance sheet items. I first develop a measure of balance sheet classification shifting. I proceed to examine whether a working-capital deficit influences the association between non-articulation and balance sheet classification shifting. Results indicate that balance sheet classification shifting contributes to non-articulation. This study contributes to the classification shifting literature by developing a new classification shifting measure for the balance sheet; and to the non-articulation literature by demonstrating an association between balance sheet reporting quality and non-articulation magnitude. It also provides empirical evidence important to the

proposed update of the debt accounting standards (Topic 470), “Simplifying the classification of debt in a classified balance sheet (current versus noncurrent).” [1]

[1]See the detailed accounting standard update (Topic 470) at: https://www.fasb.org/jsp/FASB/Document_C/DocumentPage?cid=1176168748705&acceptedDisclaimer=true

Balance Sheet Classification Shifting and Non-Articulation

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Dean of the Graduate School

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Dilin Wang, Author

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CHAPTER 1. INTRODUCTION

Non-articulation occurs when disclosures on the statement of cash flows cannot be computed from the net change in their corresponding balance sheet accounts (Bahnson, Miller, and Budge 1996). Bahnson et al. (1996) report that 75 percent of the time, reported cash flow amounts do not articulate with the corresponding estimated changes in the balance sheet.

The three primary financial statements are the balance sheet, income statement and statement of cash flows. Previous research provides evidence that non-articulation affects reporting quality in the cash flow statement (Gong et al. 2014, Cheng et al. 1997, Chen et al. 2017 and Nallareddy et al. 2017) and the income statement (Frischmann et al. 2017, Collins et al. 2015, and Collins et al. 2017). In the present study, I complete that circle by examining the association between non-articulation and the reporting quality of the balance sheet, specifically classification shifting among balance sheet items. Theoretically, classification shifting in balance sheet accounts can lead to non-articulation in the corresponding cash flow statement (Bahnson et al. 1996, Shi and Zhang 2011). For example, reclassification of short-term into long-term debt can induce inconsistency between current debt payable and the corresponding amount on the cash flow statement. To date, there has been no empirical evidence relating non-articulation to balance sheet reporting quality

To shed light on the association between non-articulation and balance sheet reporting quality, I first develop and validate a measure of balance sheet classification shifting. Just as managers try to meet or beat analysts' earnings forecasts, studies find

managers have what otherwise would be inexplicable success in achieving the financial ratio benchmarks on their balance sheets (Dyreng, Mayew, and Schipper 2017, Dichev and Skinner 2002, and Gaver and Paterson 2004). For example, Dyreng, Mayew, and Schipper (2017) find a discontinuity in the distribution of current ratios in the vicinity of 1.0. In this study, I hypothesize that a short-term to a long-term liability shift is a convenient way to improve the liquidity ratios (e.g., the current ratio) without sacrificing other efficiency ratios. Such a shift results in non-articulation.

Following a research design similar to that in the income classification shifting literature (McVey 2006), I obtain the unexpected change in current liabilities (UE_ΔCL) and unexpected change in long-term liabilities (UE_ΔLTL) by way of the residuals of the respective expectations models. I next regress the unexpected change in current liabilities (UE_ΔCL) on the unexpected change in long-term liabilities (UE_ΔLTL) to test for the overall presence of a classification shift. Unexpected declines in current liabilities (negative UE_ΔCL) can then, on the basis of this shift expectation, be linked to unexpected increases in long-term liabilities (positive UE_ΔLTL). In particular, I expect a negative coefficient on UE_ΔLTL when firms are under working capital deficits (DEF). To test the direction of the shift, I regress UE_ΔCL on UE_ΔLTL with, alternately, the full sample, a sample consisting of only negative UE_ΔCL values, and one consisting of only positive UE_ΔCL values. In the full-sample test, I first use the signed UE_ΔCL, then censor UE_ΔCL to the left, retaining the negatives as continuous and setting the positives to zero. Results show that UE_ΔCL is negatively associated with UE_ΔLTL, especially when firms are under working capital deficit (DEF), which implies that firms are likely to classification shift when under financial pressure.

Next, I create – following Athanasakou, Strong, and Walker (2011) – an indicator variable (CS) for balance-sheet classification shifting. CS is unitary when UE_ΔCL is negative and UE_ΔLTL is positive, zero otherwise. A second classification shifting indicator (CS') is created as a validity check. CS' is unitary when UE_ΔCL is highly negative and UE_ΔLTL is highly positive, zero otherwise. Since evidence suggests firms shift current to long-term liabilities when facing working capital deficits, the classification shift measure here considers only the current to long-term shifts. I conduct a determinant test to further validate classification shifting measures CS and CS'. My expectation is confirmed that companies in a working capital deficit (DEF_{t-1}), that had classification shifted the previous year (CS_{t-1}), or that operated in industries where external analysts forecast earnings and cash flows ($ANACF_t$), are more likely to presently be classification shifting. Those with higher lagged current ratios ($CURRENT_{t-1}$) or higher operating cash flows (OCF_t), or further from bankruptcy ($ZSCORE_t$) are less likely to be classification shifting.

Upon deriving the classification-shift measure, I examine its association with non-articulation. Classification shifting, abnormal operating cash flows, and abnormal accruals reflect distinct aspects of reporting quality. The literature has so far failed to examine the association between non-articulation and balance sheet quality at all. Furthermore, no systematic study of the importance of classification shifts to the detection and assessment of accrual and cash flow quality has appeared.

My model of non-articulation and classification shifting controls for abnormal operating cash flow and discretionary accruals and, drawing on Hribar and Collins (2002)

and Chen et al. (2017), for firm fundamentals. Results show both these two alternative reporting quality measures are related to non-articulation magnitude. Discretionary accrual and classification shifts are positively and significantly associated with non-articulation, controlling or not for firm fundamentals. However, discretionary operating cash flow becomes unimportant once firm fundamentals are accounted for. Overall, the suggestion is that non-articulation reflects reporting quality on the balance sheet and income statement but not on the cash flow statement. I next study whether the firm's internal financial environment or external information environment affects the contribution of reporting quality to non-articulation. I find that classification shifting (CS and CS') and abnormal operating cash flow explain a greater portion of non-articulation when the firm is under a working capital deficit than when it is financially sound. Meanwhile, discretionary accruals and classification shifting (CS' only) explain a smaller portion of non-articulation when analysts provide both earnings and cash flows forecasts for a firm.

This study makes three main contributions. First, it contributes to the classification shifting literature by developing a new classification-shift measure for the balance sheet[2]. It is essential to obtain a proxy measure of classification shifts from balance sheet data itself. Classification shifting as an earnings management tool has indeed received research attention, but the emphasis has been on the income statement rather than the balance sheet. Second, the study contributes to the non-articulation

[2] Gramlich et al. (2001, 2006) have hand-collected footnote disclosures of firm reclassifications between short-term and long-term liabilities; but they are subject to the selection bias that footnotes may not disclose classification shifts.

literature by documenting the empirical evidence of the association between balance-sheet reporting quality and non-articulation magnitude. In this way it enriches our understanding of the non-articulation phenomenon, and only in doing so can we better understand investor response to it. Finally, the study offers evidence for the FASB Simplification Initiative's proposed reclassification of debt in a classified balance sheet (current versus noncurrent), Debt Topic 470, by documenting the incidence and rationale of strategic balance-sheet shifts. [3]

[3] The Initiative's purpose is to identify, evaluate, and improve areas of generally accepted accounting principles (GAAP) for which cost and complexity can be reduced while maintaining or improving their usefulness to financial statement users.

CHAPTER 2. LITERATURE REVIEW

Section 2.1 Non-articulation Literature Review

Changes in the operating activity accounts on the statement of cash flows are assumed to match the corresponding changes in those accounts estimated using the balance sheet and the income statement. In reality, most of the reported amounts and the estimated amounts don't match. This phenomenon is called non-articulation.

Section 2.1.1 Non-articulation Phenomenon and Possible Causes

Research documents the existence of the non-articulation phenomenon and its possible effects on operating cash flow and accrual measures (Wilkins and Loadder 2000, Bahnson et al. 1996, Cheng et al. 1997, Frischmann et al. 2010, Haribar and Collins 2002).

Section 2.1.1.1 The Existence of Non-articulation Phenomenon

Bahnson et al. (1996) examine a sample of 9,757 public financial statements from 1987 to 1990 to assess the extent of non-articulation between balance sheets and cash flow statements. They compare reported operating cash flow (ROCF) with independently calculated operating cash flow (IOCF) and define the difference between ROCF and IOCF as the non-articulated operating cash flow amount. They find that 75 percent of their 9,757 public firms present non-articulation, and the amount is significant. Further,

they find that reclassification, acquisition, and currency translation can explain some of the differences, but many of the non-articulation items are merely unexplained. A small amount of non-articulation can be explained (a complete example of non-articulation is available at Appendix A).

Wilkins and Laudder (2000) try to document firms that do articulate. They find less than 2% of firms during 1998 have articulated accounts receivables, inventory, depreciation, and deferred taxes. Their finding is supportive of Bahnson et al. (1996).

Later, Frischmann et al. (2010) extend Bahnson et al. (1996) and find that non-articulation continues and has increased during the past 20 years. Frischmann et al. (2015) identify the possible causes of non-articulation as the following: acquisitions and divestitures, transactions related to foreign operations and foreign currency translation adjustments, reclassifications, and exchanges of long-term notes receivable for accounts receivable. For example, inventory may have increased because of an operating activity such as a purchase from a supplier, or an investing activity such as the acquisition of another company, or even reclassification of plant assets into inventory for future disposal. They argue that the more complex the financial statements are, the higher is the probability for non-articulation to occur. They also identify that accounts receivable and accounts payable are the most common sources for non-articulation.

Section 2.1.1.2 The Firm Fundamental Causes of Non-articulation Phenomenon

Hribar and Collins (2002) identify three main reasons for non-articulation to exist: (1) merger and acquisition, (2) foreign currency translation, and (3) discontinued operations. They regress the non-articulation amount on these three firm activities, and the coefficients for all three variables are significant.

Besides the three main non-articulation events identified by Hribar and Collins (2002), studies find additional non-articulation events. Shi and Zhang (2011) exclude firms with merger and acquisition, foreign currency translation, and discontinued operations from their sample. They still find that 60% of the remaining firm-years don't articulate. Besides the three main non-articulation events identified by Hribar and Collins (2002), Shi and Zhang (2011) find an additional four non-articulation events. The first event is deferred income tax benefit/expense; the second is equity in net earnings/losses; the third is gain/loss from sales of property, plant and equipment, and investments; the fourth are other funds from operations.

Chen, Melessa, and Mergenthaler (2017) also find that non-articulation events (mergers and acquisition, foreign currency transaction, and discontinued operations) only account for 2.2% of the non-articulation error in their sample. They find that special items, stock option expense, extreme growth, and operating performance help to explain an additional 10.4% of the measurement difference, which leaves 87.4% unexplained.

In general, the non-articulation events documented in prior studies can only explain a small portion of the total non-articulation amount. The causes for non-articulation remain unclear, but the impact of non-articulation on academic measures has been explored quite a bit.

Section 2.1.2 Non-articulation Related Measurement Issues

Section 2.1.2.1 Non-articulation and Measures of Working Capital Accruals

Hribar and Collins (2002) build on Bahnson et al. (1996) and examine the academic measurement error in accruals introduced by non-articulation. Specifically, they examine the measurement error in accruals related to the following literature: (1) the relative value relevance of cash flows versus accruals, (2) tests of earnings management and, (3) the market mispricing of discretionary versus non-discretionary accruals. Previous research in these areas calculates accruals using an indirect balance sheet approach and assumes articulation between changes in the balance sheet and the statement of cash flows. This assumption is not true. Hribar and Collins (2002) first calculate accruals using the balance sheet approach (ACC_{bs}); then they compare it with accruals derived from the cash flow statement (ACC_{cf}). They name the non-articulated accrual amount as DIFF. Below is the detailed measurement:

> *ACC_{bs} = change in current assets - change in current liabilities – change in cash + the current maturities of long-term debt – depreciation and amortization expense*
>
> *ACC_{cf} = - summary of the statement of cash flows reported increase or decrease in accounts receivables, inventory, accounts payables, taxes payable, other current assets, and depreciation expense.*
>
> *$DIFF = (ACC_{bs} – ACC_{cf}) / |Deflator|$*

By replicating previous research using ACC_{cf}, they find that (1) the estimation of the abnormal accruals is contaminated by the balance sheet approach and can lead to an

inflated conclusion about the existence of earnings management and (2) that measurement error in accruals can confound returns regression. They also find that returns on ACC_{bs} are upward biased, while returns on estimated operating cash flows are downward biased. Also, the coefficient for ACC_{bs} and estimated operating cash flows are not statistically different, while the coefficients are statistically different for cash flow based measures and market mispricing of accruals will be understated. They compare two trading strategies based on ACC_{cf} and ACC_{bs}. They find the ACC_{cf}-based strategy outperforms the ACC_{bs}-based strategy in general. The results imply that market mispricing on accrual is biased downward when using balance sheet-based measure of accruals.

Section 2.1.2.2 Non-articulation and Measures of Other Accruals

Later, Casey et al. (2017) and Larson et al. (2017) look at the impact of non-articulation beyond working capital accruals. They extend the impact of non-articulation into current operating accruals, noncurrent operating accruals, investing accruals, and financing accruals.

Casey et al. (2017) distinguish accruals based on the generating source financial statement of the accruals (cash flow statement, balance sheet, or statement of owners' equity). Next, they examine the association between different types of accruals with future earnings and stock returns. Following Richardson et al. (2005), they break assets into five groups based on different economic characteristics. The five groups are current net operating asset (NOAC), noncurrent net operating asset (NOAN), investing in equity

subsidiaries (IVAEQ), discontinued operations (ADO), and net financing assets (NFA). Next, they measure the corresponding accruals using the difference between the ending and beginning balance of balance sheet as ΔNOAC, ΔNOAN, ΔINAEQ, ΔADO, and ΔNFA. Next, they construct cash flow based on current operating accruals (noaco), noncurrent operating accruals (noano), investing accruals (-esubc), discontinued operation related accruals (xido – xidoc), and financing accruals (nfai + nfaf + nfae). Finally, they define the non-articulation between balance sheet-based accruals and cash flow-based accruals as NOACbs, NOANbs, INAEQbs, ADObs, and NFAbs. See the detailed measurement below:

$$NOACbs = \Delta NOAC - noaco,$$
$$NOANbs = \Delta NOAN - noano = \Delta NOAN - (noaco + noai),$$
$$INAEQbs = \Delta INAEQ - (- esubc),$$
$$ADObs = \Delta ADO - (xido - xidoc),$$
$$NFAbs = \Delta NFA - (nfai + nfaf + nfae).$$

They find that accruals from different sources of financial statements have a different association with future earnings and returns. In general, except for current operating non-articulation accruals, all accruals are less persistent than the cash flow component of earnings. For the association between accruals and future stock returns, except for discontinued operation related accruals, all accruals are negatively associated with future stock returns. This finding supports that investors overprice accruals in general. Overall, their findings imply that cash flow-based accruals and non-articulation accruals relate differently to growth opportunity.

Larson et al. (2017) provide a comprehensive approach to the definition and measurement of accruals. They divide comprehensive accruals (COMPACC) into conditional conservatism accruals (CC_ACC), non-articulating operating accruals (NA_ACC), current articulating operating accruals (OA_WCACC), noncurrent articulating operating accruals (OA_LTACC), and financing accruals (FINACC) as follows:

$$COMPACC = CC\_ACC + NA\_ACC + (OA\_WCACC + OA\_LTACC) + FINACC$$

Since those decomposed accruals are associated with different economic activities, they are expected to have different properties. To examine the different properties of these decomposed accruals, Larson et al. (2017) test the association between these decomposed accruals and future earnings (persistence), future returns (mispricing), and reporting quality.

For the persistence test, their finding is in line with prior literature that accruals are less persistent than the cash flow component of earnings (Sloan, 1996; Richardson et al. 2005). Among the different accruals, non-articulating accruals (NA_ACC) have the highest persistency with a coefficient of 0.683, while conditional conservatism accruals (CC_ACC) have the lowest persistence with a coefficient of 0.292. The higher persistence of non-articulating accruals is similar to the finding from Casey et al. (2017). Casey et al. (2017) explain this higher persistence using acquisitions which signal higher future earnings. In contrast, Larson et al. (2017) argue that the higher persistence in non-articulating accruals is because high non-articulating accrual firms tend to have persistent low earnings.

For the market mispricing test, they find that non-articulating accruals (NA_ACC) and other articulating accruals have a similar negative association with future returns. The negative coefficient of NA_ACC implies that investors fail to anticipate the high persistence of poor performance of firms with an acquisition event. On the other hand, the negative coefficient of other articulating accruals implies that investors fail to anticipate the low persistence of good performance of firms.

For the reporting quality test, the results show that other articulating accruals outperform non-articulating accruals in identifying accounting misstatements. They argue that articulating accruals are what managers rely on most to manipulate earnings. One shortcoming of their study is that accounting misstatements can hardly capture real activity management or classification shifting. Accounting misstatement only captures one aspect of reporting quality.

Section 2.1.2.3 Non-articulation and Measures of Operating Cash Flows

Accrual and operating cash flows act like two sides of a coin. Non-articulation not only introduces measurement noise to accruals but also contaminates the measurement of operating cash flows. Chen et al. (2017) and Nallareddy, et al. (2017) both study the non-articulation related measurement error in operating cash flow and its implication for predicting future cash flows. Studies on predicting future cash flows have mixed findings. One group of studies finds that earnings are better at predicting future cash flow than operating cash flows (Greenberg et al. 1986, Dechow et al. 1998, and Kim and Kross 2005). On the other hand, the other group of studies finds that operating cash flows have

higher predictability than earnings (Barth et al. 2001 and Lev et al. 2010). Both Chen et al. (2017) and Nallareddy, et al. (2017) find that reported operating cash flows outperform the earnings and estimated operating cash flows (based on the balance sheet) in explaining future cash flows. In addition, their finding is consistent in both the panel data setting and the annual cross-sectional data setting, which rules out different periods as a potential explanation for the mixed results in the prior literature. Their findings imply that non-articulation related measurement error in operating cash flows account for the mixed findings in prior research.

Non-articulation also has an impact on other accrual related accounting measures, for example, profitability measures and accounting conservatism measures.

Section 2.1.2.4 Non-articulation and Measures of Profitability

Ball et al. (2016) examine the accounting anomaly associated with profitability. They compare the trading strategy using cash-based profitability (a measure that excludes accruals) and the trading strategy using accrual-based profitability. Cash-based profitability is converted from accrual-based profitability by backing out the related accrual components. The detailed measurement is listed below:

> *Accrual-based operating profitability = Revenue - Cost of goods sold - Reported sales, general, and administrative expenses;*
>
> *Cash-based operating profitability = Operating profitability + Decrease in accounts receivable + Decrease in inventory + Increase in accounts payable and accrued liabilities;*

They find that cash-based operating profitability outperforms accrual-based profitability and accruals in explaining the expected returns. In this case, investors can better benefit by adding just cash-based operating profitability to their portfolio.

Section 2.1.2.5 Non-articulation and Measures of Conservatism

Another related accrual measurement is accounting conservatism. If non-articulation contaminates the accrual measure, it will affect the measure of accounting conservatism as well. Collins, Hribar, and Tian (2014) challenge the earning-based conditional conservatism measure and argue that earnings' asymmetric timeliness captures both life-cycle characteristics and conditional conservatism since earnings contain both operating cash flow and accruals. They argue that operating cash flow asymmetric timeliness is associated with life-cycle characteristics. To better measure conditional conservatism, they suggest that removing the cash-based measures from the earnings-based measures of asymmetric timeliness can help to eliminate some biases. They compare the cash-based measures derived from the balance sheet to that derived from the cash flow statement.

Collins, Hribar, and Tian (2014) find that the balance sheet derived cash-based measure includes noise from accruals. The results show that the cash-based measure derived using the balance sheet contains a higher asymmetric timeliness component than the measure that is derived using the statement of cash flows. The results imply that the cash-based measure from the balance sheet approach captures both the cash flow asymmetry and accrual asymmetry. In this case, they conclude that the cash-based

measure derived from the cash flow statement can better capture the cash flow asymmetry. Finally, they derive the accrual-based measure using the earning-based measure subtract the cash-based measure (the statement of cash flow approach). The results show that the accrual-based measure of conditional conservatism can help to reduce many biases in the earnings-based conditional conservatism measures.

