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U.S. Listed Chinese Reverse Mergers: Fraud Prediction Measures and Audit Characteristics

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Introduction

China is one of the largest economies in the world and is forecasted for continued growth. The size and growth rate of China's economy presents both business opportunities and potential concerns within and outside of China. From 1992 to 2005, forty-five U.S. listed Chinese companies have been punished for fraudulent financial information as part of the Chinese securities market (Hu, 2006). In more recent years, accounting scandals, alongside Security Exchange Commission (SEC) enforcement actions against some U.S. listed Chinese companies, have undermined investors' confidence. During 2010, almost half of all the securities class actions filed against foreign issuers were brought against Chinese based companies (Bario, 2011). Subsequent to this, many companies have been suspended by the SEC with trading halted by the NASDAQ, the American Stock Exchange, and the New York Stock Exchange (NYSE). This continuing issue is further evidenced in 2012, with one in four federal securities class action lawsuits filed in the U.S. involving corporations from China (Chen, Hu, Lin, and Xiao, 2015).

Major accounting issues related to fraud cases investigated by the SEC include but are not limited to: (1) cash balances; (2) revenue recognition; (3) related party transactions; (4) subsidiary ownership; (5) subsequent events; and (6) omitted disclosures. The intentional nature of these financial statement issues become evident when considering the large discrepancies between the reported financial statements filed with the SEC and those reported to the Chinese government (Chen *et al*., 2015), though some companies attempt to place blame on difficult interpretability between the accounting standards. The actions of these firms can be so extensive that economic impacts to the firms' external auditors may result from resignations, reputational impacts, regulatory investigations, and investor loss settlements. For example, KPMG resigned from its engagement with Shengda Tech in April 2011, due to "serious discrepancies and unexplained issues" relating to the company's bank balances, transactions with major suppliers, sales, accounts receivables, and value-added tax (VAT) invoices and payments (Darrough, Huang, and Zhao, 2013).

It is evident that the damage of these U.S. listed firms can be extensive. The importance of finding preventative measures is supported by regulatory scrutiny, in addition to recent increases in Chinese fraud prevalence in other countries. We focus our research on further understanding the nature and financial characteristics of the underlying CRM firms, and their auditors, during and surrounding SEC litigation through exploratory analyses. We consider fraud indication that has been discussed or implemented in other studies, but whose results have not been examined for effectiveness on CRM firms. Using the Dechow, Ge, and Larson (2011) model and other potential fraud indicators, we focus on Chinese firms from 2003 to 2014 that have accessed the U.S. listed exchanges through reverse mergers as this is a growing, quick, and cost-effective exploited method (Huber and Hull, 2011). Our results suggest that financial reporting models and other firm characteristics (e.g., detail of auditors and corporate governance) that may be leading or lagging indicators, are associated with fraud at CRMs. In the event that any of these attributes may be lagging indicators, their association with CRM fraud are still a noteworthy economic concern that should be clearly identified for future fraud prevention and regulatory enforcement.

The remainder of this paper is organized as follows: the next section reviews related literature and develops our research question; the following section discusses the research design, including sample and testing, and analyzes results; and the final section concludes.

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Literature Review

Publicly Listed Chinese Firms

China has experienced significant economic growth during the past several decades, and as a result, there has been an increased number of Chinese companies that are publicly listed on U.S. exchanges. These firms have listed on U.S. exchanges in order to access firm capital that U.S. markets provide and to pursue global operation expansion. According to Ang, Jiang, and Wu (2014), the quantity of U.S. listed Chinese companies grew in one decade from thirty-five in 2001 to 294 companies in 2011. Of the companies listed on these exchanges, twenty-nine went public via an Initial Public Offering (IPO) of ordinary shares, 116 companies are traded via American Depository of Receipts (ADRs), and 122 went public through reverse mergers. To put this in perspective, the market capitalization of these firms reached $320 billion by the end of June 2011 (Ang *et al*., 2014). This surge in the public listing also created a lucrative market for other third parties, including the engagement of external auditors.

Chinese Reverse Mergers

Reverse mergers or reverse takeovers, conducted correctly, are legitimate business transactions. Domestic and foreign companies can access U.S. capital markets by merging with a U.S. listed "shell" company. This process provides the owners with operating and management control of the combined entity. Reverse mergers are a quicker and less expensive mechanism to an IPO issue as it often avoids certain legal and accounting fees, underwriting expenses, and prospectus filing requirements (Huber and Hull, 2011). According to a report by Public Company Accounting Oversight Board (PCAOB), Chinese companies accounted for 159 of 603 (over twenty-six percent) of the U.S. reverse mergers completed between January 1, 2007, and March 31, 2010. The remaining reverse mergers were mainly comprised of U.S. companies (PCAOB, 2011).

Studies have found that Chinese reverse mergers (CRMs) differ from U.S. firms. CRMs appear to be smaller in size, higher in leverage, lower in analysts' followings, higher in probability of class-action lawsuits, more autocratic in governance, and more concentrated in ownership than Chinese companies which went public via IPO (Jindra, Voetmann, and Walking, 2012; Ang *et al*., 2014). In addition, CRMs are found to have more internal control weaknesses (Baker, Biddle, and O'Connor, 2012) and lower accounting quality (Givoly, Hayn, and Lourie, 2012). Similarly, Wang (2015) shows that CRM firms exhibit worse earnings quality than other public firms.

Fraud Considerations and Procedures

How to best detect fraudulent financial reporting has been a major and ongoing concern in the accounting profession for stakeholders, auditors, and regulators. Statement on Auditing Standards (SAS) No. 99 emphasizes that a material misstatement of financial statements can result from fraud or errors, depending on the intent of management (AICPA, 2002). The primary points of emphasis in SAS 99 include enhanced professional skepticism, pre-audit fraud brainstorming, interviews with management concerning the risk and existence of fraud, as well as how to design audit tests to address the risk of management override of internal controls. Further understanding the characteristics of firms that commit financial statement fraud is of concern to various other constituents in the capital markets as well, including regulators, analysts, and investors. Therefore, accounting academics and other professionals have developed other methods, sometimes referred to as "decision aids", to assist interested parties who do not have access to privileged information like auditors. In a comprehensive review of academic literature, Hogan, Rezaee, Riley, and Velury (2008) provide a summary of financial statement fraud.