Section 2.1.3 Non-articulation and Market Pricing

Section 2.1.3.1 Non-articulation and Market Pricing of Indirect Method Operating Cash Flows.

Cheng, Liu, and Schaefer (1997) test the market implications from Bahnson et al. (1996) that operating cash flow measurement error introduced by non-articulation could contaminate the prior finding of little information content of operating cash flows. Cheng, Liu, and Schaefer (1997) examine this implication using newly available SFAS No.95 reported operating cash flows. They regress unexpected annual return on earnings, reported operating cash flows and estimated operating cash flows to obtain the incremental explanatory power of each of the independent variables. They find that reported SFAS No.95 cash flows from operating activities dominate the estimated (non-articulated) operating cash flows in explaining firm value. Also they find that reported operating cash flows contain incremental explanatory power over earnings to explain stock returns, which differs from the prior finding that estimated operating cash flows do not have information content after controlling for earnings.

Reported operating cash flows not only have incremental explanatory power over earnings, but they also dominate earnings in explaining future cash flows. Both Chen et al. (2017) and Nallareddy, et al. (2017) find that reported operating cash flows outperform the earnings and estimated operating cash flows (based on the balance sheet) in explaining future cash flows. Their findings imply that non-articulation related measurement error in operating cash flows account for the mixed findings in prior research.

Section 2.1.3.2 Non-articulation and Market Pricing of Direct Method Operating Cash Flows.

Non-articulation not only impacts the market pricing of operating cash flows under the indirect method but also impacts that of the direct method. We expect that indirect method operating cash flows would articulate with direct method operating cash flows, but in reality that is not true.

Orpurt and Zang (2009) study the non-articulation error between direct-method components and indirect-method components. The direct-method components are estimated using two methods: (1) the indirect statement of cash flows approach and (2) the balance sheet approach. Then they define the difference between these two direct-method components measures and indirect-method components as two measures of articulation errors. They find that articulation errors have explanatory power in estimating the current stock price. Also, to explore the predictive value of direct-method cash flow disclosures, they test whether articulation errors provide incremental explanatory power

when forecasting future operating cash flow and earnings. Their results show that when cash flows and earnings forecasting models include articulation errors, forecasting performance significantly improves.

Orpurt and Zang (2009) contribute to the non-articulation literature by finding that articulation errors have additional information in predicting future earnings and cash flows. Also, articulation errors have explanatory power in estimating current stock price.

Section 2.1.3.3 Non-articulation and Market Pricing of Accruals

Non-articulation not only influences the information content in cash flows but also influences that of accruals.

Hribar and Collins (2002) argue that balance sheet measure of accruals could make studies find weaker accrual anomalies. To test this argument, Shi and Zhang (2011) examine the stock market reactions to the balance sheet measure of accruals and the cash flow measure of accruals. They compare the returns from trading strategies based on balance sheet measured working capital accruals to that of cash flow statement measured working capital accruals.

In contrast to Hribar and Collins' (2002) assertion, Shi and Zhang (2001) find a higher return on the trading strategy with balance sheet-based accruals than that of cash flow based accruals after the sample is cleansed of non-articulation events. They find that the market misprices more of accruals computed using balance sheet items than accruals computed using cash flow statement items. Specifically, they find the difference in

returns is mainly due to other funds from operations and the non-articulation in changes in accounts receivable. One drawback of this study is that the return strategy is based on an aggregated level from 1988 to 2007. Studies show that the accrual anomaly is decreasing in the recent period. Thus the result could be driven by early years.

Section 2.1.4 Non-articulation and Reporting Quality

In addition to non-articulation being associated with market pricing, studies have associated it with information quality through audit risk, credit risk, and cash flow management (Gong, Xie, Zhu, and Ziebart 2014, and Collins, Xie, and Zhu 2015, 2017).

Section 2.1.4.1 Non-articulation and Cash Flow Management

Recently, the research investigates the association between non-articulation and reporting quality. Gong et al. (2014) argue that non-articulation carries information about cash flow management. They list possible cash flow management techniques that could generate non-articulation amounts. First, a firm can convert its accounts payable into a short- or long-term debt by letting a third party pay its accounts payable. The operating cash flow is inflated since there is no operating cash outflow for the reduction of accounts payable. This will generate non-articulation in accounts payable. Second, a firm can sell its accounts receivable to a bank (securitization of receivables). This is a financing activity and will generate non-articulation in accounts receivable. Third, stock option tax benefits generate non-articulation. Accounting Principle Board (APB) No. 25 requires

that these tax benefits be booked as a reduction to taxes payable on the balance sheet, but they do not generate a corresponding change in cash paid for taxes on the statement of cash flows.

Gong et al. (2014) find that signed non-articulation amounts are positively associated with signed abnormal operating cash flows, which is a proxy for cash flow management. Cash flow management is one type of real earnings management. Gong et al. (2014) find that larger magnitude articulation errors are associated with lower persistence and higher volatility in operating cash flow and earnings. In addition, larger magnitude negative articulation errors are associated with greater default risk. They argue that articulation errors can affect lenders' decision making by conveying information about the risk and uncertainty of a firm's business operations.

Later on, Collins, Xie, and Zhu (2017) use non-articulation to proxy for cash flow management. They examine the association between cash flow management (proxied by non-articulation) and information risk (proxied by financial statement readability, analysts forecast accuracy, dispersion and uncertainty, and cost of equity). They control for M&A, divestitures, and foreign currency transactions to obtain the cash flow management portion of non-articulation. They find that the magnitude of non-articulation is negatively associated with financial statement readability, negatively associated with analyst forecast properties, and positively associated with the implied cost of equity capital. Their study implies that non-articulation captures cash flow management and that cash flow management increases information risk and the cost of equity capital.

Section 2.1.4.2 Non-articulation and Accrual Quality and Information Risk

Collins, Xie, and Zhu (2015) find that non-articulation captures information risk from accrual quality; auditors respond to this risk by increasing audit fees or issuing modified audit opinions. They use accrual quality (measured by discretionary accruals) and the Securities and Exchange Commission Accounting and Auditing Enforcement Releases to measure reporting quality. They find that absolute non-articulation amounts are negatively associated with firms' reporting quality. Next, they test and find that the auditors respond to this increased risk reflected by non-articulation by charging higher audit fees and issuing modified or going-concern audit opinions. In general, Collins et al. (2015) find that non-articulation amounts are positively associated with misreporting and negatively associated with accrual quality. Their finding implies that non-articulation captures the risk and uncertainty of a firm's business operations.

Meanwhile, Casey, Gao, Kirschenheiter, Li, and Pandit (2018) find that total articulation-based accruals have a non-linear association with audit fees. Specifically, accruals relating to the balance sheet and the cash flow statement are positively associated with the audit fees, while accruals relating to the statement of owner's equity are negatively associated with audit fees.

Overall the previous research provides evidence that non-articulation captures financial reporting quality. Prior studies only look at two types of reporting quality: (1) cash flow management and (2) accrual quality. There is no empirical testing of classification shifting, which is the third type of reporting quality that can be captured by

non-articulation. Another limitation is that prior study only examine one reporting quality at a time, and not include all reporting qualities together. In this case, prior findings are subject to omitted variables issue.

I add to this research stream by including classification shifting and testing which type of reporting quality non-articulation more reflects. In addition, I examine how an improved external information environment influences the association between non-articulation and reporting quality. Further, I study the influence of external information environment changes based on certain firms' characteristics.

Section 2.2 Reporting Quality Literature Review

Section 2.2.1 Cash Flow Management

Managers could use accounting reporting choice or operating choice to manage cash flows. Cash flow management implies managers' choice on cash flow components, but it does not imply the intention behind this choice, whether the intention is opportunistic or to provide more private information to the market. Lee (2012) develops a model of abnormal CFO (operating cash flow) to capture cash flow management based on Dechow et al. (1998). Lee (2012) first develop a model to estimate the normal operating cash flows:

$$CFO_t/TA_{t-1} = b_0 + b_1\times(1/TA_{t-1}) + b_2\times(Sale_t/TA_{t-1}) + b_3\times(\Delta Sale_t/TA_{t-1}) + \varepsilon_t$$

where CFO_t is the cash flow from operations for the period t, TA_{t-1} is the total assets at the end of period t-1, $SALE_t$ and $\Delta SALE_t$ are the sales and change in sales during period

t. Lee (2012) use the parameter estimates from the above equation to estimate expected CFO, and unexpected CFO is the difference between actual and expected CFO. Lee (2012) find that firms are more likely to manage their cash flows when they face higher financial distress, a long-term credit rating near the investment/non-investment grade cutoff, the existence of analyst cash flow forecasts, and higher associations between stock returns and CFO.

Later, Gong, et al. (2015) link non-articulation to cash flow management. They study cash flow management cases. The first case is that of Lucille Farms paying accounts payable by issuing stock and long-term debt, which inflates CFO without operating cash outflows. The second case is that Lesco sells most of its accounts receivable to GE Capital for cash, which deflates CFO since the decrease in accounts receivables does not result in operating cash inflows. These two cases both generate non-articulation in operating cash flows.

Section 2.2.2 Accrual Management

Studies find that managers use both cash flow from operations and changes in working capital to achieve earnings management (Healy 1985, and Burgstahler and Dichev 1997). Healy (1985) uses total accruals to test for earnings management. Jones (1991) develops a model to estimate the normal accrual level and uses the residuals from the model to capture abnormal accruals which are proxy for accrual management. Jones' model assumes that accruals are a function of revenue growth and depreciation is a

function of PPE. Thus the residuals from the following regression represent the abnormal accruals:

$$TACC = b_0 + b_1 \times \Delta Sale + b_2 \times PPE + \varepsilon$$

The Jones model assumes that revenues are nondiscretionary. In reality, revenue growth is subject to manipulation through credit sales. To address this shortcoming, Dechow et al. (1995) develop the modified Jones model by eliminating the credit sales amount from the total revenue change. Similar to the Jones model, the modified Jones model (listed below) also uses the residuals to capture abnormal accruals.

$$TACC = b_0 + b_1 \times (1/TA) + b_2 \times (\Delta Sale - \Delta AR) + b_3 \times PPE + \varepsilon$$

Collins, Xie, and Zhu (2015) find that non-articulation captures information risk from accrual quality. In this case, discretionary accrual is included in this study to capture the earnings quality or the quality of the income statement.

Section 2.2.3 Classification Shifting

Research documents that managers misclassify core expenses as non-operating expenses (income-decreasing special items, discontinued operations, or research and development) to inflate reported core earnings. Classification shifting is an earnings management tool with relatively low costs, since it does not change bottom-line earnings but can increase pro forma earnings substantially. It is also possible to use classification shifting to impact standard balance sheet measures such as the current ratio and others.

Section 2.2.3.1 Classification Shifting Targeting Core Earnings

McVay (2006) finds that managers shift core expenses to income-decreasing special items to meet the analyst forecast earnings, since special items are excluded from both pro forma and analyst earnings definitions. McVay (2006) uses the following core earnings expectation model similar to the accrual model (Jones 1991) to derive the unexpected components of core earnings:

$$CE_t = b_0 + b_1 \times CE_{t-1} + b_2 \times ATO_t + b_3 \times ACCRUALS_{t-1} + b_4 \times ACCRUALS_t + b_5 \times \Delta Sale_t + b_6 \times NEG\Delta Sale_t + \varepsilon_t$$

McVay uses the difference between the reported core earnings and expected core earnings from the above model to estimate the unexpected core earnings (UE_CE). Next, she tests the classification shifting using the association between unexpected core earnings and income-decreasing special items using the following model:

$$UE\_CE_t = a_0 + a_1 \times \%SI_{t-1} + \varepsilon_t$$

Where %SI is income-decreasing special items scaled by sales (a positive special item corresponds to an income-decreasing special item, and income-increasing special items are set to zero). She finds that the unexpected core earnings have a positive association with income-decreasing special items, which supports the classification shifting expectation. In addition, McVay finds that the positive association between unexpected core earnings and income-decreasing special items tends to reverse in the following

period, which implies that the unexpected earnings are due to temporary earnings management and not due to the improved efficiency from the special items.

Fan et al. (2010) support the finding in McVay (2006) by using quarterly data. The positive relationship between unexpected core earnings and income-decreasing special items disappears when contemporaneous accruals are dropped from the McVey (2006) core earnings expectation model. Fan et al. (2010) improve the core earnings expectations model by excluding contemporaneous accruals to avoid the potential bias. The model is listed below:

$$CE_q = b_0 + b_1 \times CE_{q-4} + b_2 \times CE_{q-1} + b_3 \times ATO_q + b_4 \times ACCRUALS_{q-4} + b_5 \times ACCRUALS_{q-1} + b_6 \times \Delta Sale_q + b_7 \times NEG\Delta Sale_q + b_8 \times RETURNS_{q-1} + b_9 \times RETURNS_q + \varepsilon_q$$

Fan et al. (2010) find that classification shifting is more likely in the fourth quarter than in interim quarters. Their findings provide overall support for McVay (2006).

Both McVay (2006) and Fan, et al. (2010) measure classification shifting on the industry level. Athanasakou, Strong, and Walker (2011) capture classification shifting at the firm level. First, they follow McVay's (2006) core earnings expectation models to derive unexpected core earnings. Second, based on the classification expectation that core expenses are shifted to non-recurring items to increase core earnings, they capture classification shifting (CS=1) if firms' unexpected core earnings are positive and I/B/E/S earnings are higher than net income per share. Using this firm-level measure of classification shifting, Athanasakou, Strong, and Walker (2011) study the market reaction to firms meeting analysts' earnings expectations with expectation management or

earnings management, which includes real earnings management, accrual management, and classification shifting. They find that the market rewards the earnings management achievers more than expectation management achievers. Also, among different types of earnings management, the market rewards the classification shifting firms less than the other earning management firms. In general, firms achieve meeting analysts' forecasted earnings mainly by using classification shifting and expectations management.

Section 2.2.3.2 Classification Shifting Targeting Gross Margin

In addition to core earnings, there are other profitability benchmarks that the managers are paying attention to, for example, gross margin. Fan and Liu (2017) study the managers' choice between the cost of goods sold (COGS) and selling, general, and administrative expenses (SGA) to improve the gross margin. They find that managers misclassify COGS into special items when the reported gross margin has a small increase from four quarters ago. Besides, managers misclassify both COGS and SGA into special items when actual earnings just meet or beat analyst forecast in the fourth quarter.

Dao, Xu, and Pham (2018 working paper) find external auditors view income statement classification shifting as a reflection of managers' opportunism and charge higher audit fees. The results imply that auditors tend to be more conservative when auditing firms that have misclassifications. This study agrees with prior literature that managers have an incentive to manipulate earnings using classification shifting. On the other hand, managers could also use classification shifting to improve earnings persistence. Ha, and Thomas (2018) find that firms with classification shifting have a

higher earnings response coefficient than firms without classification shifting. Besides, firms are more likely to conduct classification shifting to increase earnings predictability when facing greater uncertainty. The results imply that classification shifting is not necessarily a bad thing and investors could possibly benefit from improved earnings persistence through classification shifting.

In contrast, Alfonso, Cheng, and Pan (2015) find that the market overprices core earnings when firms conduct income classification shifting. They find that (1) the market's expected earnings persistence is higher than the real earnings persistence for shifters; (2) core earnings are more negatively associated with future returns for shifters than for non-shifters.

The existing literature on classification shifting focuses on the income statement. The balance sheet is also subject to classification shifting since the current ratios and the debt to equity ratios are the important benchmarks in the debt covenant. Shi and Zhang (2001) note that non-standard classification among assets/liabilities is one reason for non-articulation. In this study, I will construct a measure for classification shifting on the balance sheet and examine the association between balance sheet classification shifting and non-articulation.

Section 2.2.4 Reporting Quality of the Balance Sheet

Previous research often focuses on earnings qualities; there are few studies that pay attention to the balance sheet. Just as managers try to meet or beat analysts' earnings

forecasts, studies find that managers have similar tendency to achieve benchmark financial ratios related to the balance sheet (Dyreng, Mayew, and Schipper 2017, Dichev and Skinner 2002, and Gaver and Paterson 2004). Specifically, managers are fully aware of the importance of current ratio as an indicator for firms' liquidity and have an incentive to avoid missing a benchmark (Lev 1969, Gramlich, McAnally, and Thomas 2001, and Dyreng, Mayew, and Schipper 2017).

Lev (1969) examines six financial ratios -- quick ratio, current ratio, equity to total debt, sales to inventory, sales to total assets, net operating income to total assets-- and finds that firms' financial ratios adjust toward the previous year's industry average. Specifically, the quick and current ratios exhibit the fastest and most significant adjustments toward industry averages when compared with other financial ratios. The findings support the argument that managers desire to adjust the firm's financial rations to industry-wide averages. Lev does not study the tools used by managers to adjust the financial ratios.

Similarly, Dyreng, Mayew, and Schipper (2017) argue that managers have loss avoidance behavior on the balance sheet and find that managers intervene in financial reporting to avoid reporting working capital deficits (current ratio less than 1). Their results show a discontinuity in the distribution of current ratios around 1.0. Specifically, there is an unexpectedly small (large) frequency of reported current ratios just below (above) 1.0. Further, they examine the discontinuity distribution of the current ratio in tight credit versus loose credit times since stakeholders have a higher interest in liquidity in tight credit times than that of loose credit times. They use the effective federal funds

rate to capture economy-wide credit conditions to avoid endogeneity arising from firm-specific credit conditions. They find that firms with higher federal funds rates exhibit a larger discontinuity in the distribution of current ratios than firms with lower federal funds rates. The limitation is that the researchers do not empirically examine which tool managers use to intervene in the financial reporting.

To address this limitation, Gramlich, McAnally, and Thomas (2001) conduct a case study to examine whether managers use classification shifting to adjust the financial ratios. Specifically, they study the classification shifting between short-term obligations and long-term debt on the balance sheet. They use hand-collected information from footnotes covering 197 firms (1,765 firm-years) over 1984 to 1994 to identify reclassification firms. They find that firms use classification shifting to smooth the current ratio toward levels reported in prior years and toward the industry average. Likewise, they find that firms with current ratio or working capital debt covenants are more likely to reclassify. Furthermore, the reclassifying firms are less likely to violate their covenants than other firms in the sample.

Gramlich, Mayew, and McAnally (2006) also use the hand-collected information from the footnotes and study the capital market consequences of debt reclassification. First, they develop a determinants model to explain debt reclassification. They find that firms with lower current ratios, lower long-term debt leverage, lower operating cash flows, and lower profitability are more likely to classify short-term obligations as long-term debt. Second, they examined the economic consequences of reclassification. They find that reclassification increases the likelihood of a subsequent debt-rating downgrade,

reduces future returns and market value. Despite the costs associated with classification shifting, public accounting firms confirm that they would recommend reclassification to clients facing debt-covenant violations. Overall, their finding implies that debt classification contains meaningful information to capital market participants.

The incentives behind managers intervening in balance sheet reporting include avoiding violating debt covenants (Dichev and Skinner 2002) and achieving government solvency targets (Gaver and Paterson 2004). Dichev and Skinner (2002) provide empirical evidence that managers do make accounting choices to meet or beat debt covenant thresholds. They mainly look at the current ratio and net worth covenants. But, they don't identify which tool managers use to manipulate these covenants. Dichev and Skinner (2002) examined only two of many possible debt covenants – the current ratio and net worth covenants since they lead to the most violations and are widely used and relatively well-defined. They find an unusually small number of firms with financial measures just below covenant threshold and an unusually substantial number of firms that just meet or beat covenant thresholds. They also find that debt covenant violations are common and that for most firms violations are not associated with financial distress. Besides, they find that leverage is a relatively poor proxy for closeness to covenants even though covenant slack and leverage are slightly correlated.

Gaver and Paterson (2004) show that insurance firms manage loss reserves on the balance sheet to pass the regulators' solvency assessment. The loss reserve is the insurance firm's estimated liability for unpaid claims on all losses that occurred before the balance sheet date. Since four violations would trigger regulatory intervention, firms

have an incentive to adjust loss reserves to reduce the reported number of violations to less than four. The results show that almost two-thirds of the firms that would violate four or more ratios successfully adjust reserves to avoid the regulatory intervention. Their finding implies that non-earnings goals are an important influence on discretionary accounting choice.

Unlike classification studies on the income statement, the classification studies related to the balance sheet are mainly based on the hand-collected data. At this point, there is no proxy to capture the balance sheet classification shifting. Following a similar procedure as the income statement classification-shifting measure (McVay 2006), I will develop a proxy for classification shifting on the balance sheet.

Section 2.3 Debt Covenants

Section 2.3.1 Debt Covenant Violation Consequences

The covenant hypothesis predicts that borrowers have an incentive to manipulate reported performance to avoid covenant violations if those violations impose costly actions on the borrower (Watts and Zimmerman 1986).

Studies have documented the possible costs associated with covenants violations. For example, many studies document higher renegotiated interest rates following a debt covenant violation (e.g., Beneish and Press 1993, 1995; Chen and Wei 1993; Smith 1993; Sweeney 1994; Dichev and Skinner 2002; Sufi 2009; DeAngelo, DeAngelo, and Wruck

2002). These studies reveal that a debt covenant violation is an important event and is viewed with concern by managers and shareholders.

Butt (2015) finds that violating firms on average have a higher cost of debt than non-violators and firms which report a violation in the bond-issue quarter have a higher cost of borrowing than firms not violating in the bond-issue quarter. In conclusion, the cost of violation is high, and firms attempt to avoid covenant violations. Other costly outcomes associated with violations include a decline in capital spending (Chava and Roberts 2008), accelerated renegotiations (Roberts and Sufi 2009b), the introduction of capital spending restrictions (Nini et al. 2009), reduction in shareholder payouts, and increase in CEO turnover (Nini et al. 2012). Gao, Khan, and Tan (2017) study the third-party costs of technical defaults. Even where there is low lender-imposed cost, firms still incur significant costs from violation through higher audit fees, stock return volatility, and bid-ask spreads.

Section 2.3.2 Debt Covenants and Earnings Management

Costs associated with the covenant violations provide an incentive for managers to conduct earnings management when loans are based on financial covenants. Studies find that the likelihood of accrual management increases when a firm is close to covenant violation (DeFond and Jiambalvo 1994; Dichev and Skinner 2002; Sweeney 1994).

Dichev and Skinner (2002) provide empirical evidence that managers do make accounting choices to meet or beat debt covenant thresholds. Kim, Lisic, and Pevzner

(2011) find that firms also engage in real earnings management to avoid debt covenant violations. More recently, Franz et al. (2014) show that firms with outstanding loans close to the violation or in technical default of the current ratio covenant engage in both accrual manipulation and real earnings management.

Different from these prior studies, Franz et al. (2018) focus on earnings management to avoid covenant violations through an alternative technique – classification shifting. They find that managers misclassify core earnings as income-decreasing special items to improve the financial covenants based on core earnings performance. Besides, classification shifting is greater for firms in financial distress (measured by Altman's Z-score and credit ratings). The results support classification shifting for firms that are closer to a violation of an EBITDA-related covenant.

These debt-related incentives apply to both mangers' reporting choice on earnings and the balance sheet. In this paper, I focus on non-articulation that reflects managers' classification choices between items on the balance sheet. Early studies assume non-articulation is mainly due to mechanical issues. However, it is not the case. In fact, balance sheet management, specifically classification shifting between current and long-term accounts, could be reflected by non-articulation.

Section 2.4 Operating Lifecycle Literature Review

Section 2.4.1 Operating Lifecycle and Information Content of Accounting Information

A firm's life cycle consists of the following stages: introduction, growth, maturity, and decline. (Quinn and Cameron 1983; Smith, Mitchell, and Summer 1985; Dickinson 2011).

Limited studies have explored how market price accounting information affects firms at different life-cycle stages (Antony and Ramesh 1992, Black 1998, Hribar and Yehuda 2006, and Hribar and Yehuda 2015).

Anthony and Ramesh (1992) compare the market reaction to sales growth and capital investment in the different life-cycle stages, which is measured using dividend payout, sales growth, and age. They find that the market reaction to sales growth and capital investment is declining from the growth stage to the mature stage. Also, they perform the validity check that the results are not driven by a firm size effect, risk differences, or measurement error in the proxies for performance measures.

Black (1998) examines the value-relevance of earnings and changes in operating, investing, and financing cash flows by life-cycle stage. Specifically, Black (1998) examines whether investing cash flows are more value-relevant when firms are in the growth stage. Studying firms within the same life-cycle helps to reduce the heterogeneity among different firms because a life-cycle stage captures a set of financial characteristics and strategies. Black (1998) predicts and finds that earnings and operating cash flows contain incremental information content in the growth, mature, and decline stages when a firm's assets in place are a major component of firm value. Further, he finds that financing cash flows are incrementally informative during the growth, mature, and decline stages; and investing cash flows are incrementally informative in all life-cycle

stages. These results provide limited support for market pricing and limited accounting information for firms under different life-cycle stages.

Hribar and Yehuda (2006) investigate the effect of the firm's life-cycle stage on the main determinants of the earnings-returns relation, finding that earnings persistence, profitability, cost of capital, and pricing of earnings vary across life-cycle stages. If the market's pricing of earnings changes across life-cycle stages, then the market's pricing of cash flows and accruals could be different under various life-cycle stages as well. Hribar and Yehuda (2015) try to explain the mixed findings in the prior literature on the market's mispricing of cash flows and accruals using life-cycle stages. They argue that cash flows and accruals contain different information at different life-cycle stages. Thus one could be more value relevant than the other under different stages of the firm's development. Hribar and Yehuda (2015) find the negative correlation between free cash flows and total accruals is weakest in the growth stage, which is in line with the changing role of accruals over the life cycle of the firm. Furthermore, they find that in the introductory and growth stages, accruals mispricing is not subsumed by cash flow mispricing, while in later life-cycle stages, accrual mispricing is subsumed by cash flow mispricing. These findings help to explain the overlap between accrual and cash flow anomalies. Non-articulation is relevant here as it can impact measurement of both accrual and cash flow estimates.

Section 2.4.2 Measurement of Operating Lifecycle

There are limitations in the proxies for life-cycles. To address these limitations, Dickinson (2011) develops a firm-level life cycle proxy based on the behavior of operating, investing, and financing cash flows across different life cycle stages. Dickinson (2011) posits that a firm's life cycle comprises distinct stages that are determined by internal factors, such as strategy choice, financial resources, and managerial ability, and external factors, such as competition and state of the economy. She argues that the cash flow pattern proxy better reflects the firms' profitability than other proxies, such as earnings, return on net operating assets, assets turnover, profit margin, sales revenue, leverage, dividend payout, firm size, and age. Also, the cash flow proxy developed by Dickinson (2011) contains an explanatory power for future profitability.

Section 2.4.3 Operating Lifecycle and Book-Tax-Differences

Using the firm's life-cycle-stage-proxy developed by Dickinson (2011), Drake (2015) provides a rationale for why book-tax differences are associated with persistence of earnings (see Hanlon 2005) and future earnings growth (Lev and Nissim 2004). Drake (2015) posits that firms engage in fundamentally different transactions in different life cycle stages, and this, in turn, results in different book-tax differences over the life cycle. As such, she predicts and finds that the prior results on book-tax differences, earnings persistence and growth are driven by the firm's life cycle. In a similar vein, I posit that the fundamental differences across the firm's life cycle stages provide differential ability/incentives for firms to engage in real-activity based management (e.g., cash flow

management) as well as cosmetic financial statement engineering. Both could lead to non-articulation.

Section 2.5 Analysts' Cash Flows Forecasting Literature Review

In recent years, there is an increasing trend for analysts to provide forecasts for operating cash flows. Studies document that the cash flow forecasts have increased from 1% of firms in 1993 to close to 60% in 2010 (Defond and Hung 2003, Givoly, et al. 2009, Mohanram 2014). DeFond and Hung (2003) find that analysts have incentives to make cash flow forecasts when earnings quality is low. They find the following determinants for analysts to forecast cash flows: (1) large accruals, (2) more heterogeneous accounting choices relative to their industry peers, (3) high earnings volatility, (4) high capital intensity, and (5) poor financial health. They argue that these determinants are in line with investors' demand of value-relevant information. The findings in DeFond and Hung (2003) imply the high information quality of analysts' cash flow forecasts.

Section 2.5.1 The Quality of Analysts' Cash Flows Forecasts

More recently, studies start to question the quality of analysts' cash flow forecasts and the models which analysts use to generate the cash flow forecasts. Givoly et al. (2009) compare the accuracy, bias, efficiency (dispersion), and intra-year improvement of analysts' cash flow forecasts with that of analysts' earnings forecasts. Their results show that the quality of analysts' cash flow forecasts is lower than that of earnings

forecasts. Besides, Givoly et al. (2009) explore the sophistication level of analysts' cash flow forecasts to try to explain the low quality of the cash flow forecasts. They examine whether the cash flow forecast is a naïve extension of earnings forecasts by merely excluding depreciation and amortization or a sophisticated estimation considering working capital accruals and other adjustments to income. To test the sophistication level, they regress forecasted cash flows on forecasted earnings, depreciation, working capital accruals, and other adjustments to income. The results support that analysts' cash flow forecasts are just a naïve extension of analysts' earnings forecasts by simply adding back the depreciation and amortization expenses. In general, Givoly et al. (2009) argue that cash flow forecasts provide limited incremental information above earnings forecasts.

Other studies disagree with the findings in Givoly et al. (2009). Call, et al. (2012) challenge the naïve cash flow model argued by Givoly et al. (2009) and state that the cash flow forecasting model not only adds back the depreciation but also adjusts for accruals. Call, et al. (2012) replicate the sophistication level tests in Givoly et al. (2009) and claim the results are not valid due to the discrepancies between data values reported in I/B/E/S and those reported in COMPUSTAT. Call, et al. (2012) derive the implied accrual forecasts from the difference between analysts cash flow forecasts and a naïve cash flow forecast (the analysts' earnings forecast plus depreciation and amortization expense). They find that the implied analyst's accrual forecasts match with the sign of actual accrual more than 70 percent of the time. In general, Call et al. (2012) argue that analysts' cash flow forecasts are sophisticated and provide meaningful information to investors.

Section 2.5.2 Incremental Information in Analysts' Cash Flows Forecasts

Another stream of studies also supports the improvement of the information environment after analysts issuing cash flow forecasts (DeFond and Hung 2007, Call et al. 2009, McInnis and Collins 2011, Mohanram 2014).

DeFond and Hung (2007) find analysts cash flows forecasts serve as investor protection. Based on demand and supply theory, they find that analysts are more likely to provide cash flow forecasts in countries with weak investor protection. Their findings contribute to the institutional determinants of analysts' forecasts activities.

Cash flow forecasts not only act as investor protection but also help analysts to better forecasts earnings. Call, et al. (2009) examine whether analysts cash flow forecasts help to improve the quality of their earnings forecasts. They find that (1) analysts' earnings forecasts issued together with cash flow forecasts are more accurate than those not accompanied by cash flow forecasts, and (2) analysts' earnings forecasts reflect a better understanding of the implications of current earnings for future earnings when they are accompanied by cash flow forecasts. These results suggest that analysts adopt a more structured and disciplined approach to forecasting earnings when they also issue cash flow forecasts.

Call, et al. (2012) argue that analysts provide implied forecasts for accrual by issuing both earnings forecasts and cash flow forecasts. In support of this argument, McInnis and Collins (2011) find that analysts' cash flow forecasts help to increase the costs for firms to manage earnings and improve the accrual quality. Since analysts' cash

flow forecasts increase the transparency and the costs of accrual management, they predict and find that firms turn to other benchmark-beating mechanisms, such as real activities manipulation and earnings guidance.

Also, analysts' cash flow forecasts help to reduce audit risk. Mao and Yu (2015) find that analysts' cash flow forecasts lead to reduced audit fees, audit report lags and reduced firm disclosures on internal control weakness. These results imply that cash flows forecasts help to improve earnings reporting quality and reduce inherent and control risk.

If analysts cash flow forecasts help to improve the information environment (Call et al. 2009, McInnis and Collins 2011), then the improved information environment could reduce the mispricing of accruals. The mispricing exists when the stock markets are unable to predict the lower persistence of accruals. Using both the earnings forecasts and cash flow forecasts investors could produce implied forecasted accruals which would help to reduce the likelihood of mispricing of accruals. Mohanram (2014) find that the increase in the analysts' supply of cash flow forecasts is in the same period of the decline of accrual anomaly (Green, Han, and Soliman 2011). Mohanram (2014) examines whether cash flow forecasts help to reduce the mispricing of accruals by controlling for trading turnover (Green, Han, and Soliman 2011) and the Sarbanes-Oxley Act (Bhojraj, Sengupta, and Zhang 2009). Mohanram (2014) find that even after controlling for prior identified reasons for the decline in accrual anomaly, analysts' cash flow forecasts still help investors to reduce the mispricing of accruals.

CHAPTER 3. HYPOTHESIS DEVELOPMENT

Section 3. Hypothesis Development

3.1 Hypothesis Relates to Balance Sheet Classification Shifting

Research has often focused on the quality of the income statement and documents that firms can manage earnings through accruals (e.g., Healy 1985; Jones 1991; Dechow, Sloan and Sweeny 1995), real activities (Roychowdhury 2006) and the misclassification of items within the income statement (McVey 2006; Fan et al. 2010). There is limited attention attributed to the quality of the balance sheet.

Just as managers try to meet or beat analysts' earnings forecasts, managers have a similar tendency to achieve financial ratio benchmarks based on the balance sheet (Dyreng, Mayew, and Schipper 2017, Dichev and Skinner 2002, and Gaver and Paterson 2004) since there are costs associated with missing the balance sheet related ratios. Often, debt covenants are based on balance sheet accounts to evaluate the liquidity level of a firm. Violation of balance-sheet-based debt covenants leads to increases in cost of debt (Butt 2015), introduction of capital spending restrictions (Nini et al. 2009), reduction in shareholder payouts and increases in CEO turnover (Nini et al. 2012), and higher audit fees, stock return volatility, and bid-ask spreads (Gao, Khan, and Tan 2017).

Dyreng, Mayew, and Schipper (2017) argue that managers have similar loss avoidance behavior on the balance sheet as to what they have on the income statement. Dyreng et al. (2017) find an unexpectedly small (large) frequency of reported current ratios just below (above) 1.0, which implies that managers intervene in financial reporting to avoid reporting working capital deficits (current ratios less than 1). These

findings support the argument that managers desire to adjust the firm's financial ratios to certain benchmarks. Specifically, managers are fully aware of the importance of the current ratio as an indicator for firms' liquidity and have an incentive to avoid missing a benchmark (Lev 1969, Gramlich, McAnally, and Thomas 2001, and Dyreng, Mayew, and Schipper 2017).

The above research lends credence to the idea that the classification of short-term versus long-term categories is a valid ratios management tool for managers. In this paper, I hypothesize that managers might intentionally misclassify assets and liabilities on the balance sheet. Specifically, I argue that managers classify current liabilities as long-term liabilities to improve financial ratios. Focusing on the ratios examined by Lev (1969), reducing short-term liabilities can help bump the current ratio without sacrificing the sales to inventory ratio. In this case, managers can avoid working capital deficits (Dyreng et al. 2017), meet or beat prior year's industry average (Lev 1969; Gramlich, et al. 2001), meet or beat debt covenant thresholds (Dichev and Skinner 2002), or achieve government solvency targets (Graver and Peterson 2004).

To document classification shifting on the balance sheet, I focus on the shifts in liabilities (classifying short-term as long-term liabilities). Many possible classifications shifts relate to the liability accounts. For example, managers can move short-term note payables into long-term note payables as they plan to postpone the due date. In addition, a survey performed by Gramlich, Mayew, and McAnally (2006) indicates that auditors do not view the classification shifting between current and long-term categories as a red flag,

and that auditors from public accounting firms would recommend reclassification to clients facing debt-covenant violations.

Studying the classification between current liabilities and long-term liabilities offers powerful tests for several reasons: First, current liabilities and long-term liabilities are identified and publicly available on Compustat; second, current liabilities serve as a component of several major financial ratios, for example, the current ratio and quick ratio. Moreover, the current ratio attracts attention from creditors (Butt 2015; Franz et al. 2014) and investors (Gramlich et al. 2006), since a current ratio of less than one indicates a company may have difficulty paying its short-term obligations (Dyreng et al. 2017). Therefore, managers have the incentive to achieve the benchmarks for crucial financial ratios related to the balance sheet. Third, managers have subjectivity over the classification of assets and liabilities. Also, classification shifting does not receive attention from the outside monitors (Gramlich, Mayew and McAnally 2006). It might not always be the case since managers could also shift long-term liabilities into current liabilities when the long-term liabilities are due within a year.

In this case, I expect firms to shift current liabilities into long-term liabilities to improve the current ratio. Further, shifting short-term into long-term liabilities is a convenient tool to improve the liquidity ratios (e.g., a current ratio) without sacrificing other efficiency ratios, for example, sales turnover ratio or inventory turnover ratio. The argument above leads to the first hypothesis:

> ***Hypothesis 1****: Managers classify more short-term liabilities as long-term liabilities when firms have working capital deficits.*

In particular, I expect classification to be more pervasive when the shifting allows managers to avoid a current ratio less than 1.0.

3.2 Hypotheses Relate to Classification Shifting and Non-articulation

3.2.1 Non-articulation and Balance Sheet Classification Shifting

Next, I study the association between classification shifting on the balance sheet and the non-articulation phenomenon. Studies find that non-articulation is associated with information uncertainty (Gong et al. 2014 and Collins et al. 2015). Zhang (2006) and Hirshleifer (2001) argue that both fundamental uncertainty and information quality contribute to the uncertainty of the information. I interpret the fundamental uncertainty from the systematic perspective of a firm, which could relate to the information complexity associated with the firm's structure or relate to the lack of sufficient public information. I interpret the information quality from the perspective of management choice, which could be associated with information asymmetry and reporting quality.

Studies find that firms' fundamental uncertainty leads to non-articulation. Hribar and Collins (2002) identify three major non-articulation events: (1) merger and acquisition, (2) discontinued operations, and (3) foreign currency translation. Later, Shi and Zhang (2011) exclude firm-years with the three major non-articulation events, but they still find that 60% of their sample does not articulate. In support with Shi and Zhang (2011), Chen, Mellessa, and Mergenthaler (2017) find that merger and acquisition, discontinued operations, and foreign currency translation only explain a small portion of

the non-articulation phenomenon, while special items, stock option expense, extreme growth, and operating performance help to explain a more substantial portion of the non-articulation.

Meanwhile, other studies relate non-articulation to information quality. Gong et al. (2014) find that signed non-articulation amounts are positively associated with signed abnormal operating cash flows, which is a proxy for cash flow management. Also, Collins et al. (2015) find that non-articulation is negatively associated with accrual quality, and auditors respond to the risk in the low accrual quality by increasing audit fees or issuing modified audit opinions.

Studies empirically examine and find a negative association between non-articulation and the reporting quality of the statement of cash flows and the income statement. I extend this line of research by including reporting quality of the balance sheet, specifically, classification shifting on the balance sheet. Studies have documented cases that the balance sheet classification shifting exists and could lead to non-articulation (Bahson et al. 1986 and, Shi and Zhang 2011), but there is no empirical evidence to document the impact on non-articulation from the balance sheet classification shifting.

Studies have found that managers have an incentive to meet or beat current ratio thresholds (Dichev and Skinner 2002, Franz et al. 2014), which can be achieved by multiple management tools. For example, earnings management, real activity management, or classification shifting within balance sheet items. Among those management tools, classification shifting carries the lowest costs (McVey 2006). Through

classification shifting, managers can manipulate the current ratio by shifting long-term assets into short-term assets or short-term liabilities into long-term liabilities. Eventually, the classification shifting that relates to balance sheet accounts will result in non-articulation to the corresponding accounting on the statement of cash flow (Bahson et al. 1986). In this case, I expect non-articulation to be positively associated with classification shifting. It might not be true if firms choose accrual management to improve the current ratio (Franz et al. 2014) or firms are in a healthy liquidity level. In this case, the association between classification shifting and non-articulation could be insignificant.

To examine the association between the balance sheet classification and non-articulation, I state my second hypothesis as follows:

> ***Hypothesis 2****: Balance sheet classification shifting contributes to the magnitude of non-articulation.*

3.2.2 Missing Critical Thresholds

I expect classification shifting to exist, especially when the costs of missing balance sheet related thresholds are high. Often in time, debt covenants are based on balance sheet accounts to evaluate the liquidity level of a firm. The costs associated with violating those debt covenants include an increase in the cost of debt, capital spending restrictions, CEO turnover, audit fees, stock return volatility, and bid-ask spreads (Butt 2015, Nini et al. 2009, Nini et al. 2012, Gao, Khan, and Tan 2017). Moreover, the current

ratio is an essential indicator of firms' liquidity level and one of the most commonly used debt covenants.