Although the use of analytical procedures is discussed in SAS 99, traditional analytical procedures such as ratio analysis have achieved only limited success in identifying fraud (Hogan *et al*., 2008). To supplement SAS 99 in the area of fraud risk factors, the PCAOB has identified several high-risk areas in which fraud either begins or is more commonly found and suggests that auditors may need to perform additional procedures to identify and document fraud risk (PCAOB, 2004). These commonly referenced areas are revenue recognition, significant or unusual accruals, related party transactions, estimates of fair value, quarterly financial information, and significant or unusual journal entries.

Evidence suggests that revenue recognition and related party transactions are the two most widely cited areas for fraudulent financial statements. A study by the Committee of Sponsoring Organization of the Treadway Commission (COSO, 1999), spanning over a period of 1987 to 1997, reveals that approximately fifty percent of fraud occurrence has involved overstated revenues. This number increased to sixty-one percent in their subsequent study (covering the period of 1998 to 2007 (COSO, 2010)). Similarly, a study by the General Accounting Office (GAO) indicated that out of 919 financial statement restatements for the period of January 1997 to June 2002, thirty-eight percent were as a result of revenue recognition issues. Gordon, Henry, Louwers, and Reed (2007) provide a summary of research on related party transactions. Although their findings showed that the mere presence of related party transactions does not appear to increase auditor risk assessment, their research indicates that related party transactions are one of the top reasons cited for audit failure when fraud occurs. Similarly, Beasley, Carcello, and Hermanson (2001) conducted a study on fifty-six companies whose auditors were subject to actions by the SEC for alleged financial statement fraud. They found that twenty-seven percent of their sample firms had instances where the auditor had either failed to recognize or disclose related party transactions, which in turn, translated into the reporting of inflated assets.

Although China has restructured and improved its financial reporting process over the past two decades, notable concerns have been raised by U.S. regulators regarding financial reporting quality. Recently, an SEC administrative law judge ordered that the Chinese affiliates of the Big Four accounting firms were to be suspended from auditing U.S. traded companies. A settlement in the early part of 2015 resulted in Chinese affiliates of the Big Four accounting firms agreeing to pay a fine to settle with the SEC over their dispute of audit-work papers associated with the Chinese companies that were under investigation.[1] The SEC can now obtain audit-work papers from the Chinese affiliates of the Big Four; however, according to the report, "This settlement does not address the parallel issue of whether U.S. regulators at the Public Company Accounting Oversight Board (PCAOB) will be allowed to inspect the work of Chinese audit firms." Yet, the PCAOB chairman, James Doty, said he was encouraged by the SEC settlement and that the PCAOB will continue to work closely with Chinese regulators over the inspection issue (Rapoport, 2012).

Impacts to external auditors do not appear to be isolated to any one firm. In a high-profile case of the Longtop Financial Technologies Ltd., an IPO Chinese firm whose trading was halted by the NYSE in 2011, the audit firm Deloitte was subpoenaed. Though this case was later dismissed by the SEC, it does not negate reputational harm that might have fallen upon the audit firm.[2] Separately, Deloitte reached a twelve million dollar settlement with the investors of China MediaExpress, a company whose trading was also halted by NASDAQ in 2011.[3] In a similar manner, EY paid C$117[4] million to settle claims from Sino-Forest investors during 2013, a company which engaged primarily in the purchase and sale of standing timber in the People's Republic of China (Cullinan and Wright, 2015), alongside a C$8 million settlement in its audit of Sino-Forest Corporation, a firm which was delisted from the Toronto Stock Exchange in 2011.[5]

In addition to issues for Big Four auditors, smaller audit firms are also under scrutiny. The PCAOB (PCAOB, 2011) noted in 2011 that ninety-three percent of CRMs were audited by triennial accounting firms (although all auditors of publicly traded companies are required to be registered with the PCAOB, the triennial inspection firms are inspected by the PCAOB every three years instead of on an annual basis, due to their smaller size). A speech made by an SEC commissioner, Luis Aguilar, in 2011 echoed concerns for the CRM firms. He emphasized that there are systematic concerns about the quality of their auditing and financial reporting. He further elaborated that, even though these companies are registered in the U.S., there are limitations for the SEC to enforce the securities laws and for investors to recover their losses when disclosures are found to be untrue or fraudulent.[6] In 2011, U.S. regulators have taken a series of actions in response to the accounting fraud at some CRMs listed on the U.S. capital markets (PCAOB, 2011). These unique auditor situations appear atypical of U.S. audit firm concerns and have the perception of lower quality as suggested by the PCOAB. Further, it gives rise to the concern of the engagement of auditors and to larger governance oversight such as boards of directors and executives for CRMs.

We take several things away from this accounting literature and regulatory communication. First, there is a need for financial reporting models that do not require private inside information to assist stakeholders and regulators in identifying issues and increased likelihood of fraud in CRMs. Second, this need is exacerbated as auditor and other corporate governance

[1] For example, Deloitte has said that China's state secrets law prevents it from turning over documents to the SEC.
[2] Recently, a judge granted the $882 million award plus interest to shareholders who bought Longtop stock between Feb. 21, 2008, and May 17, 2011 (http://www.law360.com/articles/488867/longtop-investors-awarded-882m-in-auditing-fraud-action).
[3] www.securities.stanford.edu/resources_news_blog_excerpt.html?id=114580
[4] Canadian dollars are referenced in this paper as C$.
[5] www.reuters.com/.../sinoforest-regulator-ernst-young-idUSL2N0 Reuters Sep 30, 2014.
[6] "Speech by SEC Commissioner: Facilitating Real Capital Formation", Commissioner Luis A, Aguilar, April 4, 2011 (Council of Institutional Investors Spring Meeting, Washington, D.C.).

mechanisms seem to fall short in identifying issues at CRMs in a timely and appropriate manner. Third, as auditors or corporate governance mechanisms are not adequately preventing CRM issues, there may be identifiable characteristics or actions taken by them that could be signals (or "red flags") for predictive fraud indication.[7] Therefore, we ask the following research question:

> Can financial reporting models and additional aspects of firms' auditors and corporate governance provide predictive ability in detecting financial reporting fraud at U.S. listed CRMs?

Research Design and Analysis

Methodology

We select an established fraud model to evaluate the first part of our research question. Dechow *et al*., (2011) developed a fraud model that uses what is referred to as an "F-Score". Results of the model, which is tested using fraudulent firms derived from Accounting and Auditing Enforcement Releases (AAER firms) issued by the SEC from 1982 to 2005, validated its usage in fraud detection. Further supporting the usage of the Dechow *et al*., (2011) model, an additional study by Meersschaert (2011) demonstrated that the F-Score of AAER sample firms was significantly higher than a matched low degree of earnings management firms. Additionally, in a cross-country analysis Skousen and Twedt (2009) test variances in the F-score between countries and note the model's effectiveness. Collectively these studies assert that their research adds to the Dechow *et al*., (2011) model and can be used as an initial screening tool in investigating foreign investments for accounting fraud. Consistent with prior literature, we use the Dechow *et al*., (2011) model as part of our analyses of CRM firms. Refer to Appendix A for model detail. A description of auditor and corporate governance characteristics and actions evaluated are provided in the proceeding analysis.

Sample

We considered two data sources for our sample of CRM firms: Accounting and Auditing Enforcement Releases (AAER firms) and SEC Litigation Releases (LT). The SEC takes enforcement actions against firms, managers, auditors, and other parties involved in violations of SEC and federal regulations. At the completion of a significant investigation involving accounting and auditing issues, the SEC issues an AAER. In contrast, companies under class action lawsuits can be found in SEC litigation Releases (LTs). In line with our study and research question development, only AAER firms and LTs related to U.S. listed Chinese companies are examined. We follow the sample of Dong, Liao, Fang, Cheng, Chen, and Fan (2014) which covers CRMs for the period from 2003 to 2014. Detailed information on the sampling process is summarized in Exhibit 1. [see Exhibit 1, pg 326]

The final sample includes seventeen U.S. listed Chinese Reverse Merger firms. Due to a lack of annual reports, Dong *et al*., (2014) discarded six companies. Separately, six U.S. listed Chinese companies were identified from the SEC litigation releases where the lawsuits would eventually succeed. As a result, the final sample size remains at seventeen. Appendix B provides information on the LT and/or AAER reporting number of the seventeen companies. Further detail of our sample is summarized in Table 1. Note that, except for AutoChina, China Yuchai, and China Holding, the remaining companies were either delisted from the U.S. stock exchange or the SEC revoked their registration. Except for AutoChina and China Yuchai, the remaining companies have little or no OTC trading during 2015. [see Table 1, pg 327]

Data Analysis

Financial Reporting Model (F-Score)

F-Scores are calculated for each individual fraud year similar to prior research. Appendix A includes detail of F-Score calculation methodology. In situations where there are insufficient data points to generate an F-Score, "N/A" is indicated in the results. If a company has three fraud years, F-Scores are calculated for each. We further calculate sales growth and gross margin to provide context into the nature of the firm's growth and profitability. We use the sale growth and gross margin for the fraud year and one year earlier (i.e., year ^{t}, year $^{t-1}$) and gross profit margin across three years (i.e., year ^{t}, year $^{t-1}$, year $^{t-2}$). As noted in prior literature, these two metrics can be indicators of material misstatements. Results are provided in Table 2. [see Table 2, pg 328]

[7] In the event that any of these attributes may be contemporaneous or lagging indicators, their association with CRM fraud are still a noteworthy economic concern that should be clearly identified for future fraud prevention and regulatory enforcement.

According to Dechow *et al*., (2011), an F-Score of 1.00 indicates that the firm has the same probability of misstatement as the unconditional expectation. Thus, F-Scores greater than one indicate higher probabilities of misstatement than the unconditional expectation. For example, in 2000, Enron has an F-Score of 2.76. Our results in Table 2 indicate that the average F-Score across the twenty-one fraud-years was 1.84. Due to lack of consolidated financial data, we were unable to calculate an F-Score for two companies. Of the remaining fifteen companies, four companies do not have an F-Score that exceeds one. These companies are China Media Express Holding, China Natural Gas, China NorthEast Petroleum Holdings, and Subaye Incorporation.[8] To further understand the nature of firms with F-Scores <1, we provide anecdotal context into these entities in Appendix C. While sales growth and gross profit margin are notably high for some of the sample years, we find significant variability between, and within, the CRM firms. Thus, we do not draw a conclusion for these measures as a signal of fraud. We continue to include the measures in this paper for context and as evidence of our ex ante empirical considerations.

Auditor and Corporate Governance Characteristics and Actions

Table 3 provides results for change in directors, change in auditors and audit firm detail. As noted in Table 3, many of the sample companies experienced a change in directors around the same time as the fraud years occurred. Similarly, a majority of the sample companies changed their auditors more than once around the fraud year. For example, RINO changed their auditors three times between 2007 and 2010; Universal Travel Group (UTG) changed their auditors five times between 2006 to 2011, while China Agritech changed their auditors four times during 2007 to 2011. It is important to note that changes to directors and auditors occur both before and after the fraud violation years. This emphasizes their importance as both leading and lagging indicators of fraud. Though lagging indicators occur after the fraud event, they remain important for considering economic impacts of stakeholders leaving firms that are in trouble, and the regulatory scrutiny that should follow such behavior. [see Table 3, pg 329]