Managers have a similar loss avoidance behavior for working capital deficits as they have for earnings. A current ratio of 1.0 is a critical threshold that firms want to meet or beat (Dyreng et al. 2017). Shifting short-term into long-term liabilities is a convenient tool to improve the liquidity ratios (e.g., a current ratio) without sacrificing other efficiency ratios, for example, sales turnover ratio or inventory turnover ratio. Thus, I expect balance sheet classification shifting to have a stronger association with non-articulation when firms are under the working capital deficit. The above argument leads to Hypothesis 3:

> ***Hypothesis 3:*** *Non-articulation reflects more classification shifting when firms are under working capital deficits.*

3.2.3 Analyst Cash Flow Forecasts

DeFond and Hung (2003) find that analysts tend to forecast cash flows when earnings quality is low (large accruals, high earnings volatility, high capital intensity, and poor financial health) to satisfy investors' demand for useful information. The findings in DeFond and Hung (2003) imply the high information quality of analysts' cash flow forecasts. Other studies also support the improvement of information environment after analysts issuing cash flow forecasts (DeFond and Hung 2007, Call et al. 2009, McInnis and Collins 2011, Mohanram 2014).

Analysts' cash flow forecasts not only act as investor protection (DeFond and Hung 2007) but help analysts to better forecasts earnings (Call et al. 2009). Another way the analysts' cash flow forecasts help to improve the information environment is through the improved accrual quality. McInnis and Collins (2011) argue that analysts' cash flows forecasts implicitly imply a forecast of total operating accruals. In this case, analysts' cash flow forecasts increase the transparency of operating accruals and increase the costs of engaging in earnings management using accruals. McInnis and Collins (2011) find that managers will reduce the use of accrual management and turn to other benchmark-beating mechanisms, such as real activities manipulation and earnings guidance.

In general, studies conclude that analysts' cash flow forecasts help to improve both the earnings quality and accrual quality. Specifically, McInnis and Collins (2011) find that managers will shift from accrual management to real activities manipulation or earnings guidance when analysts start to provide cash flow forecasts. In that case, improved accrual quality will lead to a weaker association between discretionary accrual and non-articulation. I expect the association between accrual quality and non-articulation to decrease when analysts provide cash flows forecasts.

Hypothesis 4*: The ability for accrual quality to explain non-articulation decreases when analysts provide both earnings and cash flows forecasts.*

Overall, my hypotheses are about developing a measure of the balance sheet classification shifting, which is later related to non-articulation to study whether non-articulation captures managers' accounting choices on the balance sheet, specifically, classification shifting between short-term and long-term liability accounts.

CHAPTER 4: METHODOLOGY

4.1 Classification Shifting Test

Hypothesis 1 predicts that managers shift more short-term liabilities into long-term liabilities when firms are under working capital deficits. In order to test that, I first obtain the unexpected change in short-term and long-term liabilities in order to capture the non-operating activities related to the corresponding accounts. The unexpected changes are calculated as the difference between real changes and expected changes (from expectation models below).

4.1.1 Developing Classification Shifting Measure

To obtain the unexpected change in current liabilities, I first obtain the expected normal change in current liabilities through the current liability's expectation model. I construct the following expectation models for current liabilities based on existing classification shifting literature (e.g., McVay 2006; Fan and Liu 2017).

$$\Delta CL_t = b_0 + b_1 \times CL_{t-1} + b_2 \times \Delta CL_{t-1} + b_3 \times CA_{t-1} + b_4 \times \Delta CA_t + b_5 \times ACCRUAL_{t-1} + b_6 \times GROW_t + \varepsilon \quad (1)$$

A similar expectation model applies to long-term liabilities. The difference between real change and expected change in long-term liabilities gives the unexpected change in long-term liabilities.

$$\Delta LTL_t = b_0 + b_1 \times LTL_{t-1} + b_2 \times \Delta LTL_{t-1} + b_3 \times LTA_{t-1} + b_4 \times \Delta LTA_t + b_5 \times ACCRUAL_{t-1} + b_6 \times GROW_t + \varepsilon \quad (2)$$

I estimate expectation models (1) and (2) by each two-digit SIC code industry and year combinations. The predicted values of equation (1) are a normal change in current liabilities, and the difference between reported current liabilities and expected current liabilities is an unexpected change in current liabilities (UE_ΔCL). The predicted values of Equation (2) are a normal change in long-term liabilities, and the difference between reported long-term liabilities and expected long-term liabilities is an unexpected change in long-term liabilities (UE_ΔLTL).

The rationale of the control variables included in the expectation models is as follows. In the current liabilities' expectation model (1), I include lagged current liabilities (CL_{t-1}), since the change in current liabilities is a function of the beginning current liabilities (with a correlation of -2%). The second control variable is the change in prior year current liabilities (ΔCL_{t-1}) since the change in current liabilities tend to be persistent (the correlation between this year and prior year change in current liabilities is -2%). The third control variable is prior year current assets (CA_{t-1}) and change in current assets (ΔCA_t) since firms need to borrow money to obtain more current assets. The correlation between ΔCL_t and CA_{t-1} is 44% and between ΔCL_t and ΔCA_t is 12%. The fourth control variable is prior year total accruals ($ACCRUAL_{t-1}$) to eliminate the changes in balance sheet accounts due to accrual management. The last control variable is firm growth ($GROW_t$). Working capital varies with firm growth (Bushman et al. 2012), so I expect firms' growth ($GROW_t$) to affect the increase or decrease in current liabilities.

Similarly, I include control variables related to change in long-term liabilities in the expectation model (2). Lagged long-term liabilities (LTL_{t-1}) and the change in prior

year long-term liabilities (ΔLTL_{t-1}) are included based on the persistent nature of long-term liabilities. Next, I include long-term assets (LTA_{t-1}) and change in current year long-term assets (ΔLTA_t) since firms invest in long-term assets through issuing debt or equity. Then, I include prior year total accruals ($ACCRUAL_{t-1}$) to eliminate the changes in balance sheet accounts due to accrual management. The last control variable is firm growth ($GROW_t$). Leverage is associated with firm growth (Lang et al. 1994), so I expect a firm's growth ($GROW_t$) to affect the increase or decrease in long-term liabilities.

Following prior studies, I scale all continuous variables by beginning with total assets. I use the residual from model (1) to proxy for the unexpected change in current liabilities (UE_ΔCL). Similarly, the proxy for the unexpected change in long-term liabilities (UE_ΔLTL) is the residual from the model (2). Managers have an incentive to shift current liabilities to long-term liabilities to improve the current ratio. In this case, classification shifting predicts a negative relation between unexpected negative change in current liabilities and the unexpected change in long-term liabilities.

The expectation models mentioned above detect classification shifting at an industry level. To obtain a firm level indicator for reclassification (CS), I follow a similar process as Athanasakou, Strong, and Walker (2011). I define "reclassification" as the practice of including some short-term obligations in the long-term liability section of the balance sheet according to Gramlich, McAnally, and Thomas (2001). Based on the reclassification expectation, I capture reclassification (CS=1) if firms' unexpected changes in current liabilities (UE_ΔCL) are negative while unexpected changes in long-term liabilities (UE_ΔLTL) are positive (otherwise, CS=0).

The underlying support for this proxy is based on managers' motivation to avoid working capital deficiencies (e.g., Dyreng, et al. 2017). Working capital deficiencies attract attention from creditors (Butt 2015; Franz et al. 2014), and investors (Gramlich et al. 2006) since a current ratio of less than one indicates a company may have difficulty paying its short-term obligations. Dyreng et al. (2017) find an unexpectedly small (large) frequency of reported current ratios below (above) 1.0, which implies that managers intervene in financial reporting to avoid reporting working capital deficits (current ratios less than 1).

The current ratio not only serves as an indicator for working capital deficiencies but also frequently appears in the debt covenant. There are costs associated with covenant violations, for example, higher renegotiated interest rates (e.g., Dichev and Skinner 2002, Sufi 2009, DeAngelo, DeAngelo, and Wruck 2002), accelerated renegotiations (Roberts and Sufi 2009b), introduction of capital spending restrictions (Nini et al. 2009), reduction in shareholder payouts, and increase in CEO turnover (Nini et al. 2012). These studies reveal that a debt covenant violation is an important event and is viewed with concern by managers and shareholders alike. In this case, managers do have incentives to adjust the balance sheet and related financial ratios; classification shifting is one of the tools to achieve that end.

4.1.2 Examine Classification Shifting Expectation

Hypothesis 1 predicts that managers shift current liabilities to long-term liabilities when firms have working capital deficits. Dyreng et al. (2017) find evidence to support

that managers try to avoid a working capital deficit (current ratio less than 1). Their result shows an unexpectedly small frequency of reported current ratios just below 1.0, and an unexpectedly large frequency reported current ratios just above 1.0. Based on the argument that managers have the same loss avoidance behavior for the balance sheet as they have for the income statement (Dyreng, et al. 2017), I expect managers to use classification shifting to improve the current ratio when the firms are facing a working capital deficit. To test this expectation, I estimate the following regression:

$$UE\_\Delta CL_t = b_0 + b_1 \times UE\_\Delta LTL_t + b_2 \times DEF_{t-1} + b_3 \times DEF_{t-1} \times UE\_\Delta LTL_t + YearEffects + IndustryEffects + \varepsilon_t \quad (3)$$

where working capital deficiency (DEF) equals one when the current ratio is less than one; otherwise, DEF equals to zero. UE_ΔCL is an unexpected change in current liabilities in year t and UE_ΔLTL is an unexpected change in long-term liabilities in year t. The unexpected change is the difference between reported and predicted change in current liabilities and change in long-term liabilities, respectively, where the predicted values are calculated using the coefficients from model (1) and (2) above, estimated by fiscal year and industry. Classification shifting predicts that an unexpected decrease in current liabilities is associated with an unexpected increase in long-term liabilities. In this case, the main interest here is the negative unexpected change in current liabilities and its association with a positive unexpected change in long-term liabilities. The coefficient of ($DEF_{t-1} \times UE\_\Delta LTL_t$) is expected to be negative if managers shift current liabilities into long-term liabilities when facing a working capital deficit.

First, I use the full sample of all the Compustat firms. Since I only expect a decrease in current liabilities to associate with classification shifting, I don't have a directional expectation for the result based on the full sample. Second, I consider the firms with an unexpected negative change in current liabilities, which is the sample that I expect to find the evidence for classification shifting. Third, I consider the sample with an unexpected positive change in current liabilities. If the unexpected increase in current liabilities is due to the unexpected growth of the firm, I would expect both current liabilities and long-term liabilities increase to support the expanding productions. If the unexpected increase in current liabilities is due to classification shifting from long-term liabilities, I would expect a negative association between UE_ΔCL and UE_ΔLTL when firms are under working capital deficits. In this case, I do not have a directional expectation for the sample of unexpected positive changes in current liabilities. As an additional validity check, I also split the full sample into subsample with only unexpected positive change in long-term liabilities and subsample with only an unexpected negative change in long-term liabilities.

4.1.3 Validity Check of the Classification Shifting

Finally, I perform a validity check of the classification shifting measure using possible determinants. First, I expect that firms that conducted classification shifting in the prior year are more likely to conduct classification shifting in the future. Thus, I include prior year classification indicator (CS_{t-1}) as one determinant. Second, I expect that firms with a lower current ratio in the prior year ($CURRENT_{t-1}$) are more likely to

conduct classification shifting in the current year. Third, hypothesis 2 predicts that firms that have a working capital deficit (DEF_t) are more likely to conduct classification shifting. Fourth, I expect firms with higher operating cash (OCF_t) on hand to have less incentive to conduct classification shifting. Fifth, I expect that firms close to bankruptcy ($ZSCORE_t$) are more likely to make a classification shift. Finally, I expect firms with analysts providing both earnings and cash flow forecasts are more likely to conduct classification shifting since analysts' cash flow forecasts ($ANACF_t$) indirectly improve the accrual quality and increase the costs for accrual management. Thus, firms will shift to classification shifting when the costs for accrual management increase. To test these determinants, I estimate the following probit regression:

$$CS_t = b_0 + b_1 \times DEF_{t-1} + b_2 \times CS_{t-1} + b_3 \times CURRENT_{t-1} + b_4 \times OCF_t + b_5 \times ZSCORE_t + b_6 \times ANACF_t + \varepsilon_t \quad (4)$$

, where reclassification (CS) is equal to one when $UE\_\Delta CL_t$ is negative and $UE\_\Delta LTL_t$ is positive. Otherwise, CS is equal to zero.

I use working capital deficiencies (DEF) and the Altman Z-Score (ZSCORE) to capture a firm's financial distress. Working capital deficit (DEF) is a dummy variable, which is equal to one when the current ratio is less than one. Otherwise, DEF is equal to zero. Meanwhile, the Z-Score (Altman 1968) is calculated as follows:

$Z\text{-}Score = 1.2 \times A + 1.4 \times B + 3.3 \times C + 0.6 \times D + 1.0 \times E$, where

A = Working capital/total assets

B = Retained earnings/total assets

C = Earnings before interest and taxes (EBIT)/total assets

D = Market value of equity/book value of total liabilities

E = Sales/total assets

The lower of Z-Score, the more likely that a firm will experience bankruptcy (higher financial distress).

4.2 Non-articulation Related Test

The balance sheet classification shifting measure (CS) developed above enables me to perform the testing for hypotheses (2) to (4), which study the association between non-articulation and balance sheet classification shifting, and how the association changes under a different information environment.

4.2.1 Non-articulation and Balance Sheet Classification Shifting

To investigate the extent (if any) to which balance sheet classification shifting influences the magnitude of non-articulation (Hypothesis 2), I estimate an industry and year fixed effects model in which I regress measures of non-articulation on reporting quality measures and control for identified normal corporation activities as follows (subscripts suppressed; see Appendix A for detailed variable descriptions):

$$\begin{aligned}|NONART| = {} & \alpha_1 + \alpha_1 \times MA + \alpha_2 \times DISOP + \alpha_3 \times FC + \alpha_4 \times SPI + \alpha_5 \times COMP + \alpha_6 \times PPE \\ & + \alpha_7 \times SIZE + \alpha_8 \times BTM + \alpha_9 \times ROA + \alpha_{10} \times |ROA| + \alpha_{11} \times LEV \\ & + \alpha_{12} \times GROW + \alpha_{13} \times |GROW| + \alpha_{14} \times |DACC| + \alpha_{15} \times |DOCF| \\ & + \alpha_{16} \times CS + YearEffects + IndustryEffects + \varepsilon \end{aligned} \quad (5)$$

The variable of interest in model (5) is the balance sheet classification shifting (CS), which is a dummy variable that is equal to one when an unexpected change in current liabilities is a negative and unexpected change in long-term liabilities is positive; otherwise, CS is equal to zero.

I follow Hribar and Collins (2002) to measure the non-articulating accruals (|NONART|) related to working capital accounts. Basically, |NONART| captures the difference between the balance sheet-based (ACC_{bs}) and the statement of cash flow-based (ACC_{cf}) accruals. I define ACC_{bs} as the accruals estimated from the balance sheet approach and ACC_{cf} as the accruals estimated from the cash flow approach. The detailed calculation for ACC_{bs} and ACC_{cf} are as follows:

$$ACC_{bs} = ((\Delta CA - \Delta CASH) - (\Delta CL - \Delta STDEBT) - DEP) / TA_{t-1} \quad (6)$$

Where ΔCA = the change in current assets in year t (ACT); ΔCash = the change in cash and cash equivalent in year t (CHE); ΔCL = the change in current liabilities in year t (LCT); ΔSTDEBT = the change in debt in current liabilities in year t (DLC); DEP = depreciation and amortization expense in year t (DP). All variables are deflated by beginning total assets (TA_{t-1}).

$$ACC_{cf} = - (CHGAR_{cf} + CHGINV_{cf} + CHGAP_{cf} + CHGTAX_{cf} + CHGOTH_{cf} + DEP_{cf}) / TA_{t-1} \quad (7)$$

Where $CHGAR_{cf}$ = the decrease (increase) in accounts receivable (RECCH); $CHGINV_{cf}$ = the decrease (increase) in inventories (INVCH); $CHGAP_{cf}$ = the increase (decrease) in accounts payable and accrued liabilities (APALCH); $CHGTAX_{cf}$ = the increase

(decrease) in taxes payable (TXACH); $CHGOTH_{cf}$ = the net change in other assets and liabilities (AOLOCH); DEP_{cf} =depreciation and amortization expense on the statement of cash flows (DPC). All variables are deflated by beginning total assets (TA_{t-1}). Since positive $CHGAR_{cf}$ (RECCH) indicates a decrease in AR, (-1*$CHGAR_{cf}$) gives the corresponding change in accruals. The same logic applies to the rest cash flows accounts.

I define absolute value of non-articulation amounts (|NONART|) as the absolute value of the difference between ACC_{bs} and ACC_{cf}.

$$|NONART| = |ACC_{bs} - ACC_{cf}| \quad (8)$$

For control variables, I include indicator variables for merger and acquisition (MA), discontinued operations (DISOP), and foreign currency translations (FC) to capture normal corporation events, according to Hribar and Collins (2002). MA is equal to one when the firm-year contains a merger or acquisition (measured by the Compustat annual footnote item AQP), otherwise it is zero. DISOP is equal to one when the firm-year contains discontinued operations greater than $10,000 (measured by Compustat data item XIDOC), otherwise, it is zero. FC equals to one when the firm-year contains foreign currency gains or losses (measured by Compustat annual data item FCA); otherwise, it is zero (Hribar and Collins 2002).

In addition, I follow Chen, Melessa and Mergenthaler (2017) to include special items (SPI), such as employee compensation expenses (COMP), capital intensity (PPE), firm size (SIZE), book to market (BTM), return on assets and its absolute value (ROA and |ROA|), leverage (LEV), growth and its absolute value (GROW and |GROW|) as controls. Chen, et al. (2017) state that special items (SPI) affect the magnitude of

NONART since it includes numerous items such as goodwill impairments and gains and losses on the sales of assets and investments. Capital intensity (PPE) and stock compensation (COMP) are included as depreciation, and deferred compensation affects deferred tax expense and therefore NONART. Growth and its absolute value (GROW and |GROW|) are included since working capital accounts naturally vary with firm growth (Bushman et al. 2012). ROA and |ROA| could be associated with items such as net operating losses and non-operating gains or losses which would affect the magnitudes of non-articulation in tax and other accounts. SIZE and LEV could be associated with the amount of amortization of depreciation.

Except for the firm operation activities mentioned above, studies find the reporting quality of earnings (Collins et al. 2015) and that of operating cash flows (Gong et al. 2014) also contributes to the magnitude of non-articulation. In this case, I include discretionary accruals (DACC) based on Dechow et al. (1995) and abnormal cash flows (ABOCF) based on Lee (2012) as reporting quality controls. Since the dependent variables are in absolute value, abnormal cash flows (ABOCF) and discretionary accruals (DACC) are both measured in absolute values. I measure discretionary accrual (DACC) using Modified Jones model (Dechow et al. 1995).

$$TACC = b_0 + b_1 \times (1/TA) + b_2 \times (\Delta Sale - \Delta AR) + b_3 \times PPE + \varepsilon \quad (9)$$

Where ΔSALE is the change in sales divided by TA_{t-1} and PPE is gross property plant and equipment divided by TA_{t-1}. Hribar and Collins (2002) document the measurement error of the modified Jones models caused by non-articulation. I address this issue by measuring TACC and ΔAR based on the statement of cash flows (Hribar and Collins

2002). TACC is the total accruals divided by lagged total assets (TA_{t-1}), where the total accruals are the difference between earnings before extraordinary items and discontinued operations (EBXI) and the reported operating cash flows (OANCF). ΔAR is the change in accounts receivables from the statement of cash flows divided by TAt-1. I estimate Equation (9) with industry fixed effects and year fixed effects included. The predicted values of Equation (9) are non-discretionary accruals, and the residuals are discretionary accruals (DACC).