Table 4 provides more detailed information regarding the auditors in our sample. Current auditor names were collected from the Mergent Database while prior auditors were identified through a multitude of techniques including financial statements, news releases, and other online business sources. The auditors (current and prior) were traced via PCAOB inspection reports to determine the frequency of PCAOB inspections on these auditors, thus identifying whether they were subject to annual or triennial inspections by their regulator.[9] We reported in Table 4 the month and the year of the most current inspection dates identified. We also provided context as to whether the audit firm had quality control issues identified in their report. [see Table 4, pg 330]

All but four audit firms (Baker Tilly (Hong Kong), Jimmy C.H. Cheung and Co, Moore Stephens (Hong Kong) and DNTW (HK) were registered in the U.S. Many of the seventeen companies were audited by non-Big Four auditors, even though Big Four audit firms audit the majority of publicly registered U.S. firms. All but three non-Big Four auditors (Paritz and Goldman, and Crowe Horwath) were triannual inspection firms. Moreover, three auditors (Paritz and Co., EFP Rotenberg and Co. and Child, Van Wagoner and Bradshaw) had quality control problems that were not corrected or addressed one year after their PCAOB inspection date. In July 2014, the auditor of Universal Travel Group, EFP Rotenberg and Co., was barred from auditing U.S. traded public companies for at least two years (AAER #3562). The SEC had a three-year ban on Child, Van Wagoner and Bradshaw, the auditor of Yuhe International (AAER #3637, dated February 11, 2015). Likewise, the auditor of China Northeast Petroleum, Baker Tilly (Hong Kong) experienced similar fate in 2014 (AAER #3615).

Table 4 shows that five auditors[10] have paid fines and/or were barred from auditing their Chinese U.S. listed company. Five auditors either declined or could not agree on some material issues when filing the annual report, and they were not found to be at fault with the SEC. These five auditors were Deloitte, the auditor of China Media Express; Moore Stephens, the auditor of Puda Coal, Inc.; PwC, the auditor of Subaye, Inc. and Auto China International; and Crowe Horwath, the auditor for China Agritech.[11] Note that except for Moore Stephens which is a triennial inspection firm, the remaining auditors were annual inspection firms.

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[8] Two other companies also have an individual F-Score <1 in a year. However, they have multiple fraud years and the average F-Score across the periods are 2.915 and 1.315.
[9] www.pcaobus.org
[10] Although the sample consists of seventeen companies, both current and prior auditors were documented.
[11] As PwC audited two companies, there were five instances where the auditors did not agree on the 10K filling conclusion.

Table 5 provides violations/alleged problems filed against the seventeen sample companies. The LR and AAER for these companies are listed in Appendix B, and they provide the basis for the violation/alleged problems summarized in Table 5. We take note that most of the companies have more than one category of violations. There is a high number of companies that inflate revenues/earnings in their financial reporting, as well as related party transaction issues, consistent with the common fraud areas brought to attention by regulators, as aforementioned. [see Table 5, pg 331]

Overall, we take several things away from this descriptive analysis. Through analyzing our sample in detail and considering auditor attributes, we note that there is a high auditor turnover rate associated with these CRMs around the fraud year. A similar turnover and switch of executives and board members are also found when considering governance structure more broadly. Taking these turnovers into consideration, and particularly noting multiple turnovers and turnovers across both auditors and directors, may provide an indication of a red flag for potentially fraudulent activity in these CRM firms. Where these turnovers may not enable timely fraud detection, they still call regulatory attention to stakeholders of these firms "jumping ship" to avoid scrutiny and the economic impact that such abandonment may have on salvage firm value to investors.

Continuing with auditor attributes, we note that the CRMs have a large quantity of non-Big Four auditors. Though some of this may be attributable to their varying size, it is noteworthy considering the PCAOB comments on auditor quality concerns for CRMs. Also, as the Big Four are the largest of firms and these other firms are smaller in size, most of them, as described above, are not subject to annual PCAOB inspections which further highlights the concerns of the PCAOB. Though the Big Four are involved with some of these SEC investigations into CRMs, the Big Four are a network of member firms and have different legal structures and governance over their affiliations with overseas member firms. As described above, the auditors have been deemed to not be at fault or held responsible on charges originally filed by the SEC, though when considering their quality, a large portion received QC criticisms relative to other auditors registered with the PCAOB.

Conclusion

Our study investigates CRM firms during and surrounding SEC litigation of fraud. We explore the association of the Dechow *et al*., (2011) fraud model, auditor attributes, and other firm activity with the prevalence of CRM fraud. F-Scores for these troubled companies are notably elevated in comparison to average firms (i.e. >1.0), both on the total number of sample observations above 1.0 and on the average F-Score value across observations. We further find that these firms have high levels of auditor and director turnover, high non-Big Four auditor engagement, less frequent auditor inspection by regulators (many triennial inspections as opposed to annual), and unresolved quality control issues within audit firms rising to the level of public disclosure. Regulator concerns of financial reporting violations such as revenue inflation and related party transactions are prevalent, amongst other violations. We provide several other firm measures for analysis and sample detail for reference.

Since auditors and corporate governance mechanisms are considered a backstop for financial reporting fraud, our results also suggest that these stakeholders are unable to adequately address CRM financial reporting issues. This further emphasizes the importance of studying predictive fraud measures. Overall, our descriptive analysis provides context into an area of research which continues to be a concern in the U.S. and is of rising concern to other countries experiencing an increase in the prevalence of Chinese fraud.

Appendix A:

Following Dechow *et al*., (2011), F-Score is computed as follows:
VALUE = -7.893 + 0.790*RSST + 2.518*ΔREC + 1.191*ΔINV + 1.979*SOFTASSETS + 0.171*ΔCASHSALES – 0.932*ΔROA + 1.029*ISSUE
Where:

RSST = (ΔWC+ ΔNCO+ ΔFIN)/Average total assets; where WC = [Current Assets – Cash and Short-term Investments] – [Current Liabilities – Debt in Current Liabilities]; NCO = [Total Assets – Current Assets – Investments and Advances – [Total Liabilities – Current Liabilities – Long-term Debt]; Fin = [Short-term Investments +Long-term Investments] – [Long-term Debt + Debt in Current Liabilities + Preferred Stock] (following Richardson *et al*., 2005)
ΔREC = ΔAccounts Receivables / Average total assets
ΔINV = ΔInventory / Average total assets
SOFTASSETS = [Total assets – PPE – Cash and cash equivalents] / Total assets
ΔCASHSALES = Percentage change in cash sales [Sales – ΔAccounts Receivables].
ΔROA = [Earnings_t / Average total assets_t] – [Earnings $_{t-1}$/ Average total assets $_{t-1}$]
ISSUE = An indicator variable coded 1 if the firm issued securities during year $_t$

The computed VALUE is converted to a probability as follows: exp(VALUE)/(1+exp(VALUE)). The resulting probability is then divided by the unconditional probability of misstatement (=0.0037) to obtain the F-Score. An F-Score of 1.00 indicates that the firm has the same probability of misstatement as the unconditional expectation (the probability of misstatement when randomly selecting a firm from the population). F-Scores greater than one indicate higher probabilities of misstatement than the unconditional expectation.

Appendix B:

Security Exchange Commission, Litigation Release number, AAER number (Date of Release)

Company Name	**Litigation Release (LT)/AAER Reference**
China Media Express Holdings	LT 22731; AAER3479 (6/20/2013)
China Natural Gas, Inc	LT22719; AAER 3463 (6/20/2013)
China North East Petroleum Holdings Ltd	LT 22552; AAER 3481 (11/30/2012)
Keyuan Petrochemicals	LT 22627; AAER 3347 (2/28/2013)
Puda Coal, Inc	LT 22264; (2/22/2012)
RINO International Corp	LT 22699; AAER 3482 (5/15/2013)
SUBAYE, Inc	LT22698; (5/8/2013)
Universal Travel Group	LT22823; AAER 3494 (9/27/2013)
China Sky One Medical, Inc	LT2247; (9/4/2012)
ChinaCast Education Corp	LT22243; AAER 3360 (9/26/2013)
AgFeed Industries	AAER 3542 (3/11/2014)
Yuhe International, Inc	LT22848; (10/18/2013)
AutoChina International Ltd	LT22326; (4/11/3012)
China Yuchai International Ltd	AAER 3139 (6/7/2010)
China Agritech, Inc	AAER 3433 (10/17/2012)
Worldeide Energy and Mfg USA, Inc	LT22475; (9/6/2012)
China Holdings, Inc	LT21272; AAER 3063 (10/30/2009)

Summary: Six companies were issued litigation release (LT).

Appendix C:

China Natural Gas has a calculated F-Score of 0.51 for the fraud year of 2010. The SEC AAER references violations concerning related party transactions, including an undisclosed loan of fourteen million dollars. Although China Natural Gas received this violation from the SEC, the AAER indicates that this violation was disclosure only, and may have been recorded in the actual financial statement balances of the firm, just not properly disclosed in the footnotes.

China Northeast Petroleum Holding, a company which was delisted by NYSE in May 2010 that produced an F-Score upon our calculation of 0.82, had at least 176 undisclosed related party transactions. According to the AAER, these transactions totaled approximately fifty-nine million dollars of related-party activity during 2009. In December 2014, the SEC issued an AAER (Release No. 3615) against its external auditor, Baker Tilly (Hong Kong) for its negligence in its audit work and barred the firm from accepting any new "U.S. issuer audit clients" henceforth.

The F-Score for China MediaExpress (hereafter, CCME) for the fraud year 2009 was 0.54. The financial statements of this company were significantly misrepresented with its financials in a favorable manner, across multiple financial statement lines, which may reduce the ability for the F-Score to detect potentially fraudulent activity. To be more specific, the SEC filed a complaint in Washington D.C. stating that CCME became a publicly-traded company in October 2009, and it began materially overstating its cash balances in press releases and SEC filings after a short period of time. Its 2009 annual report filed on March 31, 2010 reported fifty-seven million dollars in cash on hand when it had a cash balance of merely $141,000. Later that year, CCME issued a press release stating their cash balance was $170 million at the end of the third quarter of its fiscal year, while the actual cash balance was just ten million dollars. According to the SEC report, when the bank statements were obtained, they showed significant discrepancies between publicly reported and actual cash balances (Litigation Release, #22731; AAER #3479). Similarly, on a twenty-five-page report on CCME, Muddy Waters Research estimated that CCME's actual 2009 revenue was no more than seventeen million dollars versus the reported revenue of $95.9 million, an overstatement of over 464% (Muddy Waters Research, 2011). A summary made by Deloitte on Mar 3, 2011, to its board includes the following facts (Civil Action No. 11-CV-0804 (VM)):

> "fake bank slips, evidence that the bank supervisor was an impostor, evidence of fraud at CCME's other bank accounts, unreported bank accounts and loans, two sets of books, one for the Chinese government, one of the other purposes—each containing drastically different financial figures for the same period, strong evidence that CCME had created fake customers, lied about ways to independently verify its data and destroyed all evidence that it even ran a business."

> Subaye Incorporation had an F-Score of 0.6 for its fraud year, according to the SEC AAER (#3458**):**

> "Subaye began promoting itself during 2010 as a provider of cloud computing services to Chinese businesses. According to the complaint, Subaye claimed to have over 1,400 sales and marketing employees in 2010, with reported revenues of thirty-nine million dollars that fiscal year and projected revenues of more than seventy-one million dollars for 2011. However, by May 2011, according to the complaint, and Subaye was revealed to be a company with no verifiable revenues, few, if any, real customers, and no infrastructure to support its claimed cloud computing business. The complaint alleges that the business that Subaye had presented to investors and described in filings with the Commission was imaginary and non-existent…The complaint further alleges that Crane (i.e., the former CFO) signed Subaye's materially misleading filings with the Commission that contained false statements about Subaye's revenues, business, number of employees, and number of paying customers. According to the complaint, Crane also falsified the books, records, and accounts of Subaye and provided false information to Subaye's outside auditors."