Following Lee (2012), I use abnormal operating cash flow (ABOCF) to proxy for cash flow management. Lee (2012) adopts the modified Jones model (Dechow et al. 1995) to generate the abnormal operating cash flow. He regresses total operating cash flow on long-term assets and sales revenue, then uses the residual from the model to capture abnormal operating cash flows. See the detailed model below:

$$OCF = b_0 + b_1 \times (1/TA) + b_2 \times Sale + b_3 \times \Delta Sale + \varepsilon \quad (10)$$

Where OCF is operating cash flows divided by lagged total assets (TA_{t-1}), SALE is sales divided by TA_{t-1}, and ΔSALE is the change in sales divided by TA_{t-1}. I estimate Equation (10) in each two-digit SIC code industry and year combination. The predicted values of Equation (10) are normal OCF, and the residuals are discretionary OCF (DOCF).

4.2.2 Cross-section Study of Non-articulation and Balance Sheet Classification Shifting

Next, I examine how the explanatory power of the balance sheet reporting quality changes when firms are missing a critical threshold. Studies argue that firms have incentives to avoid working capital deficits and meet industry averages. Classification shifting is one of the tools to help firms achieve these goals. To test whether the association between non-articulation and balance sheet classification shifting is affected when firms are under deficits (Hypothesis 3), I estimate the following regression:

$$\begin{aligned}|NONART| = {} & \alpha_1 + \alpha_1 \times MA + \alpha_2 \times DISOP + \alpha_3 \times FC + \alpha_4 \times SPI + \alpha_5 \times COMP + \alpha_6 \times PPE \\ & + \alpha_7 \times SIZE + \alpha_8 \times BTM + \alpha_9 \times ROA + \alpha_{10} \times |ROA| + \alpha_{11} \times LEV \\ & + \alpha_{12} \times GROW + \alpha_{13} \times |GROW| + \alpha_{14} \times |DACC| + \alpha_{15} \times |DOCF| \\ & + \alpha_{16} \times CS + \alpha_{17} \times DEF + \alpha_{18} \times DEF \times |DOCF| + \alpha_{19} \times DEF \times |DACC| \\ & + \alpha_{20} \times DEF \times CS + YearEffects + IndustryEffects + \varepsilon \qquad (11)\end{aligned}$$

Where deficiencies (DEF) equals to one when a firm's current ratio is 1.0, otherwise, DEF equals to zero. Then DEF interacts with absolute abnormal operating cash flows (|DOCF|), absolute discretionary accruals (|DACC|), and classification shifting (CS). Hypothesis 3 predicts a positive coefficient of the interaction term DEFxCS.

Hypothesis (4) predicts that the accrual quality will have less contribution to the magnitude of |NONART| when analysts provide both earnings forecasts and cash flow forecasts. To test whether the three reporting qualities determinants are affected differently when the external information environment improves (analysts provide cash flow forecasts), I estimate the following regression:

$$
\begin{aligned}
|NONART| = {} & \alpha_1 + \alpha_1 \times MA + \alpha_2 \times DISOP + \alpha_3 \times FC + \alpha_4 \times SPI + \alpha_5 \times COMP + \alpha_6 \times PPE \\
& + \alpha_7 \times SIZE + \alpha_8 \times BTM + \alpha_9 \times ROA + \alpha_{10} \times |ROA| + \alpha_{11} \times LEV \\
& + \alpha_{12} \times GROW + \alpha_{13} \times |GROW| + \alpha_{14} \times |DACC| + \alpha_{15} \times |DOCF| \\
& + \alpha_{16} \times CS + \alpha_{17} \times ANACF + \alpha_{18} \times ANACF \times |DOCF| \\
& + \alpha_{19} \times ANACF \times |DACC| + \alpha_{20} \times ANACF \times CS \\
& + YearEffects + IndustryEffects + \varepsilon \qquad (12)
\end{aligned}
$$

, where ANACF equals to one when analysts provide both earnings and cash flow forecasts; otherwise ANACF is equal to zero. Hypothesis 4 predicts a negative coefficient of the interaction term ANACFx|DACC|.

CHAPTER 5. DATA and SAMPLE DESCRIPTION

Section 5.1. Sample Selection

I obtain financial statement data from the Compustat Industrial Annual File and stock prices from CRSP. I eliminate observations lacking data necessary to calculate dependent variables, explanatory variables of interest, and required control variables. I exclude firm-year observations in the financial industry since the financial industry has a unique way to report the cash flows. I also eliminate observations before 1989 since the cash flow data only becomes available after 1988. The sample selection procedure generates a final full sample of 60,897 firm-years covering the period from 1989 to 2015. Within each year, I winsorize the dependent variables and main independent variables at the top and bottom 0.5 percent of the sample distribution.

I report the distribution by the calendar year in Table 1 for the 60,897 total firm-year observations. The fewest number of firms, just over 2.31 percent, is in 1989, which could be due to the lack of cash flow data in the early years. The yearly sample is held steady at around 2 to 4 percent of the total sample observations. I also report the sample distribution by industry in Table 1 for industries with more than 2% of total observations. The highest number of firms (12.36%) is in the computer industry. All the industries with less than 2% of total observations are grouped into “Others.”

-- INSERT TABLE 1 ABOUT HERE –

Section 5.2. Sample Descriptions

Table 2 reports descriptive statistics for 50,013 sample observations. Panel A reports the main variables related to classification testing and panel B reports the main variables related to non-articulation testing. Concerning the dependent variables for classification testing, the mean (median) value for the unexpected change in current liabilities ($UE\_\Delta CL_t$) is 0.01 (0.00), which means on average firms experience an unexpected increase in current liabilities around 1% of total assets. The mean (median) value for classification shifting (CS_t) is 0.19 (0), which indicates that 19% of the firm-years are identified with classification shifting on the balance sheet and the majority of the firm-years do not have classification shifting. The mean (median) value for the second measure of classification shifting (CS'_t) is 0.07 (0), which implies that only 7% of the firm-years have a large decrease in $UE\_\Delta CL_t$ while a substantial increase in $UE\_\Delta LTL_t$ at the same time.

Among the independent variables for classification testing, DEF_t (working capital deficiency) and $ANACF_t$ (analysts providing cash flow forecasts) are both dummy variables. In this case, the mean value for those dummy variables stands for the percentage of sample observations equal to one. For example, DEF_t has a mean value of 0.10 which means 10% of the firm-year observations are identified with a working capital deficiency; $ANACF_t$ has a mean value of 0.19 which means 19% of the firm-year observations have analysts' cash flow forecasts available. $ZSCORE_t$ (Altman's Z-score) and $CURRENT_{t-1}$ (current ratio) are continuous variables. The higher the $ZSCORE_t$, the less likely that a firm will go bankrupt. The mean of $ZSCORE_t$ and $CURRENT_{t-1}$ are 2.80 and 2.81 respectively, which shows that the average firms in the sample are financially sound.

Concerning the dependent variables for non-articulation testing, the mean value for $|NONART|_t$ is 0.04, which means on average firms have non-articulation around 4% of total assets. Among the independent variables, MA_t (merger and acquisition), $DISOP_t$ (discontinued operations), and FC_t (foreign currency exchange) are all dummy variables. The mean of MA_t is 0.12 which implies that 12% of the observations have merger and acquisition; the mean of $DISOP_t$ is 0.14 which implies that 14% of the observations have discontinued operations, and the mean of FC_t is 0.12 which implies that 12% of the firm-years have foreign currency above 0.01 million. The rest of the control variables in Table 2 Panel B are continuous variables.

-- INSERT TABLE 2 ABOUT HERE –

Table 3 presents the Pearson correlation coefficients for the variables in our models. The primary concern here is the potential for harmful collinearity among the independent variables. The highest correlation between the independent variables is 0.85 between $|GROW|_t$ and $GROW_t$. To address the concern of the high correlation, I perform the testing with and without $|GROW|_t$ and the results stay similar. The main variables of interest are non-articulation ($|NONART|_t$) and classification shifting (CS_t). Table 3 shows that $|NONART|_t$ has a significantly positive association with absolute discretionary accrual ($|DACC|_t$), absolute discretionary cash flows ($|DOCF|_t$), and slightly significantly positive association with classification shifting (CS_t). Also, $|NONART|_t$ has a significantly negative association with analysts' cash flows forecasts ($ANACF_t$) and working capital deficiency (DEF_{t-1}). The correlation between CS_t and leverage (LEV_t) is 0.22, which implies that higher leveraged firms are more likely to conduct classification

shifting on the balance sheet. Overall, Table 3 suggests that collinearity is likely not a problem in the data.

-- INSERT TABLE 3 ABOUT HERE –

CHAPTER 6. EMPIRICAL RESULTS

Section 6.1. Generating Unexpected Change in Current and Long-term Liabilities

Models (1) and (2) are estimated by year and by industry to obtain the expectation for normal changes in current liabilities and long-term liabilities. There are total of 298 industry-year regressions. Table 4 reports the average regression results for the model of expected change in current liabilities and change in long-term liabilities. The average adjusted R^2 is 36% for the model (1) and 39% for the model (2).

-- INSERT TABLE 4 ABOUT HERE –

According to Table 4, prior-year current liabilities (CL_{t-1}) and change in prior-year current liabilities (ΔCL_{t-1}) are on average negatively associated with a change in current liabilities (ΔCL_t) with a mean coefficient of -0.0828 and -0.0556 respectively. Prior-year current assets (CA_{t-1}) and change in prior-year current assets (ΔCA_{t-1}) are on average positively associated with a change in current liabilities (ΔCL_t) with a coefficient of 0.1581 and 0.0576 respectively, which supports the expectation that firms borrow short-term debt to acquire current assets. Prior-year accrual ($ACCRUAL_{t-1}$) is positively associated with changes in current liabilities (ΔCL_t) but not significantly associated with changes in long-term liabilities (ΔLTL_t), which controls for the influence of accrual management. Growth ($GROW_t$) is positively associated with a change in current liabilities (ΔCL_t) with a coefficient of 0.444 and slightly significantly associated with the change in long-term liabilities (ΔLTL_t). This supports the finding from Bushman et al. (2012) that working capital accounts naturally vary with firm growth. Prior-year long-

term liabilities (LTL_{t-1}) is negatively associated with ΔLTL_t with a coefficient of -0.0838. The association between prior-year and current-year change in long-term liabilities is insignificant. Prior-year long-term assets (LTA_{t-1}) and change in prior-year long-term assets (ΔLTA_{t-1}) are positively associated with a change in long-term liabilities (ΔLTL_t) with a coefficient of 0.3084 and 0.0898 respectively, which supports the expectation that firms borrow long-term debt to acquire capital assets.

An unexpected change in current liabilities ($UE\_\Delta CL_t$) and an unexpected change in long-term liabilities ($UE\_\Delta LTL_t$) are the differences between reported and predicted change in current liabilities and change in long-term liabilities, respectively. Table 2 reports the descriptive statistics for $UE\_\Delta CL_t$ and $UE\_\Delta LTL_t$. Table 3 shows the correlation[4]. It is worth noticing that unexpected long-term liabilities ($UE\_\Delta LTL_t$) and unexpected current liabilities ($UE\_\Delta CL_t$) are insignificantly correlated, which implies that the classification shifting is not commonly in existence for the majority of the firms.

Section 6.2. Test Results of the Balance Sheet Classification Shifting

Hypothesis 1 predicts that managers classify more short-term liabilities as long-term liabilities when firms are under working capital deficits. To test these hypotheses, I consider four samples to test: (1) full sample with signed unexpected current liabilities;

[4] The association between change in current liabilities (ΔCL_t) and unexpected change in current liabilities ($UE\_\Delta CL_t$) is 0.75, and the correlation between change in long-term liabilities (ΔLTL_t) and unexpected change in long-term liabilities ($UE\_\Delta LTL_t$) is 0.81. This positive association potentially confounds many classification studies since both partitions (discretionary and non-discretionary) are expected to be correlated in the same direction with the variable of interest.

(2) full sample with negative unexpected current liabilities, and all positive unexpected current liabilities are set to be zeros; (3) those firms with negative unexpected current liabilities; (4) those firms with positive unexpected current liabilities. The regression results, using the sample (1), are reported in Table 5. The results using the samples (3) and (2) are reported in Table 6 panel A and panel B, respectively. The results for the sample (4) are reported in Table 7.

-- INSERT TABLE 5 ABOUT HERE –

Hypothesis 1 is tested using model (3). In Table 5, the first column shows the reduced model (3) and the second column shows the result of the full model (3). The variable of interest is DEF_{t-1}*$UE\_\Delta LTL_t$. In the second column, the coefficients for prior-year deficiency (DEF_{t-1}) and the interaction term between DEF_{t-1} and $UE\_\Delta LTL_t$ are both significantly negative with -0.0084 and -0.1116 respectively. It shows that firms with working capital deficiencies are trying to reduce their current liabilities and shifting the current liabilities into long-term liabilities is one way to achieve that.

Next, I study whether the behavior of the firms with negative unexpected current liabilities and positive unexpected current liabilities are different. If firms shift current liabilities to long-term liabilities to improve the current ratio, I would expect a negative unexpected current liability. In this case, I do not form any expectation for positive unexpected current liabilities. Table 6 below reports the results for the firms with negative unexpected current liabilities only.

-- INSERT TABLE 6 ABOUT HERE –

Table 6 panel A reports the regression results using 23,644 firm-year observations with only negative $UE\_\Delta CL_t$, while panel B reports the regression results using the full sample with all the positive $UE\_\Delta CL_t$ set to be zeros. For both panels A and B, the second column reports the result of the model (3).

In Table 6 panel A, the coefficient for the interaction term DEF_{t-1}*$UE\_\Delta LTL_t$ is significantly negative at -0.1048, which implies that firms shifted current liabilities into long-term liabilities when they were not financially sound in the prior year.

In Table 6 panel B, I only focus on the observations with negative $UE\_\Delta CL_t$ since the classification shifting is expected to happen when there is an unexpected decrease in current liabilities. The dependent variable in Table 6 panel B is censored to the left, which means that only unexpected negative liabilities are in continuous value and positive unexpected liabilities are set to zeros. The Tobit regression is used to address the bias associated with the censored data. The Likelihood Ratio (LR) Chi-Square test implies that at least one of the predictors' regression coefficient is not equal to zero, which is also supported by the P-value.

In Table 6 panel B, the coefficient of the interaction DEF_{t-1}*$UE\_\Delta LTL_t$ is (-0.1091), which indicates that firms in working capital deficiency experience additional 0.1091 units decrease in latent $UE\_\Delta CL_t$ with one unit increase in $UE\_\Delta LTL_t$. These results imply that firms under working capital deficiency are more likely to shift current liabilities into long-term liabilities. Next, I estimate the marginal effect of the Tobit regression. The marginal coefficient of the interaction DEF_{t-1}*$UE\_\Delta LTL_t$ is (-0.0523), which indicates that firms in working capital deficiency experience additional 0.0523

units decrease in actual UE_ΔCL_t with one unit increase in UE_ΔLTL_t. These results also support that firms under working capital deficiency are more likely to shift current liabilities into long-term liabilities.

Next, I will study the behavior of the firms with an unexpected increase in current liabilities. On average, I do not expect classification shifting for this group. Further, I do not expect firms to shift long-term liabilities into current liabilities when their current ratios are less than one. Table 7 below reports the results for the firms with positive unexpected current liabilities only.

-- INSERT TABLE 7 ABOUT HERE –

Table 7 reports the regression results using 26,369 firm-year observations with only positive UE_ΔCL_t. The second column reports the result of the model (3). The coefficients of UE_ΔLTL_t are either positive or insignificant across all models, which implies that firms tend to increase current liabilities and long-term liabilities at the same time and seldom shift long-term liabilities into current liabilities. I examine possible classification shifting when firms are under working capital deficits in the second column. The interaction term in the model (3) is insignificant for the sample with the positive UE_ΔCL_t, which implies that firms are seldom shifting long-term liabilities into current liabilities when their liquidity level is low.

Results in Table 8 serve as a validity check. I split the full sample into observations with only positive unexpected change in long-term liabilities (panel A) and those with only negative unexpected change in long-term liabilities (panel B). For the sample with only positive UE_ΔLTL_t, the coefficient of DEF_{t-1}*UE_ΔLTL_t is

significantly negative at (-0.1510) and the combined coefficient of DEF_{t-1}*$UE\_\Delta LTL_t$ and $UE\_\Delta LTL_t$ is also significantly negative at 0.0581 (0.0929-0.1510), which implies that firms shift current liabilities into long-term liabilities when under a working capital deficit. For the sample with only negative $UE\_\Delta LTL_t$, the coefficient of DEF_{t-1}*$UE\_\Delta LTL_t$ is insignificant, and the combined coefficient of DEF_{t-1}*$UE\_\Delta LTL_t$ and $UE\_\Delta LTL_t$ is also insignificant at 0.6647 (-0.0143+0.6790) which implies that firms will not shift long-term liabilities into current liabilities when under a working capital deficit.

-- INSERT TABLE 8 ABOUT HERE –

In general, the results from Table 5 to 8 support the hypothesis that firms shift current liabilities into long-term liabilities when they are under working capital deficits. Next, I build a measure for classification shifting (CS_t), which equals to one when there is an unexpected decrease in current liabilities (negative $UE\_\Delta CL_t$) with a corresponding unexpected increase in long-term liabilities (positive $UE\_\Delta LTL_t$). Table 9 reports the distribution of classification shifting (CS_t) identified for each year and industry.

-- INSERT TABLE 9 ABOUT HERE –

According to Table 8, about 11%-30% of firms are identified with classification shifting each year from 1989 to 2015. The lowest year is 1997 and the highest year is 2013 with 11% and 30.1% of firms identified with classification shifting, respectively. There is a slightly increasing trend observed from 1989 to 2015 for firms conducting classification shifting. The possible explanation could be the improved information transparency and increase costs for firms to conduct accrual management. Thus, firms turn to some tools, like classification shifting, which are less likely to be detected. The

percentage of firms identified with classification shifting in each industry is sorted in descending order. The highest industries are Coal (38.2%) and Mining (37.6%). Natural resource industries might be more sensitive to debt covenants since they are capital intensive.

Section 6.3. Determinants of the Balance Sheet Classification Shifting

Next, I perform a validity check of the classification shifting measure using possible determinants. Table 10 reports the results of the probit regression (model 4) that tests the determinants of reclassification decision.

-- INSERT TABLE 10 ABOUT HERE –

The coefficient of DEF_{t-1} is 0.078 and positively significant. The positive coefficient of DEF_{t-1} implies that firms with low liquidity are more likely to have classification shifting. Prior year reclassification choice (CS_{t-1}) is positively associated with current year reclassification choice with a coefficient of 0.1064, which shows that firms have certain persistency with their reclassification choice. The coefficient of the prior year current ratio ($CURRENT_{t-1}$) is significantly negative (z-score=-7.56), which supports that firms have a lower current ratio in last year are more likely to have reclassification this year. Operating cash flows (OCF_t) and bankruptcy likelihood ($ZSCORE_t$) are negatively associated with reclassification choice at -0.6700 and -0.0451 respectively, which implies that firms with sound financial health are less likely to conduct classification shifting. Finally, the coefficients of analysts' cash flows forecasts

($ANACF_t$) are positive and significant at 0.2526. This supports my expectation that firms will choose reclassification when analysts provide both earnings and cash flows forecasts.

As a supplementary test, I create a second measure of balance sheet classification shifting (CS'_t), which equals to one when an unexpected decrease in current liabilities is below mean and unexpected increase in long-term liabilities is above mean. I test the determinants with the second measure of classification shifting (CS'_t). The results are presented in table 11.

-- INSERT TABLE 11 ABOUT HERE –

Table 11 shows that the coefficient for each independent variable is in the same direction as the predicted sign, which conforms with the results in table 10.

Section 6.4. Non-articulation and Classification Shifting on the Balance Sheet

Hypothesis 2 predicts that the balance sheet classification shifting increases the magnitude of non-articulation, which has been tested under model (5). Regression results for model (5) are presented in table 12 and significance levels are determined based on standard errors that are clustered at the firm level. I include industry and year fixed effects in all empirical models to ensure that the results are not driven by industry-specific factors. Table 12 presents both the reduced versions and the full version of model (5). The first three columns separately regress absolute non-articulation ($|NONART|_t$) on absolute discretionary accrual ($|DACC|_t$), absolute discretionary operating cash flows

($|DOCF|_t$) or classification shifting (CS_t). In the fourth to sixth columns, $|NONART|_t$ is individually regressed on $|DACC|_t$, $|DOCF|_t$ or CS_t with firm fundamental control variables included. Results of the full model (5) are reported in the last column.

-- INSERT TABLE 12 ABOUT HERE –

R-squared values range from about 4.69 percent to about 8.23 percent. The main variable of interests is the classification shifting on the balance sheet (CS_t). In column (1), the coefficient on CS_t is positive (0.0038) and significant at the 0.01 level. After including the firm fundamental controls in column (2), the coefficient on CS_t is still significant at 0.01 level and positive with 0.0021. Finally, after controlling for $|DACC|_t$, $|DOCF|_t$ and firm fundamental variables in column (3), the coefficient on CS_t slightly decreases to 0.0019 and becomes significant at 0.05 level. The positive and significant coefficients of CS_t support the hypothesis that non-articulation carries information about classification shifting on the balance sheet.

The coefficients on $|DACC|_t$ are positive and significant ($p<0.01$) with or without including control variables, $|DOCF|_t$, and CS_t. The positive coefficients on $|DACC|_t$ support the finding in Collins, Xie, and Zhu (2015) that non-articulation captures information risk from accrual quality. The coefficient on $|DOCF|_t$ is positive and significant at 0.01 level without including any control variable. Then the coefficient on $|DOCF|_t$ becomes insignificant after including the firm fundamental controls and both $|DACC|_t$, and CS_t, which implies that non-articulation mainly captures the reporting quality of the income statement and the balance sheet but not that of the statement of cash flows. The insignificant coefficient on $|DOCF|_t$ challenges the argument from Gong et al.

(2014) that non-articulation carries information about cash flow management. One explanation could be that Gong et al. (2014) do not include most of the firm fundamental controls which could be associated with both discretional operating cash flows and non-articulation, for example, discontinued operations, special items, and employee compensations. Also, Gong et al. (2014) do not consider the classification shifting between the cash flow categories which could lead to both non-articulation and discretionary operating cash flows.

Among the firm fundamental control variables, special items (SPI_t) and employee stock compensation ($COMP_t$) contribute the most to the magnitude of non-articulation. Special items contain gain or losses from sales of assets or investment, which leads to non-articulation in assets account, and differed stock compensation could affect the non-articulation in tax accounts. Firm size ($SIZE_t$) is negatively associated with $|NONART|_t$, which implies that smaller firms tend to have a higher magnitude of non-articulation. The coefficients on non-articulation events MA and DISOP are significantly positive at least at the 0.05 level, while FC is not significant across, which shows that merger acquisition and discontinued operations contribute more to the magnitude of non-articulation than that of foreign currency exchanges.

As a validity check, I also measure classification shifting using CS'_t. Table 13 shows that balance sheet classification shifting (CS'_t) is significantly positive across all three columns, which supports the findings in table 12.

-- INSERT TABLE 13 ABOUT HERE –

In summary, the results from table 12 and table 13 suggest that balance sheet classification shifting (CS_t) increases the magnitude of non-articulation (hypothesis 2). Non-articulation is the product of both normal corporation events, firm fundamentals, and financial reporting quality. Among reporting qualities, non-articulation mainly captures the reporting quality of the income statement ($|DACC|_t$) and the balance sheet (CS_t). Classification shifting (CS_t) carries incremental information on non-articulation over that of accrual quality ($|DACC|_t$).

Section 6.5. Cross-sectional Study of the Association between Non-articulation and the Classification Shifting on the Balance Sheet

Table 14 reports the testing results of models (11) and (12), which test the hypotheses (3) and (4) respectively. Table 14 shows the cross-sectional results relating to the association between non-articulation and the three reporting quality measures -- accrual quality, cash flow quality, and classification shifting on the balance sheet. Table 14 below presents the regression results for the models (11) and (12) in column (1) and (2), respectively.

-- INSERT TABLE 14 ABOUT HERE –

In table 14 column (1), only discretionary accruals ($|DACC|_t$) are positively associated with non-articulation ($|NONART|_t$) when firms do not have a working capital deficiency. For the firms with working capital deficiency, $|DACC|_t$ has a similar association with $|NONART|_t$ as firms without working capital deficiency, but classification shifting (CS_t) and discretionary operating cash flows ($|DOCF|_t$) have a

higher contribution to $|NONART|_t$ than firms without working capital deficiency. I conduct an f-test to validate the coefficients for firms with working capital deficiency. The coefficient on $|DACC|_t$ is 0.0302 (0.0384 – 0.0082), the coefficient on $|DOCF|_t$ is 0.0321 (-0.0015 + 0.0336), and the coefficient on CS_t is 0.0077 (0.0005 + 0.0072), which are all significant at 0.01 level for firms with working capital deficiency. In general, the results in column (1) imply that the balance sheet classification shifting contributes to the magnitude of non-articulation only when firms are under working capital deficits which support hypothesis 3.

Column (2) of table 14 includes the interaction terms between analysts' cash flows forecasts indicator ($ANACF_t$) and the three reporting quality measures. The results show that analysts' cash flows forecasts have no impact on the association between $|NONART|_t$ and $|DOCF|_t$, and slightly reduce the association between $|NONART|_t$, and CS_t, but significantly reduce the association between $|NONART|_t$ and $|DACC|_t$. Then I combine the coefficients of the reporting quality measures and their corresponding interaction term to derive the coefficient for firms with analysts providing both earnings and cash flows forecasts. Based on the f-test, the combined coefficient on $|DACC|_t$ is significant (f-stat=52.34) and positive with 0.0282 (0.0498-0.0216), and the combined coefficient on $|DOCF|_t$, and CS_t are insignificant for firms with analysts providing both earnings and cash flows forecasts. In general, the results in column (2) support the expectation that analysts cash flows forecasts help to reduce information asymmetry on accruals and increase the costs of accrual management. In this case, I observe that the contribution to $|NONART|_t$ from $|DACC|_t$ decreases when analysts provide both earnings and cash flows forecasts. I do not observe any impact on classification shifting choice

from analysts' cash flows forecasts. It seems that whether or not analysts provide cash flows forecasts, CS_t and $|NONART|_t$ have a positive association at 0.05 significance level. In general, column (2) supports the prediction of hypothesis 4 that the association between accrual quality and non-articulation decreases when analysts provide both earnings and cash flows forecasts.

As a validity check, I perform the cross-sectional analysis again using the second measure of classification shifting (CS'_t), which captures more extreme cases in the balance sheet classification shifting activities. The results are presented in table 15.

-- INSERT TABLE 15 ABOUT HERE –

The results in table 15 are similar to those presented in table 14, except for the following differences. In table 15 column (1), the more extreme case of classification shifting (CS'_t) is significantly positively associated with non-articulation for both firms with or without working capital deficits. Classification shifting (CS'_t) only has a slightly incremental contribution to non-articulation when firms are under a working capital deficit. The combined coefficient of CS'_t for firms under working capital deficit is 0.0135 (0.0073+0.0062) which is significant at 0.01 level. In general, the results in column (1) supports the prediction in hypothesis 3 that the balance sheet classification shifting contributes to the magnitude of non-articulation when firms are under working capital deficits.

Results in column (2) of table 15 are similar to that of table 14 except for the interaction term between analysts' cash flows forecasts ($ANACF_t$) and classification shifting (CS'_t). The results show that analysts' cash flows forecasts have a significant

impact on the association between $|NONART|_t$ and CS'_t, and the association between $|NONART|_t$ and $|DACC|_t$. I combine the coefficients of CS'_t and $|DACC|_t$ and their corresponding interaction term to derive the coefficient for firms with analysts providing both earnings and cash flows forecasts. The combined coefficient on CS'_t is significant and positive with 0.0040 (0.0089-0.0049) which is lower than the coefficient (0.0089) for firms with a healthy financial condition. The negative coefficient for the interaction term $ANACF_{t-1}*CS'_t$ implies that analysts cash flows forecasts help to reduce the extreme amount of classification shifting on the balance sheet, thus reduce the association between CS'_t and $|NONART|_t$. The impact of $ANACF_t$ on accrual quality is similar to that of table 14.

In general, the results in column (2) support the expectation that analysts cash flows forecasts help to reduce information asymmetry on accruals and increase the costs of accrual management. In general, column (2) supports the prediction of hypothesis 4 that the association between accrual quality and non-articulation decreases when analysts provide both earnings and cash flows forecasts. Also, analysts' cash flow forecasts improve the information environment and help to reduce the extreme amount of balance sheet classification shifting, which also reduces the association between CS'_t and $|NONART|_t$.

CHAPTER 7. CONCLUSION

This paper analyzes the association between non-articulation and the reporting quality of the balance sheet, specifically focusing on classification shifting within balance sheet items.

The first part of this paper examines the classification of items within the balance sheet. I examine classification shifting between current liabilities and long-term liabilities since the current ratio is easily affected by that behavior. Following the income statement classification shifting literature, I develop expectation models for changes in current liabilities and changes in long-term liabilities. Then, unexpected changes in current liabilities and unexpected changes in long-term liabilities are obtained from the residuals of the corresponding expectation models. Next, I examine the association between unexpected change in current liabilities and unexpected change in long-term liabilities to document the evidence of classification shifting between them.

The second part of this paper examines the association between the balance sheet classification shifting and the magnitude of non-articulation. Prior studies relate non-articulation to the quality of the income statement and the statement of the cash flows. In this paper, I complete the picture by linking non-articulation to the quality of the balance sheet. This paper provides an overall study of the determinants for non-articulation with a focus on the balance sheet classification shifting. I regress the magnitude of non-articulation on the classification shifting, accrual quality, cash flow quality, and other firm fundamental controls. Further, I examine how the firm's financial

environment and external information environment affect the association between non-articulation and the classification shifting on the balance sheet.

Overall, I find that: (1) unexpected current liabilities are decreasing with increased unexpected long-term liabilities when a firm is under a working capital deficit, which supports the classification shifting expectations; (2) balance sheet classification shifting contributes to the magnitude of non-articulation; (3) the association between non-articulation and balance sheet classification shifting is stronger when firms are under working capital deficits; (4) the association between non-articulation and balance sheet classification shifting is weaker when analysts provide both earnings and cash flows forecasts. Overall, these findings imply that non-articulation reflects financial statement users' judgement, including accounting choices on the balance sheet. Early studies expect that the existence of non-articulation is mainly due to mechanical reasons, however, it is not the case. Balance sheet management, for example shifting between current and long-term items, leads to non-articulation and the magnitude is statistically significant. The association between non-articulation and financial statement reporting quality suggests that non-articulation should be signaling, rather than something confusing. In this case, FASB should require items generating non-articulation in disclosure.

There are multiple avenues for future research. First, the measure of balance sheet classification shifting relies on the imperfect expectation models, which can be further improved by future studies. Second, the classification shifting between current liabilities and long-term liabilities is not the only way to influence the current ratio. Change in asset accounts can also have a significant impact on balance sheet related

ratios. Third, the explanatory power of the determinants model for non-articulation is still low, which implies non-articulation is still a black box for future studies to explore.

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APPENDIX

APPENDIX A

Example of Non-articulation:

ABC firm has recognized $50 credit sales at the beginning of the year -

Accounts Receivable	50	
Sales Revenue		50

Later, ABC firm decides that $20 of the long-term notes receivables will be collected within this year. In this case, ABC firm moves the $20 long-term notes receivables into accounts receivables -

Accounts Receivable	20	
Long-term Notes Receivable		20

The two journal entries above lead to $70 increase in accounts receivables on the balance sheet, while only $50 increase in accounts receivables will be shown on the statement of cash flows. In this case, the non-articulation amount for accounts receivables is $20, which is due to the non-operating activities in the operating account (accounts receivables).

APPENDIX B

Notation and Definitions of Variables

ACCRUAL=	Total accruals are calculated as income before extraordinary items (Compustat IBC) minus operating cash flows (Compustat OANCF) plus extraordinary items and discontinued operations (Compustat XIDOC) All components are divided by total assets (Compustat AT) at previous fiscal year end (t-1).
ANACF =	Analysts cash flow forecasts dummy, which equals to one if analysts provide cash flow forecast for a firm in year t. Otherwise, ANACF equals to zero.
ANACF×CS =	Interaction term between ANACF and CS. See ANACF and CS for detail.
ANACF×|DACC| =	Interaction term between ANACF and |DACC|. See ANACF and |DACC| for detail.
ANACF×|DOCF| =	Interaction term between ANACF and |DOCF|. See ANACF and |DOCF| for detail.
BTM =	Book to market ratio = (total asset (Compustat AT) - total liability (Compustat LT)) / (common shares outstanding (Compustat CSHO) *price per share (Compustat PRC))
CA =	Total current assets (Compustat ACT) in year t deflated by total assets (Compustat AT) in the year (t-1).
ΔCA =	Change in total current assets (Compustat ACT) in year t deflated by total assets (Compustat AT) in the year (t-1).
CL =	Total current liabilities (Compustat LCT) year t deflated by total assets (Compustat AT) in the year (t-1).
ΔCL =	Change in total current liabilities (Compustat LCT) in year t deflated by total assets (Compustat AT) in the year (t-1).
COMP =	Stock compensation expenses (Compustat STKCO) deflated by prior year total assets (Compustat AT).
CS =	Classification shifting dummy, which equals to one when there is an unexpected decrease in current liabilities and an unexpected increase in long-term liabilities in the same year. Otherwise, CS equals to zero.
CS' =	Classification shifting dummy, which equals to one when unexpected decrease in current liabilities are below mean and an unexpected increase in long-term liabilities are above mean in the same year. Otherwise, CS' equals to zero.
CURRENT =	The current ratio is calculated as total current assets (ACT) divided by total current liabilities (LCT) in year t.
|DACC| =	The absolute value of discretionary accruals which is estimated using modified Jones model.
DEF =	Deficiency dummy, which equals to one when firms' current ratio in year t is less than 1.0. Otherwise, DEF equals to zero.
DEF×CS =	The interaction term between DEF and CS. See DEF and CS for detail.
DEF×|DACC| =	The interaction term between DEF and DACC. See DEF and |DACC| for detail.
DEF×|DOCF| =	Interaction term between DEF and DOCF. See DEF and |DOCF| for detail.

Continued to next page

APPENDIX B (continued)

DEF×UELTL =	The interaction term between DEF and UELTL. See DEF and UELTL for detail.
DISOP =	Discontinued operating equals to one if discontinued operation expenses (Compustat XIDOC) are not zero or missing. Otherwise, DISC equals to zero.
|DOCF| =	The absolute value of discretionary operating cash flows which is estimated using the residuals from the normal operating cash flows expectation model based on Lee (2012).
FC =	Foreign currency equals to one if foreign currency (Compustat FCA) is higher than 0.01 million. Otherwise, FC equals to zero.
GROW =	Growth for a firm which is measured using change in sales (Compustat SALE) from prior year divided by prior year total sales (Compustat SALE).
|GROW| =	The absolute value of GROW. See GROW for detail.
LEV =	Firm's total long-term debt (Compustat DLC + Compustat DLTT) divided by total assets (Compustat AT) at previous fiscal year end (t-1).
LTA =	Long-term assets are calculated as total assets (Compustat AT) minus total current assets (Compustat ACT) in year t. All components are deflated by total assets (Compustat AT) at a previous fiscal year (t-1).
ΔLTA =	Change in long-term assets (see LTA for detail) in year t deflated by total assets (Compustat AT) in year t-1.
LTL =	Long-term liabilities are calculated as total liabilities (Compustat LT) minus total current liabilities (Compustat LCT) in year t. All components are deflated by total assets (Compustat AT) at a previous fiscal year (t-1).
ΔLTL =	Change in long-term liabilities (see LTL for detail) in year t deflated by total assets (Compustat AT) in year t-1.
MA =	Merger and acquisitions equal to one if indicated in food note (Compustat AQP is not zero). Otherwise, MA equals to zero.
|NONART| =	Absolute non-articulation amounts = $\|ACC_{bs} - ACC_{cf}\|$. ACC_{bs} (accruals estimated using the balance sheet approach) = (ΔCA – ΔCASH) – (ΔCL – ΔSTDEBT) – DEP and ACC_{cf} = – ($CHGAR_{cf}$ + $CHGINV_{cf}$ + $CHGAP_{cf}$ + $CHGTAX_{cf}$ + CHGTAXcf + $CHGOTH_{cf}$) – DEP_{cf}, where ΔCA = the change in current assets in year t (Compustat mnemonic: ACT); ΔCASH = the change in cash and cash equivalent in year t (CHE); ΔCL = the change in current liabilities in year t (LCT); ΔSTDEBT = the change in debt in current liabilities in year t (DLC); DEP = depreciation and amortization expense in year t (DP); $CHGAR_{cf}$ = the decrease (increase) in accounts receivable (RECCH); $CHGINV_{cf}$ = the decrease (increase) in inventories (INVCH); $CHGAP_{cf}$ = the increase (decrease) in accounts payable and accrued liabilities (APALCH); $CHGTAX_{cf}$ = the increase (decrease) in taxes payable (TXACH); $CHGOTH_{cf}$ = the net change in other assets and liabilities (AOLOCH); and DEP_{cf} = depreciation and amortization expense on the statement of cash flows (DPC). All variables are deflated by prior year total assets (AT).
OCF =	Operating cash flows (Compustat OANCF) deflated by prior year total assets (Compustat AT).
PPE =	Property, plant, and equipment at the end of year t (Compustat PPENT) deflated by total assets at the end of the year (t-1) (Compustat AT).

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APPENDIX B (continued)

ROA =	Return on assets, which is income before extraordinary items in year t (Compustat IB) divided by total assets at the end of the year (t-1) (Compustat AT).
|ROA|=	The absolute value of ROA. See ROA for detail.
SIZE =	The natural logarithm of firm's total assets (Compustat AT) in year t.
SPI =	The special item (Compustat SPI) is deflated by prior year total assets (Compustat AT).
UE_ΔCL =	An unexpected change in current liabilities is the difference between the reported change and the expected change in current liabilities in year t estimated from the current liabilities expectation model. It is calculated using the residuals from the current liabilities expectation model.
UE_ΔLTL =	An unexpected change in long-term liabilities is the difference between the reported change and the expected change in long-term liabilities in year t estimated from the long-term liabilities expectation model. It is calculated using the residuals from the long-term liabilities expectation model.
ZSCORE =	Altman's Z-score = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E, where A is working capital divided by total assets; B is retained earnings divided by total assets; C is earnings before interest and taxes (EBIT) divided by total assets; D is market value of equity divided by book value of total liabilities; and E is sales divided by total assets

TABLES

Table 1 - Sample Distribution

Panel A: Sample Distribution by Year			Panel B: Sample Distribution by Industry		
Year	**Freq.**	**Percent**	**Industries**	**Freq.**	**Percent**
1989	1,106	2.31	Business Services	6,597	13.19
1990	1,263	2.78	Chips	4,293	8.58
1991	1,318	2.89	Retail	3,875	7.75
1992	1,419	3.16	Oil	2,773	5.54
1993	1,600	3.46	Computers	2,711	5.42
1994	1,764	3.81	Wholesale	2,144	4.29
1995	1,846	4.01	Machinery	2,076	4.15
1996	1,974	4.21	Med Equipment	1,921	3.84
1997	2,094	4.46	Drug	1,829	3.66
1998	2,045	4.30	Communication	1,682	3.36
1999	1,831	3.90	Transportation	1,319	2.64
2000	1,762	3.74	Lab Equipment	1,300	2.60
2001	1,807	3.81	Chemicals	1,287	2.57
2002	1,812	3.79	Meals	1,121	2.24
2003	1,906	3.88	Autos	1,050	2.10
2004	1,970	3.92	Steel	1,025	2.05
2005	2,012	3.99	Food	1,014	2.03
2006	2,007	4.03	Building Material	1,001	2.00
2007	2,054	4.07	Others	10,995	21.99
2008	2,019	3.99			
2009	1,977	3.81			
2010	1,924	3.64			
2011	2,114	3.63			
2012	2,100	3.61			
2013	2,119	3.63			
2014	2,084	3.61			
2015	2,086	3.57			
Total	50,013	100	Total	50,013	100

Note: Table 1 outlines the sample distribution by year and industry. Panel A lists the number and the percentage of observations in each year. Panel B lists the number and percentage of observations in each industry.