On March 14, 2011, Subaye disclosed that the Company's Chief Financial Officer, James T. Crane, had resigned from the Company. On April 7, 2011, Subaye further disclosed that its independent auditor had formally resigned on April 1, 2011. On the same day that Subaye disclosed the auditor resignation, NASDAQ halted Subaye's public trading.

Considering the nature of some of these samples detailed above, the F-Score may not always be designed to capture and bring to attention potential fraud. For example, the disclosure of related party transactions, as opposed to the actual recording of the transactions themselves, and the relative size of the infraction, could lead to a lower than expected F-Score. In other situations, intentional misstatements that may be balanced and spread out across multiple financial statement accounts could reduce the ability of the model to detect potential fraud. In other cases, however, like any model, it is not meant to work every time it is deployed and should be viewed more as a supplemental tool for potential fraud alongside other techniques. In examining these four samples above, however, our development of other potential sources of red flags for fraud continues to become apparent. For example, in the case of China Northeast Petroleum, auditor attributes or governance might be helpful indicators to supplement situations where an F-Score might fall below the desired level, as discussed previously in our literature review.

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Exhibit 1: Sample Selection

Total AAER firms in the last decades (From 2003 to the first quarter of 2014)	550
Total AAER firms related to China-based companies	25
Less:	
AAER firms not referencing violation of Rule 10(b)-5	0
AAER firms involve either public announcements or wrongdoing unrelated to financial misstatements (such as bribes or disclosure-related issues, fraud in registration statements)	0
AAER firms about quarterly financial statement fraud	0
Financial, insurance, and CPA companies	2
Subtotal companies	23
Less:	
Duplicate AAER firms from the same company	6
Total companies	17

Note: We follow the sample of Dong *et al*., (2014).

Exhibit 2: Change in Auditors for RINO International Corp. and Universal Travel Group
Source: An (2014)

RINO International Corp. (Between 2006 to 2010 Changed Auditors Three Times)

Prior to 2007: S.W. Hatfield, CPA
2007: Jimmy Cheung and Co. (issued clean report for 2007)
2008—2010: Frazer Frost, LLP (issued clean report for 2008 and 2009)

- On November 18, 2010, Frazer Frost delivered a letter advising that "the Company to promptly notify any person or entity that is known to be relying upon or is likely to rely upon our audit report(s) for the periods ended December 31, 2008 and December 31, 2009 and reviewed quarterly financial statements for periods between March 31, 2008 to September 30, 2010 that they should no longer be relied upon, and that revised financial statements and revised auditor's report(s) will be issued upon completion of an investigation." On the same day, RINO's Board of Directors made the same filing.

- Frazer delivered this letter ten days after the Muddy Waters, LLC (2011) released its research report.

Universal Travel Group (Between 2006 to 2011—Changed Auditors 5 Times)

MSB, CPA, P.C. gave a clean report from 2006 to 2008; resigned on June 30, 2009.
June 2009—ACSB and Co., was appointed (gave a clean report for 2009). However, ACSB pointed out deficiencies in internal control and was dismissed by UTG on Sept 1, 2010.
Sept 2010—Appoint GKM; GKM resigned within one month (no reason cited).
Sept 30, 2010—appoint Windes and McClaughry; resigned on April 9, 2011:

- Reason: No longer able to complete the audit process.
- Windes and McClaughry questioned the authenticity of audit confirmations and lack of evidence of certain tour package contracts and related cash payments. UTG, however, did not agree with these arguments. Windes and McClaughry did not issue any opinion on UTG's financial statements for 2010.

April 2011—Appoint EFP Rotenberg and Co., LLP. Rotenberg issued a clean report for 2010.

Table 1: Sample Detail

Company Name	Ticker	SIC	Total assets	Violation/Fraud Year	Delisted Year or SEC Revoked the Registration
China Media Express Holdings	CCME	7310	82,979,000	2009	2011
China Natural Gas, Inc.	CHNG	4923	247,449,000	2010	2012
China North East Petroleum Holdings Ltd.	NEP	1311	117,731,000	2009	2012
Keyuan Petrochemicals	KEYP	2860	150,500,000	2010	2011
Puda Coal, Inc.	PUDA	1221	111,201,000	2009, 2010	2011
RINO International Corp.	RINO	3569	118,628,000	2008, 2009	2010
SUBAYE, Inc.	SBAY	7374	48,104,000	2010	2011
Universal Travel Group	UTRA	4700	49,427,000	2008-2010	2012
China Sky One Medical, Inc.	CSKI	2834	37,285,000	2007, 2008	2012
ChinaCast Education Corp.	CAST	8200	438,514,000	2010	2012
AgFeed Industries	FEED	0200	137,055,000	2008-2010	2012
Yuhe International, Inc.	YUII	2015	76,763,000	2009, 2010	2011
AutoChina International Ltd.	AUTCF	5500	500,206,000	2010, 2011	No
China Yuchai International Ltd.	CYD	3510	827,690,000	2005	No
China Agritech, Inc.	CAGC	2870	100,613,000	2009	2011
Worldwide Energy and Mfg USA, Inc.	WEMU	3990	34,650,123	2009	2012
China Holdings, Inc.	CHHL	2833	33,202,000	2008	No

Table 2: F-Score, Sales Growth and Gross Profit Margin of Sample Firms

	Company Name	Fraud year (year ^{t})	F-Score	Sales Growth (year ^{t}, year $^{t-1}$, year $^{t-2}$,)	Gross Profit Margin (year ^{t}, year $^{t-1}$, year $^{t-2}$, year $^{t-3}$)
1	China Media Express Holdings, Inc.	2009	0.53	0.52, 1.44	0.69, 0.64, 0.55
2	China Natural Gas	2010	0.51	0.110, 0.197	0.285, 0.378, 0.362
3	China North East Petroleum Holdings	2009	0.82	0.10, 2.01	0.60, 0.52, 0.71
4	Keyuan Petrochemicals	2010	N/A		
5	Puda Coal, Inc.	2010, 2009	0.74; 1.89	0.50, -0.12, 0.47	0.13, 0.09, 0.13, 0.18
6	RINO International C	2009, 2008	0.9; 4.93	0.383, 1.190	0.381, 0.396, 0.491
7	SUBAYE, Inc.	2010	0.6	-0.184, 0.645	0.940, 0.600, 0.458
8	Universal Travel Grp.	2010, 2009, 2008	2.64; 1.46; 2.25	0.566, 0.275 0.733	0.278, 0.339, 0.329
9	China Sky One Medical	2008, 2007	1.42; N/A	0.862, 1.481	0.756, 0.778, 0.752
10	ChinaCast Education Corp.	2010	1.31	0.512, 0.198	0.664, 0.729, 0.558
11	AgFeed Industries	2010, 2009, 2008	2.29; 1.21; 6.23	0.407, 0.206, 2.973	0.075, 0.169, 0.251, 0.292, 0.379
12	Yuhe International, Inc.	2010, 2009	1.67; N/A	0.428, 0.364	0.394, 0.395, 0.420
13	AutoChina	2011, 2010	2.35; n/a[a]	-0.032, 0.899	0.182, 0.144, 0.103
14	China Yuchai International Ltd.	2005	1.25	0.069, 0.222	0.212, 0.306, 0.329
15	China Agritech, Inc.	2009	1.79	0.683, 0.152	0.379, 0.450, 0.518
16	Worldwide Energy and Manufacturing USA, Inc.	2009	2.10	0.355, 2.784	0.135, 0.134, 0.312
17	China Holdings, Inc.	2008	N/A		
Total red flags			15/21 (71%); Average: 1.85		

[a] 2008 financial statement was not consolidated. As a result, the F score for 2010 cannot be calculated.

Note:

1. Three years financial information is needed to calculate the F-Scores—companies four and seventeen do not have enough information to calculate for the alleged fraud year. As a result, they are indicated by N/A.

2. For China Media Express Holding, the fraud year is 2009 (year ^{t}) and the F-Score is 0.53; the sales growths are 0.52 and 1.44 for 2009 (year ^{t}) and 2008 (year $^{t-1}$), respectively. Similarly, for multiple fraud years such as Puda Coal (2010, and 2009), the F-Score are 0.74 and 1.89 for 2010 and 2009, respectively; while sales growth is 0.50, -0.12, 0.47, for 2010, 2009 and 2008, respectively.

Table 3: Change in Directors and Change in Auditors

	Company	Violations/Fraud Year	Directors/Board Resigned	Change in Auditor	Auditor's name (Current Auditor; Past Auditors)
1	China Media Express Holdings	2009	Yes 2009; 2011	Yes	#*Deloitte (Dec. 2009 to Mar. 2011)
2	China Natural Gas	2010	08-10: CFO changed 6 times	Yes (3 times)	Friedman; Prior auditors: WWC Prof. Corp, * Moore and Associates
3	China North East Petroleum Holdings	2009	Yes, 2010	Yes	***Baker Tilly (HK)since 2009; Prior auditor: Jimmy C.H. Cheung and Co.
4	Keyuan Petrochemicals	2010	No	Yes	*GHP Horwath (since July 201); Prior auditor: KPMG for a few months
5	Puda Coal, Inc.	2009, 2010	No	Yes,	Paritz and Company, P.A. since Aug. 2011; Prior auditor: #*Moore Stephens (2005-2011)
6	RINO International Corp.	2008, 2009	Yes, 07-10: CFO changed 4 times	Yes, 06-10: 3 times	***Frazer Frost (see An (2014) and Exhibit 2)
7	SUBAYE, Inc.	2010	Yes, May 2011	Yes, 10-12 changed 2 times	DNTW (HK); Prior auditor: #*PwC (Dec 2010 – early 2011)
8	Universal Travel Group	2008-2010	Yes, 06-11: CFO changed 4 times	Yes, 06 –11: changed 5 times	***EFP Rotenberg and Co. (see An (2014) and Exhibit 2)
9	China Sky One Medical, Inc.	2007, 2008	Yes, 2008; 2011	Yes, 06-08: changed 3 times	MSPC, Prior auditors: ***Sherb and Co., Patrizio and Zhao
10	ChinaCast Education	2010	Yes, 2009	No	*Deloitte
11	AgFeed Industries	2008-2010	Yes, Dec 2011; July 2012	Yes	McGladrey; Prior auditor: *Goldman (2007-2010)
12	Yuhe International, Inc.	2009, 2010	Yes, July 2012	Yes, 3 times	Marcum Bernstern; Prior auditors: Grant Thornton; ***Child Van Wagoner and Bradshaw,
13	AutoChina International	2010, 2011	Yes, 2009	Yes	Marcum Bernstein and Pinchuk; Prior auditor: #*PwC (2007-2009)
14	China Yuchai Int.	2005	Yes, Nov. 2010	Yes, 2007	EY; Prior auditor: * KPMG (Dec. 2006-Apr.2009)
15	China Agritech	2009	Yes, 2012; 2009; 2008	Yes, 07-11: changed 4 times	Simon and Edward; Prior auditor: #*Crowe Horwath (see note 2)
16	Worldwide Energy and Mfg. USA, Inc.	2009	Yes, 2011; CFO changed 3 times,	Yes	Windes and McClaughry; Prior auditor: *Child, Van Wagoner and Bradshaw (2008-2009)
17	China Holdings, Inc.	2009	Yes, 2009	Yes	Sam Kan and Company; Prior auditor: Sherb 2007, RBSM 2006

Note 1: ***issued clean report, SEC litigation settled; #* resigned or did not agree during fraud year(s); *auditor for the fraud year(s) but not at fault with SEC.
Note 2: Growe Horwath replaced Kabani in April 2008; EY to replace #*Crowe Horwath as of Nov 13, 2010—EY was dismissed on March 14, 2011(2007–2011; four auditors).