Table 2 - Descriptive statistics

Panel A - Descriptive statistics for classification testing related variables						
Variable	n	Mean	S.D.	Min	Mdn	Max
$UE\_\Delta CL_t$	50,013	0.01	0.11	-2.92	0.00	2.84
$UE\_\Delta LTL_t$	50,013	0.01	0.15	-1.59	-0.01	2.59
$CURRENT_{t-1}$	49,240	2.81	2.52	0.00	2.12	61.69
OCF_t	50,013	0.09	0.13	-0.67	0.10	0.53
CS_t	50,013	0.19	0.39	0	0	1
CS'_t	50,013	0.07	0.25	0	0	1
DEF_{t-1}	49,235	0.10	0.29	0	0	1
$ANACF_t$	50,013	0.19	0.39	0	0	1
$ZSCORE_t$	50,013	2.80	2.38	-10.02	2.71	14.44
Panel B - Descriptive statistics for non-articulation testing related variables						
$\|NONART\|_t$	50,013	0.04	0.07	0.00	0.02	0.55
MA_t	50,013	0.12	0.32	0	0	1
$DISOP_t$	50,013	0.14	0.35	0	0	1
FC_t	50,013	0.12	0.33	0	0	1
SPI_t	50,013	-0.02	0.05	-0.56	0.00	0.20
$COMP_t$	50,013	0.01	0.01	0.00	0.00	0.14
PPE_t	50,013	0.32	0.28	0.01	0.24	1.71
$SIZE_t$	50,013	6.37	1.83	1.97	6.22	12.17
BTM_t	50,013	0.57	0.50	-1.89	0.46	6.06
ROA_t	50,013	0.03	0.14	-1.21	0.05	0.45
$\|ROA\|_t$	50,013	0.11	0.15	0.00	0.07	8.91
LEV_t	50,013	0.21	0.20	0.00	0.18	1.03
$\|DACC\|_t$	50,013	0.10	0.12	0.00	0.06	1.20
$\|DOCF\|_t$	50,013	0.13	0.12	0.00	0.09	0.87
$GROW_t$	50,013	0.16	0.32	-0.64	0.10	3.64
$\|GROW\|_t$	50,013	0.23	0.28	0.00	0.14	3.64

Note: Table 2 reports the mean, standard deviation, median, minimum, and maximum for the variables used in the empirical analyses. The full sample consists of 49,225 firm-years from 1989 to 2015.
Variables are defined as follows:
ΔLTL is the change in long-term liabilities from the beginning of the year;
LTL is the year-end total long-term liabilities;
ΔLTA is the change in long-term assets from the beginning of the year;
LTA is the year-end long-term assets;
UE_ΔCL is the unexpected change in current liabilities;
UE_ΔLTL is the unexpected change in long-term liabilities;
CURRENT is the current ratio;
OCF is the reported operating cash flows;
CS is the indicator variable if firms are identified with possible classification activity;
CS' is the indicator variable if firms are identified with higher likelihood of classification activity;
DEF is the indicator variable for firms with working capital deficiency;
ANACF is the indicator variable for analysts providing cash flows forecasts;
ZSCORE is the Altman's Z-score;
|NONART| is the absolute value of non-articulation amounts relate to working capital;
MA is the indicator for merger and acquisition;
DISOP is the indicator for discontinued operations;
FC is the indicator for foreign currency transactions;

Table 2 - Continued

SPI is the special items;
COMP is the employee stock compensations;
PPE is the property, plant, and equipment;
SIZE is the natural logarithm of firm's net sales;
BTM is the book to market ratio;
ROA is the return on assets;
|ROA| is the absolute value of the return on assets;
LEV is the firm's total long-term debt divided by beginning total assets;
|DACC| is the absolute value of discretionary accruals based on the modified Jone's model;
|DOCF| is the absolute value of discretionary operating cash flows;
GROW is the firm growth measured by the percentage change in sales;
|GROW| is the absolute value of firm growth;
All the earnings-related non-ratio variables are deflated by prior year total assets (AT). See Appendix B for detailed variable definitions**.**

Table 3 - Pearson's Correlation Matrix (n = 50,013)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1)	$UE\_\Delta CL_t$	1.00										
(2)	$UE\_\Delta LTL_t$	-0.01	1.00									
(3)	$\|NONART\|_t$	0.07***	0.07***	1.00								
(4)	CS_t	-0.33***	0.31***	0.01*	1.00							
(5)	$\|DACC\|_t$	0.06***	0.07***	0.10***	0.04***	1.00						
(6)	$\|DOCF\|_t$	0.06***	0.04***	0.04***	-0.03***	0.23***	1.00					
(7)	MA_t	0.00	0.07***	-0.01**	0.05***	0.07***	0.03***	1.00				
(8)	$DISOP_t$	-0.02***	0.00	0.01	0.04***	0.00	-0.06***	0.04***	1.00			
(9)	FC_t	-0.01	-0.01	-0.02***	0.01**	0.02***	-0.02***	0.04***	0.01	1.00		
(10)	SPI_t	-0.10***	-0.08***	-0.08***	-0.01**	-0.25***	-0.01**	-0.04***	-0.01***	0.00	1.00	
(11)	$COMP_t$	-0.01	0.02***	0.00	0.00	0.13***	0.22***	0.19***	-0.04***	0.03***	-0.02***	1.00
(12)	PPE_t	0.05***	0.09***	-0.12***	0.02***	0.01	0.01***	-0.10***	-0.02***	-0.03***	0.11***	-0.20***
(13)	$SIZE_t$	-0.01***	0.07***	-0.09***	0.10***	-0.07***	-0.13***	0.19***	0.13***	0.14***	0.06***	-0.08***
(14)	BTM_t	-0.03***	-0.05***	-0.01***	0.01**	-0.04***	-0.20***	-0.02***	0.04***	0.02***	-0.05***	-0.14***
(15)	ROA_t	-0.07***	-0.09***	-0.02***	-0.05***	-0.19***	-0.05***	-0.02***	-0.03***	0.01*	0.48***	-0.18***
(16)	$\|ROA\|_t$	0.09***	0.04***	0.09***	-0.03***	0.32***	0.40***	-0.04***	-0.08***	-0.03***	-0.27***	0.20***
(17)	LEV_t	0.05***	0.33***	0.00	0.22***	-0.01**	-0.12***	0.04***	0.12***	-0.02***	-0.01*	-0.15***
(18)	$ANACF_t$	-0.04***	0.03***	-0.07***	0.08***	0.02***	0.05***	0.23***	0.05***	0.07***	0.04***	0.15***
(19)	DEF_{t-1}	-0.03***	0.01***	-0.05***	0.05***	-0.01*	0.02***	-0.01	0.03***	-0.01***	0.03***	-0.04***
(20)	$GROW_t$	0.13***	0.11***	0.11***	-0.03***	0.12***	0.19***	-0.01	-0.11***	-0.04***	-0.02***	0.05***
(21)	$\|GROW\|_t$	0.12***	0.11***	0.14***	-0.02***	0.19***	0.20***	-0.03***	-0.05***	-0.03***	-0.10***	0.06***

Table 3 - Continued

		(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
(12)	PPE_t	1.00									
(13)	$SIZE_t$	0.18***	1.00								
(14)	BTM_t	0.09***	0.00	1.00							
(15)	ROA_t	0.10***	0.14***	-0.18***	1.00						
(16)	$\|ROA\|_t$	-0.08***	-0.21***	-0.17***	-0.31***	1.00					
(17)	LEV_t	0.32***	0.31***	0.02***	-0.13***	-0.13***	1.00				
(18)	$ANACF_t$	0.12***	**0.46*** **	-0.05***	0.06***	-0.05***	0.12***	1.00			
(19)	DEF_{t-1}	0.31***	0.15***	-0.02***	-0.02***	-0.02***	0.25***	0.09***	1.00		
(20)	$GROW_t$	0.13***	-0.11***	-0.16***	0.11***	0.19***	-0.05***	-0.04***	-0.01**	1.00	
(21)	$\|GROW\|_t$	0.10***	-0.15***	-0.08***	-0.06***	0.26***	-0.05***	-0.03***	-0.01***	**0.85*** **	1.00

Note: Table 3 reports the Pearson correlation among key variables. All the earnings-related variables are deflated by prior year total assets (AT). See Appendix A for detailed variable definitions. Significant correlations at the level of 5% or better (two-tailed) are in bold. Variables are defined as follows:
ΔCL is the change in current liabilities from the beginning of the year;
CL is the year-end total current liabilities;
ΔCA is the change in current assets from the beginning of the year;
CA is the year-end current assets;
ACCRUAL is total accruals, calculated using the difference between incomes and operating cash flows and adding back the extraordinary items and discontinued operations;
GROW is the firm growth measured by the percentage change in sales;
|GROW| is the absolute value of firm growth;
ΔLTL is the change in long-term liabilities from the beginning of the year;
LTL is the year-end total long-term liabilities;
ΔLTA is the change in long-term assets from the beginning of the year;
LTA is the year-end long-term assets;
UE_ΔCL is the unexpected change in current liabilities;
UE_ΔLTL is the unexpected change in long-term liabilities;
CURRENT is the current ratio;
OCF is the reported operating cash flows;
CS is the indicator variable if firms are identified with possible classification activity;
DEF is the indicator variable for firms with working capital deficiency;
ANACF is the indicator variable for analysts providing cash flows forecasts;
ZSCORE is the Altman's Z-score;

Table 3 - Continued

|NONART| is the absolute value of non-articulation amounts relate to working capital;
MA is the indicator for merger and acquisition;
DISOP is the indicator for discontinued operations;
FC is the indicator for foreign currency transactions;
SPI is the special items;
COMP is the employee stock compensations;
PPE is the property, plant, and equipment;
SIZE is the natural logarithm of firm's net sales;
BTM is the book to market ratio;
ROA is the return on assets;
|ROA| is the absolute value of the return on assets;
LEV is the firm's total long-term debt divided by beginning total assets;
|DACC| is the absolute value of discretionary accruals based on the modified Jone's model;
|DOCF| is the absolute value of discretionary operating cash flows;
All the earnings-related non-ratio variables are deflated by prior year total assets (AT). See Appendix B for detailed variable definitions.

Table 4 - Average Coefficients from estimating the expectations models for current liabilities and long-term liabilities.

	Predicted Sign	(1) ΔCL_t	*(Average p-value)*	(2) ΔLTL_t	*(Average p-value)*
CL_{t-1}	-	-0.0828	(0.00)		
ΔCL_{t-1}	-	-0.0556	(0.10)		
CA_{t-1}	+	0.1581	(0.00)		
ΔCA_t	+	0.0576	(0.06)		
$ACCRUAL_{t-1}$	+	0.0139	(0.03)	0.0123	(0.20)
$GROW_t$	+	0.0444	(0.01)	0.008	(0.10)
LTL_{t-1}	-			-0.0838	(0.00)
ΔLTL_{t-1}	-			0.0017	(0.32)
LTA_{t-1}	+			0.3084	(0.00)
ΔLTA_t	+			0.0898	(0.01)
Intercept Included					
Avg.Adjusted R^2		3.6%		3.9%	

Note: Table 4 reports the average coefficient estimates for the expectation model (1) and (2) in columns (1) and (2) respectively. There are 50,013 observations and 286 industry-year regressions. Regressions are estimated by industry and fiscal year, and coefficients are the mean of coefficients from the 298 industry-year regressions. All variables are winsorized at 0.5 percent and 99.5 percent. *, **, *** imply statistical significance at the 10%, 5%, 1% level (two-tailed):

$$\Delta CL_t = b_0 + b_1 \times CL_{t-1} + b_2 \times \Delta CL_{t-1} + b_3 \times CA_{t-1} + b_4 \times \Delta CA_t + b_5 \times ACCRUAL_{t-1} + b_6 \times GROW_t + \varepsilon_t \quad (1)$$

$$\Delta LTL_t = b_0 + b_1 \times LTL_{t-1} + b_2 \times \Delta LTL_{t-1} + b_3 \times LTA_{t-1} + b_4 \times \Delta LTA_t + b_5 \times ACCRUAL_{t-1} + b_6 \times GROW_t + \varepsilon_t \quad (2)$$

Industry dummies based on Fama and French (1997) to address industry fixed effects. Variables are defined as follows:
ΔCL is the change in current liabilities from the beginning of the year;
CL is the year-end total current liabilities;
ΔCA is the change in current assets from the beginning of the year;
CA is the year-end current assets;
ΔLTL is the change in long-term liabilities from the beginning of the year;
LTL is the year-end total long-term liabilities;
ΔLTA is the change in long-term assets from the beginning of the year;
LTA is the year-end long-term assets;
GROW is the firm growth measured by the percentage change in sales;
ACCRUAL is total accruals, calculated using the difference between income and operating cash flows and adding back the extraordinary items and discontinued operations;
All the earnings-related non-ratio variables are deflated by prior year total assets (AT). See Appendix B for detailed variable definitions**.**

Table 5 - Testing for Classification Shifting with Signed Unexpected Current Liabilities

	Predicted Sign	(1) $UE\_\Delta CL_t$	(2) $UE\_\Delta CL_t$
$UE\_\Delta LTL_t$	?	-0.0034	0.0144
		(0.38)	(1.52)
DEF_{t-1}	?		-0.0084***
			(-3.41)
DEF_{t-1}*$UE\_\Delta LTL_t$	-		-0.1116***
			(-4.29)
Intercept		0.0057*	0.0063*
Industry Dummy Included		Yes	Yes
Year Dummy Included		Yes	Yes
Joint Coefficient (f-test)			-0.12*** (15.46)
F-stat		30.38	30.06
P-value		0.00	0.00
Adjusted R^2		1.0%	1.4%
Obs.		50,013	49,233

Note: Table 5 reports the coefficient estimates for linear model (3) in columns (2). *, **, *** imply statistical significance at the 10%, 5%, 1% level (two-tailed):

$$UE\_\Delta CL_t = b_0 + b_1 \times UE\_\Delta LTL_t + b_1 \times DEF_{t-1} + b_1 \times DEF_{t-1} \times UE\_\Delta LTL_t + YearEffects + IndustryEffects + \varepsilon_t \quad (3)$$

Variables are defined as follows:
UE_ΔCL is the unexpected change in current liabilities;
UE_ΔLTL is the unexpected change in long-term liabilities;
DEF is the indicator variable for firms with working capital deficiency;
DEF* UE_ΔLTL is the interaction term between DEF and UE_ΔLTL;
All the earnings-related non-ratio variables are deflated by prior year total assets (AT). See Appendix B for detailed variable definitions.

Table 6 - Testing for Classification Shifting among Negative Unexpected Current Liabilities

		Panel A - Only Negative $UE\_\Delta CL_t$		**Panel B - Tobit Regression with Negative $UE\_\Delta CL_t$ and zeros**	
	Predicted Sign	(1) $UE\_\Delta CL_t$	(2) $UE\_\Delta CL_t$	(1) $UE\_\Delta CL_t$	(2) $UE\_\Delta CL_t$
$UE\_\Delta LTL_t$	?	-0.0642***	-0.0466***	-0.0376***	-0.0195***
		(-8.93)	(-6.60)	(-11.52)	(-5.36)
DEF_{t-1}	?		-0.0237***		-0.0193***
			(-8.92)		(-10.37)
DEF_{t-1}*$UE\_\Delta LTL_t$	-		-0.1048***		-0.1091***
			(-3.87)		(-11.61)
Intercept		-0.0489***	-0.0493***	0.0176***	0.0177***
Industry Dummy Included		*Yes*		*Yes*	
Year Dummy Included		*Yes*		*Yes*	
Joint Coefficient (f-test)		*-0.1285*** (33.49)*		*-0.1284*** (219.69)*	
		F-Stat		*LR chi2*	
		9.20	9.48	675.78	930.49
P-value		0.00	0.00	0.00	0.00
Adjusted R^2		2.9%	4.4%		
Obs.		23,644	23,136	50,013	49,233

Note: Table 6 reports the coefficient estimates for linear model (3) in columns (2). *, **, *** imply statistical significance at the 10%, 5%, 1% level (two-tailed):

$$UE\_\Delta CL_t = b_0 + b_1 \times UE\_\Delta LTL_t + b_1 \times DEF_{t-1} + b_1 \times DEF_{t-1} \times UE\_\Delta LTL_t + YearEffects + IndustryEffects + \varepsilon_t \quad (3)$$

Variables are defined as follows:
UE_ΔCL is the unexpected change in current liabilities;
UE_ΔLTL is the unexpected change in long-term liabilities;
DEF is the indicator variable for firms with working capital deficiency;
DEF* UE_ΔLTL is the interaction term between DEF and UE_ΔLTL;
All the earnings-related non-ratio variables are deflated by prior year total assets (AT). See Appendix B for detailed variable definitions.

Table 7 - Testing for Classification Shifting among Positive Unexpected Current Liabilities

	Predicted Sign	(1) $UE\_\Delta CL_t$	(2) $UE\_\Delta CL_t$
$UE\_\Delta LTL_t$	?	0.0426***	0.0472***
		(3.74)	(3.80)
DEF_{t-1}	?		0.0139***
			(4.46)
DEF_{t-1}*$UE\_\Delta LTL_t$	-		-0.0222
			(-0.75)
Intercept		0.0615***	0.0635***
Industry Dummy Included		*Yes*	Yes
Year Dummy Included		Yes	Yes
Joint Coefficient (f-test)			0.0083 (1.02)
F-stat		9.76	9.50
P-value		0.00	0.00
Adjusted R^2		2.3%	2.5%
Obs.		26,369	26,097

Note: Table 7 reports the coefficient estimates for linear model (3) in columns (2). *, **, *** imply statistical significance at the 10%, 5%, 1% level (two-tailed):

$$UE\_\Delta CL_t = b_0 + b_1 \times UE\_\Delta LTL_t + b_1 \times DEF_{t-1} + b_1 \times DEF_{t-1} \times UE\_\Delta LTL_t + YearEffects + IndustryEffects + \varepsilon_t \quad (3)$$

Variables are defined as follows:
UE_ΔCL is the unexpected change in current liabilities;
UE_ΔLTL is the unexpected change in long-term liabilities;
DEF is the indicator variable for firms with working capital deficiency;
DEF* UE_ΔLTL is the interaction term between DEF and UE_ΔLTL;
All the earnings-related non-ratio variables are deflated by prior year total assets (AT). See Appendix B for detailed variable definitions.

Table 8 - Testing for Classification Shifting among Negative versus Positive Unexpected Long-term Liabilities

		Panel A - Only Positive $UE\_\Delta LTL_t$		**Panel B - Only Negative $UE\_\Delta LTL_t$**	
		(1)	**(2)**	**(1)**	**(2)**
	Predicted Sign	$UE\_\Delta CL_t$	$UE\_\Delta CL_t$	$UE\_\Delta CL_t$	$UE\_\Delta CL_t$
$UE\_\Delta LTL_t$	?	0.0696***	0.0929***	-0.2377***	-0.0143***
		(5.50)	(6.69)	(-11.43)	(-10.60)
DEF_{t-1}	?		-0.0074		-0.0004
			(-1.63)		(-0.09)
$DEF_{t-1}*UE\_\Delta LTL_t$	-		-0.1510***		0.6790
			(-3.71)		(1.27)
Intercept		0.0026**	0.0034**	-0.0006	-0.0005
Industry Dummy Included		*Yes*	*Yes*	*Yes*	*Yes*
Year Dummy Included		*Yes*	*Yes*	*Yes*	*Yes*
Joint Coefficient (f-test)			*-0.1584****		*0.6786*
			(34.47)		*(0.24)*
F-stat		*30.26*	*30.24*	*130.63*	*41.53*
P-value		*0.00*	*0.00*	*0.00*	*0.00*
Adjusted R^2		*1.1%*	*2.2%*	*2.6%*	*2.6%*
Obs.		*19,590*	*19,181*	*30,423*	*30,052*

Note: Table 8 reports the coefficient estimates for linear model (3) in columns (2). *, **, *** imply statistical significance at the 10%, 5%, 1% level (two-tailed):

$$UE\_\Delta CL_t = b_0 + b_1 \times UE\_\Delta LTL_t + b_1 \times DEF_{t-1} + b_1 \times DEF_{t-1} \times UE\_\Delta LTL_t + YearEffects + IndustryEffects + \varepsilon_t \quad (3)$$

Variables are defined as follows:
UE_ΔCL is the unexpected change in current liabilities;
UE_ΔLTL is the unexpected change in long-term liabilities;
DEF is the indicator variable for firms with working capital deficiency;
DEF* UE_ΔLTL is the interaction term between DEF and UE_ΔLTL;
All the earnings-related non-ratio variables are deflated by prior year total assets (AT). See Appendix B for detailed variable definitions.