Table 4: Auditors' Inspection Frequency, Current, and Past Auditors

	Company	Violations/ Fraud Year	Inspection Frequency[a]	QC Criticism available? Yes or No (If yes, state year)	Auditor's name (Current Auditor; Past Auditors)
1	China Media Express Holdings	2009	Annual	No	#*Deloitte (Dec. '09 to Mar. 11)
2	China Natural Gas,	2010	1. 3/2010; 7/2013; 2. 3/2014 3.10/2008; 7/2010	No	Friedman; Prior auditors: WWC Prof. Corp, * Moore and Associates
3	China North East Petroleum Holdings	2009	1. No Insp. date; 2. 10/2009; 2/2011;	No	***Baker Tilly (HK) since 2009; Prior auditor: Jimmy C.H. Cheung and Co (HK)
4	Keyuan Petrochemicals	2010	1. 1/2009; 9/2010; 10/2013 2. Annual	No	*GHP Horwath July 2011-Jan 2011; Prior auditor: KPMG (for a few months)
5	Puda Coal, Inc.	2009, 2010	1. Annual 2. 11/2005; 4/2009;	Yes, 2012	Paritz and Company, P.A. since Aug. 2011; Prior auditor: #*Moore Stephens (HK) (2005-2011)
6	RINO International Corp.	2008, 2009	10/2011; 11/2013	No	***Frazer Frost (see An (2014) and Exhibit 2)
7	SUBAYE, Inc.	2010	1. 10/2011; 12/2013; 2. Annual	No	DNTW (HK); Prior auditor: #*PwC (Dec 2010 – early 2011)
8	Universal Travel Grp.	2008-2010	3/2011; 12/2011; 10/2013; 7/'15	Yes, 2011	***EFP Rotenberg and Co. (see An (2014) and Exhibit 2)
9	China Sky One Medical	2007, 2008	1. 5/2011; 10/2013; 7/2015 2. 3/2011; 10/2013	No	MSPC; Prior auditors: ***Sherb and Co.
10	ChinaCast Education	2010	Annual	No	*Deloitte
11	AgFeed Industries	2008-2010	1: '05-'10 annual; 2/2012; 2: 8/2011; 1/2013; 12/'14 Annual	No	McGladrey; Prior auditor: *Goldman (2007-2010)
12	Yuhe International, Inc.	2009, 2010	1. last insp – 12/2013; 2. 7/2010; 11/2013	Yes, C.V.W. and Bradshaw ('09 and '10)	Marcum Bernstern; Prior auditors: ***Child, Van Wagoner and Bradshaw
13	AutoChina International	2010, 2011	1. last insp – 12/2013 2. Annual	No	Marcum Bernstein and Pinchuk; Prior auditor: #*PwC (2007-2009)
14	China Yuchai Int.	2005	1. Annual; 2. Annual	No	EY; Prior auditor: * KPMG (Dec. 2006-Apr.2009)
15	China Agritech, Inc.	2009	1. 7/2010; 12/2012; 7/2015 2. Annual	No	Simon and Edward; Prior auditor: #*Crowe Horwath (see note 2)
16	Worldwide Energy and Mfg. USA	2009	1. 1/2009; 10/2010; 10/2013 2. 7/2010; 11/2013	Yes, C.V.W. and Bradshaw ('09 and '10)	Windes and McClaughry; Prior auditor: *Child, Van Wagoner and Bradshaw (2008-2009)
17	China Holdings, Inc.	2009	1. 12/2011; 5/2013 2. 3/2011; 10/2013	No	Sam Kan and Company; Prior auditor: Sherb 2007; RBSM, 2006

[a] Annual implies annual inspection; if an auditing firm is not inspected annually, the month and year of the most recent inspections are indicated. For example, China Natural Gas—current auditor is Friedman (Inspected on Mar. 2010 followed with Jul. 2013) and its past auditors were WWWC Prof. Corp. (inspected on Mar. 2014) and Moore and Associates (inspected on Oct. 2008 followed with Jul. 2010).
Note 1: *** issued clean report, SEC litigation settled; #* resigned or did not agree during fraud year(s); *auditor for the fraud year(s) but not at fault with SEC.
Note 2: Growe Horwath replaced Kabani in Apr 2008; EY to replace #*Crowe Horwath as of Nov 13, 2010—EY was dismissed on March 14, 2011 (2007–2011; four auditors).

Table 5: Alleged Problems/Violations for the Sample Companies

		Inflate cash	Inflate Revenue	Inflate Earnings	Related party transactions	Inflate or non-existing assets	Hide Liabilities or Expenses	Subsidiary Ownership	Subsequent events or lack of disclosure	Mistakes in Financial Statement	Other accounting irregularity
1	China Media Express	✓	✓			✓				✓	✓
2	China Natural Gas				✓				✓		
3	China North East Petroleum				✓				✓	✓	
4	Keyuan				✓						
5	Puda Coal							✓	✓	✓	✓
6	RINO		✓		✓	✓			✓	✓	✓✓
7	Subaye		✓			✓				✓	✓✓
8	Universal Travel Group		✓	✓					✓	✓	✓✓
9	China sky One		✓							✓	✓
10	ChinaCast Education	✓		✓					✓	✓	✓
11	AgFeed		✓							✓	✓✓
12	Yuhe										✓
13	AutoChina		✓		✓					✓	✓✓
14	China Yuchai									✓	✓
15	China Agritech		✓			✓			✓	✓	
16	Worldwide Energy			✓	✓			✓	✓	✓	✓
17	China Holdings										✓
	Total frequency	2	8	3	6	4	0	2	8	13	N/A

Note:
1. ✓✓ more than one allegation in the category of "other accounting irregularity".
2. For China Yuchai, the AAER is related to year-end adjusting entry for 2005, resulted in reported earnings of $8.5 million higher than should have been.