Table 9 - Percentage of Firms Identified with Classification Shifting in Each Year and Industry

Distribution by Year		Distribution by Industry	
Year	Percent	Industries	Percent
1989	15.8%	Coal	38.2%
1990	14.3%	Mines	37.6%
1991	13.4%	Aircraft	29.5%
1992	14.0%	Soda	28.7%
1993	18.5%	Textiles	27.0%
1994	13.9%	Steel	25.9%
1995	16.8%	Guns	25.8%
1996	13.3%	Chemicals	25.8%
1997	11.0%	Fabric	25.7%
1998	15.9%	Communication	25.0%
1999	15.4%	Construction	24.8%
2000	14.1%	Smoke	24.3%
2001	20.3%	Ships	23.4%
2002	19.8%	Boxes	23.0%
2003	21.3%	Business Supplies	22.9%
2004	11.6%	Fun	22.7%
2005	19.3%	Food	21.9%
2006	18.9%	Household	21.8%
2007	16.0%	Agriculture	21.6%
2008	16.4%	Wholesale	21.5%
2009	27.4%	Building Material	21.4%
2010	19.0%	Transportation	21.1%
2011	30.0%	Oil	20.9%
2012	25.8%	Autos	20.7%
2013	30.1%	Gold	20.2%
2014	28.0%	Clothing	20.2%
2015	21.1%	Others	16.6%

Note: Table 9 outlines the sample distribution for classification shifting (CS) identified by year and industry. Panel A listed the percentage of firms identified with classification shifting (CS) in each year. Panel B listed the percentage of firms identified with classification shifting (CS) in each industry.

Table 10 - Determinants Regression for Classification Shifting (CS)

	Predicted Sign	CS_t	(z-score)
DEF_{t-1}	+	0.0781***	(3.11)
CS_{t-1}	+	0.1064***	(5.78)
$CURRENT_{t-1}$	-	-0.0335***	(-7.56)
OCF_t	-	-0.6700***	(-9.38)
$ZSCORE_t$	-	-0.0451***	(-11.72)
$ANACF_t$	+	0.2526***	(14.41)
Intercept	-	-0.6973***	
Chi^2		938.92	
P-value		0.000	
Pseudo R^2		2.4%	
Obs.		40,281	

Note: Table 10 reports the coefficient estimates for probit model (9). *, **, *** imply statistical significance at the 10%, 5%, 1% level (two-tailed):

$$CS_t = b_0 + b_1 \times DEF_{t-1} + b_2 \times CS_{t-1} + b_3 \times CURRENT_{t-1} + b_4 \times OCF_t + b_5 \times ZSCORE_t + b_6 \times ANACF_t + \varepsilon_t \quad (4)$$

Variables are defined as follows:
CS is the indicator variable if firms are identified with possible classification activity;
DEF is the indicator variable for firms with working capital deficiency;
CURRENT is the current ratio;
OCF is the reported operating cash flows;
ANACF is the indicator variable for analysts providing cash flows forecasts;
ZSCORE is the Altman's Z-score;
All the earnings-related non-ratio variables are deflated by prior year total assets (AT). See Appendix B for detailed variable definitions.

Table 11 - Determinants Regression for Classification Shifting (CS')

	Predicted Sign	CS'_t	z-score
DEF_{t-1}	+	0.1485***	(4.77)
CS'_{t-1}	+	0.1076***	(2.99)
$CURRENT_{t-1}$	-	-0.0579***	(-8.72)
OCF_t	-	-0.7184***	(-7.74)
$ZSCORE_t$	-	-0.0500***	(-10.11)
$ANACF_t$	+	0.1845***	(8.10)
Intercept	-	-1.2180***	
Chi^2		663.86	
P-value		0.000	
Pseudo R^2		3.2%	
Obs.		40,281	

Note: Table 11 reports the coefficient estimates for probit model (9). *, **, *** imply statistical significance at the 10%, 5%, 1% level (two-tailed):

$$CS'_t = b_0 + b_1 \times DEF_{t-1} + b_2 \times CS'_{t-1} + b_3 \times CURRENT_{t-1} + b_4 \times OCF_t + b_5 \times ZSCORE_t + b_6 \times ANACF_t + \varepsilon_t \quad (4)$$

Variables are defined as follows:
CS' is the indicator variable if firms are identified with possible classification activity;
DEF is the indicator variable for firms with working capital deficiency;
CURRENT is the current ratio;
OCF is the reported operating cash flows;
ANACF is the indicator variable for analysts providing cash flows forecasts;
ZSCORE is the Altman's Z-score;
All the earnings-related non-ratio variables are deflated by prior year total assets (AT). See Appendix B for detailed variable definitions.

Table 12 - Testing of the Association between Classification Shifting (CS) and |NONART|

	Predicted Sign	(1) $\|NONART\|_t$	(2) $\|NONART\|_t$	(3) $\|NONART\|_t$
CS_t	+	0.0038***	0.0021***	0.0019**
		(4.78)	(2.70)	(2.45)
$\|DACC\|_t$	+			0.0442***
				(10.10)
$\|DOCF\|_t$	+			0.0007
				(0.18)
MA_t			0.0040***	0.0042***
$DISOP_t$			0.0033***	0.0031***
FC_t			0.0011	0.001
SPI_t			-0.0751***	-0.0557***
$COMP_t$			0.1085***	0.1075***
PPE_t			-0.0280***	-0.0310***
$SIZE_t$			-0.0014***	-0.0011***
BTM_t			0.0025***	0.0024***
ROA_t			0.0340***	0.0331***
$\|ROA\|_t$			0.0215***	0.0130**
LEV_t			0.0254***	0.0242***
$GROW_t$			-0.0087***	-0.0077***
$\|GROW\|_t$			0.0371***	0.0343***
Intercept		0.004	0.0042	0.0023
Year dummies		*Yes*	Yes	Yes
Industry dummies		*Yes*	Yes	Yes
F-stat		91.53	62.39	59.80
Adjusted R^2		4.7%	7.8%	8.2%
Obs.		50,013	49,963	49,963

Note: Table 12 reports the coefficient estimates for linear model (5). *, **, *** imply statistical significance at the 10%, 5%, 1% level (two-tailed):

$$|NONART| = \alpha_0 + \alpha_1 \times MA + \alpha_2 \times DISOP_t + \alpha_3 \times FC + \alpha_4 \times SPI + \alpha_5 \times COMP + \alpha_6 \times PPE + \alpha_7 \times SIZE + \alpha_8 \times BTM + \alpha_9 \times ROA + \alpha_{10} \times |ROA| + \alpha_{11} \times LEV + \alpha_{12} \times GROW + \alpha_{13} \times |GROW| + \alpha_{14} \times |DACC| + \alpha_{15} \times |DOCF| + \alpha_{16} \times CS + YearEffects + IndustryEffects + \varepsilon \quad (5)$$

Industry dummies based on Fama and French (1997) to address industry fixed effects. Variables are defined as follows:

|NONART| is the absolute value of non-articulation amounts relate to working capital;
MA is the indicator for merger and acquisition;
DISOP is the indicator for discontinued operations;
FC is the indicator for foreign currency transactions;
SPI is the special items;
COMP is the employee stock compensations;
PPE is the property, plant and equipment;
SIZE is the natural logarithm of firm's net sales;
BTM is the book to market ratio;
ROA is the return on assets;
|ROA| is the absolute value of the return on assets;
LEV is the firm's total long-term debt divided by beginning total assets;
CS is the indicator variable if firms are identified with possible classification activity;
|DACC| is the absolute value of discretionary accruals based on the modified Jone's model;
|DOCF| is the absolute value of discretionary operating cash flows;
GROW is the firm growth measured by the percentage change in sales;
|GROW| is the absolute value of firm growth;
All the earnings-related non-ratio variables are deflated by prior year total assets (AT). See Appendix B for detailed variable definitions.

Table 13 - Testing of the Association between Classification Shifting (CS') and |NONART|

	Predicted Sign	(1) $\|NONART\|_t$	(2) $\|NONART\|_t$	(3) $\|NONART\|_t$
CS'_t	+	0.0118***	0.0080***	0.0076***
		(8.60)	(5.96)	(5.67)
$\|DACC\|_t$	+			0.0439***
				(10.02)
$\|DOCF\|_t$	+			0.0006
				(0.15)
MA_t			0.0040***	0.0041***
$DISOP_t$			0.0033***	0.0031***
FC_t			0.0011	0.0009
SPI_t			-0.0751***	-0.0557***
$COMP_t$			0.1074***	0.1066***
PPE_t			-0.0279***	-0.0308***
$SIZE_t$			-0.0013***	-0.0010***
BTM_t			0.0025***	0.0024***
ROA_t			0.0340***	0.0331***
$\|ROA\|_t$			0.0212***	0.0129**
LEV_t			0.0243***	0.0230***
$GROW_t$			-0.0086***	-0.0076***
$\|GROW\|_t$			0.0367***	0.0340***
Intercept		0.0053	0.004	0.0021
Year dummies		*Yes*	*Yes*	*Yes*
Industry dummies		*Yes*	*Yes*	*Yes*
F-stat		89.25	61.86	58.66
Adjusted R^2		4.9%	7.8%	8.3%
Obs.		50,013	49,963	49,963

Note: Table 13 reports the coefficient estimates for linear model (5). *, **, *** imply statistical significance at the 10%, 5%, 1% level (two-tailed):

$$|NONART| = \alpha_0 + \alpha_1 \times MA + \alpha_2 \times DISOP_t + \alpha_3 \times FC + \alpha_4 \times SPI + \alpha_5 \times COMP + \alpha_6 \times PPE + \alpha_7 \times SIZE + \alpha_8 \times BTM + \alpha_9 \times ROA + \alpha_{10} \times |ROA| + \alpha_{11} \times LEV + \alpha_{12} \times GROW + \alpha_{13} \times |GROW| + \alpha_{14} \times |DACC| + \alpha_{15} \times |DOCF| + \alpha_{16} \times CS' + YearEffects + IndustryEffects + \varepsilon \quad (5)$$

Industry dummies based on Fama and French (1997) to address industry fixed effects. Variables are defined as follows:
|NONART| is the absolute value of non-articulation amounts relate to working capital;
MA is the indicator for merger and acquisition;
DISOP is the indicator for discontinued operations;
FC is the indicator for foreign currency transactions;
SPI is the special items;
COMP is the employee stock compensations;
PPE is the property, plant and equipment;
SIZE is the natural logarithm of firm's net sales;
BTM is the book to market ratio;
ROA is the return on assets;
|ROA| is the absolute value of the return on assets;
LEV is the firm's total long-term debt divided by beginning total assets;
CS is the indicator variable if firms are identified with possible classification activity;
|DACC| is the absolute value of discretionary accruals based on the modified Jone's model;
|DOCF| is the absolute value of discretionary operating cash flows;
GROW is the firm growth measured by the percentage change in sales;
|GROW| is the absolute value of firm growth;
All the earnings-related non-ratio variables are deflated by prior year total assets (AT). See Appendix B for detailed variable definitions.

Table 14 - Interactions between Reporting Quality and Information Environment

	Predicted Sign	(1) $\|NONART\|_t$	(2) $\|NONART\|_t$
$\|DACC\|_t$	+	0.0384***	0.0498***
		(10.52)	(10.19)
$\|DOCF\|_t$	+	-0.0015	-0.0011
		(-0.76)	(-0.25)
CS_t	+	0.0005	0.0024**
		(0.58)	(2.57)
DEF_{t-1}	?	-0.0062***	
		(-3.91)	
$DEF_{t-1}*CS_t$	+	0.0072***	
		(3.63)	
$DEF_{t-1}*\|DACC\|_t$	?	-0.0082	
		(-0.69)	
$DEF_{t-1}*\|DOCF\|_t$	+	0.0336***	
		(3.56)	
$ANACF_t$	?		0.0031**
			(1.38)
$ANACF_{t-1}*CS_t$	?		-0.0024*
			(-1.73)
$ANACF_{t-1}*\|DACC\|_t$	-		-0.0216***
			(-3.31)
$ANACF_{t-1}*\|DOCF\|_t$	?		0.0041
			(1.11)
Intercept		0.0022	0.0038
Controls Included		*Yes*	*Yes*
Year dummies		*Yes*	*Yes*
Industry dummies		*Yes*	*Yes*
		For CS	*For |DACC|*
Join Coefficient (f-test)		*0.0077*** (40.21)*	*0.0282*** (52.34)*
F-stat		57.23	68.51
P-value		0.000	0.00
Adjusted R^2		8.3%	8.3%
Obs.		49,225	50,002

Note: Table 14 reports the coefficient estimates for linear model (11) and (12). *, **, *** imply statistical significance at the 10%, 5%, 1% level (two-tailed):

$$|NONART| = \alpha_0 + \alpha_1 \times MA + \alpha_2 \times DIS_{OP} + \alpha_3 \times FC + \alpha_4 \times SPI + \alpha_5 \times COMP + \alpha_6 \times PPE + \alpha_7 \times SIZE + \alpha_8 \times BTM + \alpha_9 \times ROA + \alpha_{10} \times |ROA| + \alpha_{11} \times LEV + \alpha_{12} \times GROW + \alpha_{13} \times |GROW| + \alpha_{14} \times |DACC| + \alpha_{15} \times |DOCF| + \alpha_{16} \times CS + \alpha_{17} \times DEF + \alpha_{18} \times DEF \times |DOCF| + \alpha_{19} \times DEF \times |DACC| + \alpha_{10} \times DEF \times CS + YearEffects + IndustryEffects + \varepsilon \quad (11)$$

$$|NONART| = \alpha_0 + \alpha_1 \times MA + \alpha_2 \times DIS_{OP} + \alpha_3 \times FC + \alpha_4 \times SPI + \alpha_5 \times COMP + \alpha_6 \times PPE + \alpha_7 \times SIZE + \alpha_8 \times BTM + \alpha_9 \times ROA + \alpha_{10} \times |ROA| + \alpha_{11} \times LEV + \alpha_{12} \times GROW + \alpha_{13} \times |GROW| + \alpha_{14} \times |DACC| + \alpha_{15} \times |DOCF| + \alpha_{16} \times CS + \alpha_{17} \times ANACF + \alpha_{18} \times ANACF \times |DOCF| + \alpha_{19} \times ANACF \times |DACC| + \alpha_{10} \times ANACF \times CS + YearEffects + IndustryEffects + \varepsilon \quad (12)$$

Table 14 - Continued

Industry dummies based on Fama and French (1997) to address industry fixed effects. Variables are defined as follows:
|NONART| is the absolute value of non-articulation amounts relate to working capital;
MA is the indicator for merger and acquisition;
DISOP is the indicator for discontinued operations;
FC is the indicator for foreign currency transactions;
SPI is the special items;
COMP is the employee stock compensations;
PPE is the property, plant, and equipment;
SIZE is the natural logarithm of firm's net sales;
BTM is the book to market ratio;
ROA is the return on assets;
|ROA| is the absolute value of the return on assets;
LEV is the firm's total long-term debt divided by beginning total assets;
CS is the indicator variable if firms are identified with possible classification activity;
|DACC| is the absolute value of discretionary accruals based on the modified Jone's model;
|DOCF| is the absolute value of discretionary operating cash flows;
GROW is the firm growth measured by the percentage change in sales;
|GROW| is the absolute value of firm growth;
DEF is the indicator variable for firms with working capital deficiency;
DEF*CS is the interaction term between DEF and CS;
DEF*|DACC| is the interaction term between DEF and |DACC|;
DEF*|DOCF| is the interaction term between DEF and |DOCF|;
ANACF is the indicator variable for analysts providing cash flows forecasts;
ANACF*CS is the interaction term between ANACF and CS;
ANACF*|DACC| is the interaction term between ANACF and |DACC|;
ANACF*|DOCF| is the interaction term between ANACF and |DOCF|;
All the earnings-related non-ratio variables are deflated by prior year total assets (AT). See Appendix B for detailed

Table 15 - Interactions between Reporting Quality and Information Environment Using CS'

	Predicted Sign	(1) |NONART|t	(2) |NONART|t
$\|DACC\|_t$	+	0.0380***	0.0496***
		(9.74)	(9.10)
$\|DOCF\|_t$	+	-0.0016	-0.0013
		(-0.41)	(-0.30)
CS'_t	+	0.0073***	0.0089***
		(5.08)	(5.24)
DEF_{t-1}	?	-0.0054***	
		(-3.30)	
$DEF_{t-1}*\|DACC\|_t$	?	-0.0079	
		(-0.92)	
$DEF_{t-1}*\|DOCF\|_t$	?	0.0326***	
		(3.35)	
$DEF_{t-1}*CS'_t$	+	0.0062*	
		(1.80)	
$ANACF_t$	?		0.0016
			(1.23)
$ANACF_{t-1}*\|DACC\|_t$	-		-0.0216***
			(-3.31)
$ANACF_{t-1}*\|DOCF\|_t$	?		0.0072
			(1.12)
$ANACF_{t-1}*CS'_t$	?		-0.0049**
			(-2.03)
Intercept		0.0018	0.0019
Controls Included		*Yes*	*Yes*
Year dummies		*Yes*	*Yes*
Industry dummies		*Yes*	*Yes*
		For CS	*For |DACC|*
Join Coefficient (f-test)		*0.0135*** (50.32)*	*0.0280*** (44.57)*
F-stat		56.40	55.79
P-value		0.000	0.000
Adjusted R^2		8.5%	8.4%
Obs.		49,225	50,002

Note: Table 15 reports the coefficient estimates for linear model (11) and (12). *, **, *** imply statistical significance at the 10%, 5%, 1% level (two-tailed):

$$|NONART| = \alpha_0 + \alpha_1 \times MA + \alpha_2 \times DIS_{OP} + \alpha_3 \times FC + \alpha_4 \times SPI + \alpha_5 \times COMP + \alpha_6 \times PPE + \alpha_7 \times SIZE + \alpha_8 \times BTM + \alpha_9 \times ROA + \alpha_{10} \times |ROA| + \alpha_{11} \times LEV + \alpha_{12} \times GROW + \alpha_{13} \times |GROW| + \alpha_{14} \times |DACC| + \alpha_{15} \times |DOCF| + \alpha_{16} \times CS + \alpha_{17} \times DEF + \alpha_{18} \times DEF \times |DOCF| + \alpha_{19} \times DEF \times |DACC| + \alpha_{10} \times DEF \times CS + YearEffects + IndustryEffects + \varepsilon \quad (11)$$

Table 15 - Continued

$$|NONART| = \alpha_0 + \alpha_1 \times MA + \alpha_2 \times DIS_{OP} + \alpha_3 \times FC + \alpha_4 \times SPI + \alpha_5 \times COMP + \alpha_6 \times PPE + \alpha_7 \times SIZE + \alpha_8 \times BTM + \alpha_9 \times ROA + \alpha_{10} \times |ROA| + \alpha_{11} \times LEV + \alpha_{12} \times GROW + \alpha_{13} \times |GROW| + \alpha_{14} \times |DACC| + \alpha_{15} \times |DOCF| + \alpha_{16} \times CS + \alpha_{17} \times ANACF + \alpha_{18} \times ANACF \times |DOCF| + \alpha_{19} \times ANACF \times |DACC| + \alpha_{10} \times ANACF \times CS + YearEffects + IndustryEffects + \varepsilon \quad (12)$$

Industry dummies based on Fama and French (1997) to address industry fixed effects. Variables are defined as follows:
|NONART| is the absolute value of non-articulation amounts relate to working capital;
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DISOP is the indicator for discontinued operations;
FC is the indicator for foreign currency transactions;
SPI is the special items;
COMP is the employee stock compensations;
PPE is the property, plant, and equipment;
SIZE is the natural logarithm of firm's net sales;
BTM is the book to market ratio;
ROA is the return on assets;
|ROA| is the absolute value of the return on assets;
LEV is the firm's total long-term debt divided by beginning total assets;
CS is the indicator variable if firms are identified with possible classification activity;
|DACC| is the absolute value of discretionary accruals based on the modified Jone's model;
|DOCF| is the absolute value of discretionary operating cash flows;
GROW is the firm growth measured by the percentage change in sales;
|GROW| is the absolute value of firm growth;
DEF is the indicator variable for firms with working capital deficiency;
DEF*CS is the interaction term between DEF and CS;
DEF*|DACC| is the interaction term between DEF and |DACC|;
DEF*|DOCF| is the interaction term between DEF and |DOCF|;
ANACF is the indicator variable for analysts providing cash flows forecasts;
ANACF*CS is the interaction term between ANACF and CS;
ANACF*|DACC| is the interaction term between ANACF and |DACC|;
ANACF*|DOCF| is the interaction term between ANACF and |DOCF|;
All the earnings-related non-ratio variables are deflated by prior year total assets (AT). See Appendix B for detailed.